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FOREWORD

On 26 February 2026, the Myanmar Academy of Arts and Science (MAAS) was reconstituted to accelerate the implementation of four different strategies:

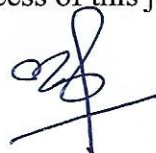
- (a) encouraging universities and colleges to engage in more research activities
- (b) organizing domestic and international research conferences
- (c) publishing research journals and proceedings, and
- (d) fostering research collaboration among local and international universities

Since the year 2001, the MAAS has been making every effort to fulfil these important functions in collaboration with universities and colleges across the country. As a result, the MAAS has published research papers in 23 volumes on diverse academic disciplines in the Journal of the Myanmar Academy of Arts and Science. It is a great honor to say that the 24th research conference was successfully held at the University of Yangon on 9–11 March 2024. The theme of this conference is '*Research and Innovation for Peace, Prosperity and Sustainability*'. A total of 369 research papers presented by both faculty and postgraduates at the conference have been published in Volume XXIII as follows:

Vol. XXIII, No. 1A	Chemistry
Vol. XXIII, No. 1B	Chemistry, Industrial Chemistry
Vol. XXIII, No. 2	Physics, Mathematics and Computer Studies
Vol. XXIII, No. 3	Zoology, Marine Science, Environment and Water Studies
Vol. XXIII, No. 4	Botany, Geology
Vol. XXIII, No. 5	English, History, Philosophy, Geography, Psychology, International Relations, Oriental Studies
Vol. XXIII, No. 6	Myanmar
Vol. XXIII, No. 7	Law, Library and Information Studies, Archaeology, Anthropology, Language and Linguistics
Vol. XXIII, No. 8	Applied Statistics, Management Studies, Statistics, Commerce, Economics, Journalism and Tourism
Vol. XXIII, No. 9A	Educational Theory and Management, Curriculum and Methodology
Vol. XXIII, No. 9B	Educational Psychology

I firmly believe that the empirical research findings from these papers will provide practical assistance for research candidates and those who are interested in research work. I am also hopeful that these findings will significantly contribute to the well-being of the community at large as well as the State's socio-economic development.

On behalf of the members of the MAAS, I would like to offer my special gratitude and thanks to those who have contributed their research papers to this journal. I also do appreciate the editing work done by senior professors and scholars of high standing as well as the members of the MAAS Editorial Board. Finally, my heartfelt thanks go to the members of the Publication Committee and the Department of Higher Education for their great dedication to the success of this journal.



Dr. Soe Win
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HOUSEHOLD COOKING FUEL USE PATTERNS AND DETERMINANTS IN MYANMAR*

Mar Mar Aye¹

Abstract

Choosing an appropriate types of cooking fuel is essential for safeguarding good health and enhancing the well-being of people in developing countries. In Myanmar, the majority of rural and urban households rely on solid fuels for cooking, and there are adverse effects of such solid fuels on human health and environmental sustainability. This study investigates the determinants of household cooking fuel choice using the data from the Myanmar Inter-Censal Survey MICS (2019). The principal component analysis, Pearson chi-square association test, and a binary logistic regression model are applied. It is found that 65% of households use unclean cooking fuels, but 35% of households use clean cooking fuels. According to the results of the chi-square test of association, age, gender, marital status, education, and occupation of household head, household size, wealth quintiles, location based on urban and rural, and location based on states and regions are related to household cooking fuel choice. Regarding the results of the binary logistic regression model, female-headed households, married, widowed and divorced household heads, employed household heads, household heads with higher education, and rich households have a greater chance of using clean fuels. However, younger household heads, larger families and those residing in rural areas have less chance to use clean fuels.

Keywords: Cooking fuel choice, Clean fuel, Determinants, Binary logistic regression

Introduction

Energy is an essential ingredient for social, economic and industrial development of every nation (Oyedepo, 2012). It is also a basic necessity of life as it is required by every household for cooking, lighting and heating. At the world level, 40% of the population lack access to clean cooking fuel and technologies rely on polluting fuel like wood, charcoal, other solid biomass, kerosene, and coal (Puzzolo et al., 2017). In spite of increased awareness of the adverse consequences of the use of unclean fuel and innovations on clean energy technology, around 2.8 billion people do not have access to clean cooking fuel (Karimu, 2015).

Globally, about 2.5 billion still depend on traditional biomass fuels to meet their primary cooking energy requirements while over one billion people do not have access to electricity, International Energy Agency (IEA), 2018. Low-income households primarily rely on fuel wood, dung, and residue as their main source of energy, whereas wealthier families tend to utilize electricity and liquefied petroleum gas (LPG) (Behera et al., 2015).

Households in developing countries consumed about 90% of the energy and cooking fuel choices have become a major concern for both households and policymakers (Foell et al., 2011). There are other numerous consequences with the use of inappropriate cooking fuels in developing countries. Fuel wood and other solid fuel-based energy sources for cooking remain significantly dependent by households in developing countries. The demand for electricity and liquefied petroleum gas (LPG) have increased while that for kerosene and gasoline declined as reported by International Energy Agency (IEA, 2007).

*Special Award (2024)

¹Department of Applied Statistics, Yangon University of Economics

According to the 2019 Myanmar Inter-Censal Survey, less than 40% of households have access to electricity. The choice of clean fuels or other liquid fuels used for cooking was less than 1.5%. The use of charcoal is far less than the use of firewood. Firewood is the main for cooking in almost all rural areas of Myanmar. Therefore, this study investigates how socioeconomic and demographic factors relate to household choice for cooking fuel. Specifically, it aims to identify the major determinants of the choice of cooking fuel and to analyze how these determinants have significant impact on cooking fuel choice.

Literature Review

Several studies on cooking fuels at the household level in developing countries have shed light on the determinants that influence a household's decision to choose a particular cooking fuel. Paudel et al. (2018) studied that understanding the determinants of the choice of cooking fuel in Afghanistan. The survey collected information data on ownership, access to public services and housing characteristics. The multinomial logistic regression model was used in which cooking fuel choice (LPG, Wood and Straw/Shrubs) as the dependent variable and socioeconomic and demographic variables as the explanatory variables. This study found that place of residence in urban areas, availability to electricity, wealth quintile, high education, marital status and separate cooking place plays an important role of household fuel choice in this country.

Ali et al. (2019) also identified the determinants of cooking fuel choice among rural household in Pakistan. Based on the data of cooking fuel choices such as (Gas, Fuelwood, and Dung/residue) which were considered as the dependent variable and a set of socioeconomic and demographic variables as the explanatory variables, Multinomial logistic regression was used. The results of this study showed that education is the most important determinant of adoption of clean fuel for cooking in rural Pakistan, and then household size, and employment sector.

Mperekumana et al. (2021) studied the effect of socioeconomic factors on household fuel choice in Northern Sudan. Multinomial logistic regression model was used to predict the occurrence of socioeconomic and demographic impact. In this paper, primary cooking fuel choice (liquefied petroleum gas (LPG), firewood and charcoal) was used as dependent variable, and gender, location, household size, education level, migration, cooking time, place of cooking, monthly income, cooking experience, size of apartment and distance to fuel market were used as independent variables. Results of the Multinomial logistic regression analysis revealed that cooking fuel choice is significantly influenced by location, household size, size of apartment and educational level.

Meng et al. (2021) observed the determinants of cooking fuel usage in Sub-Saharan urban households. The order probit model was used. The findings indicated that higher income and better education were linked to a higher probability of using clean cooking fuel more and using unclean fuel less, which had positive effects on the health of those preparing meals and the environment.

Dongzagla and Adams (2022) also examined the factors influencing household cooking fuel choice in Ghana. In this study, the data were analyzed using binary logistic regression model. The results of this study indicated that age, marital status, education level of household head, household size and household wealth are determinants of the household cooking fuel choice in Ghana.

Data and Methods

Data and Variables of the Study

In this study, the data were obtained from the 2019 Myanmar Inter-Censal Survey (MICS) conducted by the Ministry of Labor, Immigration and Population. Although there were 548,553 people participated in MICS (2019), this study focused on 132,092 household heads. The household cooking fuel types are grouped into two categories: “clean fuel” and “unclean fuels”. Clean fuels included electricity, liquid petroleum gas (LPG), natural gas, and biogas. Unclean fuels included coal, lignite, charcoal, wood, straw, shrubs, grass, agricultural crops, animal dung, and others. The dependent variable of the study is whether household used clean cooking fuel or not (i.e, 1 for households which used clean fuels, and 0 for households used unclean fuels). The independent variables are gender, age, marital status, education and occupation of household heads, household size, wealth quintile, location based on residence and location based on states and regions. The description and classification of dependent and independent variables are shown in Appendix Table (1).

Methods

In this study, descriptive statistics, principal component analysis, Pearson's chi-square association test, and the binary logistic regression model were applied. Firstly, the descriptive statistics was used to investigate the household cooking fuel patterns and socioeconomic and demographic factors of household heads. After that principal component analysis was conducted to construct household wealth index. Then, the relationship between socioeconomic and demographic characteristics and the household cooking fuel choice were analyzed through chi-square test of association. Binary logistic regression model was used to explore the determinants of the household cooking fuel choice.

Binary Logistic Regression Model

Binary logistic regression is a prognostic model that is fitted where there is dichotomous/binary dependent variable. Since logistic regression calculates the probability of an event occurring over the probability of an event not occurring, the impact of independent variable is usually explained in terms of odds. In logistic regression, the mean of the response variable Y in terms of an explanatory variable X is modeled relating Y and X through the equation

$$Y = E(Y / X) + \varepsilon_i \quad (1)$$

For a binary dependent or response variable ‘Y’ and an independent or predictor variable ‘X’, the probability for the distribution of ‘Y’ can be written as:

$$P(Y = 1) = \pi$$

$$P(Y = 0) = 1 - \pi$$

The logistic regression model is therefore given as

$$\pi_i = \frac{\exp(\sum_{j=1}^p \beta_j X_{ij})}{1 + \exp(\sum_{j=1}^p \beta_j X_{ij})} \quad (2)$$

Findings

Construction of Wealth Index

An indicator of relative poverty is the wealth index. Instead of using financial income as a basis, the wealth index uses asset ownership and household characteristics. To develop a meaningful wealth index using principal component analysis (PCA), a variety of asset ownership and household characteristics are needed. According to the meaningful wealth index, relative wealth is supposed to be represented by the first principal component of the PCA. The set of variables used in PCA methodology for determining wealth quintiles of Myanmar are presented in Appendix Table (2).

This study used a series of nineteen assets, including three household characteristics, access to three public services, and thirteen asset ownerships. The housing characteristics are the type of housing unit, roof, and floor. The public services are lighting, access to clean water, and toilets. The assets owned are motorcycle, mobile phone, canoe/boat, internet at home, television, motor boat, cart, radio, four-wheel tractor, car, line phone and computer. The type of housing unit is divided by (condominium, apartment/flat, bungalow/brick house, semi-pucca) and others (wooden house, bamboo, hut 2-3 years, hut 1 year). The roof is divided by (dhani/palm/ in leaf, bamboo, earth) and (wood, corrugated sheet, tile, brick, concrete, and others). The floor is divided into bamboo, earth, wood, tile, brick/concrete, and others. Types of ownership are divided by owned and rented (government, private, provided free, and others). Motorcycle, mobile phone, canoe or boat, internet at home, television, motor boat, cart, radio, four-wheel tractor, car, computer, line phone, and bicycle are considered into yes or no. Lighting is divided by grid electricity (government grid, border country grid, community-based grid electricity, off-grid electricity (generator (private), solar system energy, wind and water mill), and others. Drinking water is divided by pipe water (pipe into dwelling, pipe into compound, yards or plot, pipe to neighbor, public tap/standpipe) and others. Toilet systems are divided by flush to piped sewer system, flush to septic tank, flush to pit latrine, and others. The factor weight, mean, and standard deviation are described in Appendix Table (3).

Each variable is given a factor weight based on the first principal component. The factor weight represents the relative importance of each variable to the constitution of the first principal component. Through PCA, each asset and household characteristics is given a factor weight and each respondent can be given a wealth index score from minimum to maximum. The range of wealth index scores and percentage corresponding to each wealth quintile for Myanmar are described in Table (1). It can be seen that 20% of households are poorest, poorer and middle wealth quintiles, 20.1% of households are richer wealth quintiles and 19.9% of households are richest wealth quintiles.

Table (1) Wealth Index Score of Myanmar

Quintile	Minimum Wealth Index Score	Maximum Wealth Index Score	Percent (%)
Poorest	-3.2168	-0.8656	20.00
Poorer	-0.8656	-0.1613	20.00
Middle	-0.1612	0.3644	20.00
Richer	0.3645	0.9001	20.10
Richest	0.9002	2.5614	19.90

Source: SPSS output

Descriptive Analysis

The types of cooking fuel choice and socioeconomic and demographic characteristics of the sample households are described in Appendix Table (4). According to the types of cooking fuel choice, 65% of households use the unclean cooking fuels whereas 35% households use the clean cooking fuels. Regarding socioeconomic and demographic characteristics, 31.60% of household heads are aged 60 years or older. As regards the gender of household heads, 76.30% are male and 23.70% are female, with 5.20% being single and 94.80% being marriage, widowed and divorced.

Furthermore, regarding the educational attainment of household heads, 48.50% have completed primary education, while 19.00% have reached the middle education level, 18.50% hold a higher education degree, and 14.00% have no formal education. In terms of household size, 49.20% of households have 4-6 members, while 10.80% have 7 or more members. In relation to wealth quintiles, 20% of households fall into the poorest, poorer, and middle wealth quintiles, while 20.10% and 19.90% are in the richer and richest wealth quintiles, respectively. The majority of household heads live in the Yangon, Mandalay and Ayeyarwady Regions. The most household heads 72.30% live in rural areas but 27.70% live in urban areas.

With regard to the primary use of cooking fuels in households, 39.0% of clean cooking fuels are used by female household heads, 43.9% by single household heads, and 58.7% by household heads with higher education levels. Additionally, 65.0% of households in the wealthiest quintile and 69.7% of those living in urban areas utilize clean fuels and the usage rates are 71.3% in the Yangon Region, 59.6% in the Mandalay Region, and 58.7% in Naypyidaw.

Bivariate Analysis

The relationship between socioeconomic and demographic characteristics and household cooking fuel choice was analyzed using the chi-square association test. The results are shown in Appendix Table (5). It is found that gender, age, marital status, education and occupation of household head, household size, wealth quintiles, location based on residence and location based on states and regions are significantly related to the household cooking fuel choice at the 1% significance level.

Multivariate Analysis

A binary logistic regression analysis is performed to analyze the influencing factors of the household cooking fuel choice. According to the model evaluation criteria (Pseudo $R^2 = 0.477$), 47.70% of the variation in household cooking fuel choice can be explained by socioeconomic and demographic characteristics. Likelihood ratio LR chi-square test of model coefficients shows that the addition of the independent variables improved the predictive power of the model. Regarding LR chi-square test of model, it has been found that the model is significant (chi-square = 45958.514, $df = 30$, $p\text{-value} = 0.000 < 0.01$). Hosmer and Lemeshow goodness of fit test states how closely the observed and predicted probabilities match. The results of Hosmer and Lemeshow statistics (chi-square = 33.857, $df = 8$, $p\text{-value} = 0.473 > 0.01$) show that the data fit the model well.

The results of the binary logistic regression model are shown in Appendix Table (6). It can be seen that gender, marital status, education, wealth quintiles and occupation of household heads are the influencing factors of household cooking fuel choices in Myanmar.

According to demographic characteristics, gender is statistically significant at 1% level.

Concerning the sex of household heads, female household heads are about 1.170 times more likely to use clean fuel compared to male headed household.

Regarding household heads' age groups 30 - 39 years, 40 - 49 years, 50 - 59 years, 60 years and above are significant at 1% level. Conversely the household heads' age groups of 30 - 39 years, 40 - 49 years, 50 - 59 years, 60 years and above are about 0.096, 0.046, 0.066 and 0.067 times less likely to use clean fuels compared to those age group below 30 years. The marital status of household heads is statistically significant at 1% level. Married, widowed and divorced household heads are about 1.096 times more likely to use clean fuel compared to single household heads.

Household size is significant at 1% level. The size of household with 4-6 members, 7 and more members are about 0.16 and 0.39 times less likely to use clean cooking fuel compared with 1-3 members. The location based on place of residence is statistically significant at 1% level. Household heads who live in rural areas are about 0.761 time less likely to use clean cooking fuel compared with urban areas. The location based on states and regions is statistically significant at 1% level. Household heads who live in Mandalay Region, Naypyidaw, Shan State, Mon State, Ayeyawady Region, Thnintharyi Region, Kayin State, Kayah State, Chin State, Sagaing Region, Bago Region, Magway Region, Rakine State and Kachin State are about 0.718, 0.896, 0.457, 0.38, 0.746, 0.754, 0.673, 0.650, 0.884, 0.869, 0.978, 0.772, 0.653 and 0.668 times less likely to use clean fuel compared with household heads who live in Yangon Region.

Regarding the socioeconomic characteristics, the educational level of household heads is statistically significant at 1% level. Household heads who achieved primary, middle and high level and above are about 1.609, 2.119 and 2.511 times more likely to use clean cooking fuel compared with though no education.

The occupation of household heads is statistically significant at 1% level. Employed household heads are about 1.241 times more likely to use clean cooking fuel than unemployed household heads. The wealth quintiles are statistically significant at 1% level. Household heads from poorer, middle, richer and richest households are about 4.315, 9.243, 14.284 and 20.739 times more likely to use clean cooking fuel compared with the poorest households.

Discussion

The study aims to observe the relationship between socioeconomic and demographic characteristics and the household cooking fuel uses in Myanmar. The results of this study show that age of the household head is significantly related to household cooking fuel used. The younger age of a household head is more likely to use clean fuel than the other age group. Therefore, the younger than the older household head is, the cook has a greater willingness to accept modern technologies. The results of the study are consistent with the findings of Dongzagla and Adams (2022).

Place of residence is a significant factor in the amount of household cooking fuel used. It can be seen that rural people are less likely to use clean fuels (electricity and LPG) compared to urban people. The findings of the study are consistent with the results of Paudel et al. (2018).

The household's wealth quintile is the most important predictor of household cooking fuel used. Rich households are more likely to use clean fuels (electricity and LPG) than poor households. Therefore, the results of this study are consistent with the findings of Meng et al. (2021).

Education is essential way to address the growing problems of the human environment. Having a better education will become understanding of the benefits of clean fuels and the drawbacks of biomass fuels. Awareness campaign and public education can play an important role in reducing the amount of polluted cooking fuel used.

Conclusion

This study focuses on household cooking fuel choices and its socioeconomic and demographic determinants in Myanmar. This study observes that most households in the states and regions use firewood as cooking fuel. The majority of households in Myanmar, both urban and rural areas, continue to rely on unclean fuels (such as solid fuels, firewood, kerosene, etc.). In rural areas, firewood is mostly used because there is no alternative fuel or electricity. It is found that the gender, age of household head, marital status, education, occupation, household size, wealth quintiles, residence and states and regions are significant effect on household cooking fuel choices in Myanmar.

In this study, the gender of household head, age, education level of household heads, wealth quintiles, and occupation of household heads are the major determinants of household cooking fuel choice. It was found that female household head, achieving higher education, and rich households are more likely to use clean cooking fuels. However, older household head, people residing in rural areas and larger family sizes are less likely to use clean cooking fuel.

This study suggests that all these variables should be taken into consideration by policymakers while addressing issues regarding household cooking fuel choice. Furthermore, one solution to the environmental implications of unsustainable wood exploitation is to make modern cooking fuels more available and affordable, as well as to make the use of firewood and charcoal more sustainable. In addition, proper policies should be designed to educate and train a large number of people in order to enhance the likelihood of households expanding their usage of alternative fuels. Finally, since the majority of people prefer firewood and charcoal as fuels, and because the transition to new and renewable energy could be sluggish and indirect, the reforestation strategy should be improved to resolve energy demand issues as well as other relevant problems such as soil erosion and desertification.

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Appendix

Table (1) Description and Classification of Dependent and Independent Variables

Dependent Variable	Classification
Types of cooking fuel	Y = 1 if the household uses clean fuels = 0 if the household uses unclean fuels
Independent Variables	Classification
Gender	X ₁ = 1 if the household head is male = 2 if the household head is female
Age (years)	X ₂ = 1 if the age of household head is below 30 years = 2 if the age of household head is 30-39 years = 3 if the age of household head is 40-49 years = 4 if the age of household head is 50-59 years = 5 if the age of household head is 60 years and above
Marital status	X ₃ = 1 if the household head is single = 2 if the household head is married, widowed and divorced
Education	X ₄ = 1 if the household head has no education = 2 if the household head completed primary = 3 if the household head completed middle = 4 if the household head completed high and above
Occupation	X ₅ = 1 if the household head is unemployed = 2 if the household head is employed
Household size	X ₆ = 1 if the household size is between 1 to 3 = 2 if the household size is between 4 to 6 = 3 if the household size is between 7 and above
Wealth quintiles	X ₇ = 1 if it is a poorest household = 2 if it is a poorer household = 3 if it is a middle household = 4 if it is a richer household = 5 if it is a richest household
Location based on residence	X ₈ = 1 if the household live in urban = 2 if the household live in rural
Location based on states and regions	X ₉ = 1 if the household live in Yangon region = 2 if the household live in Kachin state = 3 if the household live in Kayah state = 4 if the household live in Kayin state = 5 if the household live in Chin state = 6 if the household live in Sagaing region = 7 if the household live in Tanintharyi region = 8 if the household live in Bago region = 9 if the household live in Mgaway region = 10 if the household live in Mandalay region = 11 if the household live in Mon state = 12 if the household live in Rakine state = 13 if the household live in Shan state = 14 if the household live in Ayeyarwady region = 15 if the household live in Naypyitaw region

Source: 2019 Inter-Censal Survey, Department of Population, Ministry of Labor, Immigration and Population

Table (2) Selected Variables for Constructing Wealth Index

Housing Material Indicators	Code
Type of housing unit	0 = Wooden house, bamboo, hut 2-3 years, hut 1 year, other 1 = Condominium, apartment/ flat, bungalow/brick house, semi-pucca house
Roof	0 = Dhani/theke/palm/in leaf, bamboo, earth corrugated sheet 1 = Wood, tile/ brick/ concrete/ other
Floor	0= Dhani/theke/palm/in leaf, bamboo, earth, corrugated sheet 1 = Wood, tile/ brick/ concrete/ other
Electricity, Water Source and Sanitation	Code
Lighting	0= Polluted electricity 1= Non-polluted electricity
Drinking water	0= Improved water 1= Imported water
Toilet	0= Improved toilet 1= Imported toilet
Ownership of Household Assets	Code
Motorcycle	0=No 1=Yes
Mobile phone	0=No 1=Yes
Canoe/Boat	0=No 1=Yes
Internet	0=No 1=Yes
Television	0=No 1=Yes
Motor boat	0=No 1=Yes
Cart	0=No 1=Yes
Radio	0=No 1=Yes
Four-wheel tractor	0=No 1=Yes
Car	0=No 1=Yes
Computer	0=No 1=Yes
Line phone	0=No 1=Yes
Bicycle	0=No 1=Yes 1 = Yes 1 = Yes 1 = Yes

Source: 2019 Inter-Censal Survey, Department of Population, Ministry of Labor, Immigration and Population

Table (3) Factor Weight and Standard Deviation

Variables	Component 1	Mean	Std. Dev
Type of housing unit	0.6480	0.2937	0.4555
Roof	0.6660	0.8682	0.3394
Floor	0 .5240	0.7810	0.4136
Lighting	0 .5030	0.8710	0.3352
Drinking water	0 .2850	0.8397	0.3670
Toilet	0.3680	0.9262	0.2614
Motorcycle	0.4500	0.6291	0.4831
Mobile Phone	0 .559	0.8534	0.3537
Canoe/boat	-0.0870	0.0352	0.1843
Internet at home	0.5560	0.5500	0.4975
Television	0 .6520	0.5917	0.4915
Motor boat	-0.0800	0.0306	0.1721
Cart	0.4200	0.1791	0.3834
Radio	0.0400	0.1960	0.3970
Four-wheel tractor	0.1560	0.0372	0.1891
Car	0.4200	0.6519	0.2780
Computer	0.3520	0.0539	0.2258
Line phone	0.2030	0.0502	0.2184
Bicycle	0.2290	0.3529	0.4831

Source: SPSS output

Table (4) Percent Distribution of Household Cooking Fuel Choices and Socioeconomic and Demographic Characteristics in Myanmar

Variables	Classification	Household cooking fuel used (%)		Number	Percent
		Unclean	Clean		
Gender	Male	65.7	34.3	100847	76.30
	Female	61.0	39.0	31245	23.70
Household size	1-3	64.4	35.6	52872	40.00
	4-6	64.3	35.7	64964	49.20
	7 and above	66.4	32.6	14256	10.80
Age (years)	Less than 30	67.4	33.4	8672	6.60
	30-39	66.6	34.9	19674	14.90
	40-49	65.1	36.3	30043	22.70
	50-59	63.7	36.7	32027	24.20
	60 and above	63.3	35.4	41676	31.60

Variables	Classification	Household cooking fuel used (%)		Number	Percent
		Unclean	Clean		
Marital status					
	Single	56.1	43.9	6876	5.20
	Married, widowed, divorced	65.0	35.0	125216	94.80
Education	No education	80.4	19.6	18532	14.00
	Primary	72.3	27.7	64086	48.50
	Middle	55.9	44.1	25072	19.00
	High and above	41.3	58.7	24402	18.50
Wealth quintiles	Poorest	95.1	4.9	26443	20.00
	Poorer	80.7	19.3	26429	20.00
	Middle	63.5	36.5	26381	20.00
	Richer	48.5	51.5	26487	20.10
	Richest	35.0	65.0	26347	19.90
Location based on residence	Urban	30.3	69.7	36539	27.70
	Rural	77.7	22.3	95553	72.30
Occupation	Unemployed	61.9	65.8	42161	31.90
	Employed	38.1	34.2	89931	68.10
Location based on states and regions	Yangon	28.7	71.3	13751	10.40
	Kayah	53.6	46.6	16769	12.70
	Kayin	73.7	26.3	5531	4.20
	Chin	75.5	24.5	2654	2.00
	Sagaing	73.1	26.9	16780	12.70
	Tanintharyi	92.3	7.7	4671	3.50
	Bago	68.5	31.5	11275	8.50
	Magway	72.4	27.6	11394	8.60
	Mandalay	40.4	59.6	2161	1.60
	Mon	53.6	46.4	4867	3.70
	Rakine	60.7	39.3	2425	1.80
	Kachin	65.7	34.3	5426	4.10
	Shan	65.9	34.1	14844	11.20
	Ayeyarwady	87.8	12.2	15852	12.00
	Naypyitaw	41.3	58.7	3692	2.80
Total				132092	

Source: 2019 Inter-Censal Survey, Department of Population, Ministry of Labor, Immigration and Population

Table (5) Results of the Relationship between Household Fuel Choices and Socioeconomic and Demographic Characteristics in Myanmar

Variables	Classification	Chi -square	P- value
Gender	Male	229.032***	0.000
	Female		
Household size	1-3	24.558***	0.000
	4-6		
	7 and above		
Age (years)	Below 30	113.965***	0.000
	30-39		
	50-59		
	60-69		
	70 and above		
Marital status	Single	229.994***	0.000
	Married, widowed, divorced		
Education	No education	10276.141***	0.000
	Primary		
	Middle		
	High and above		
Wealth quantiles	Poorest	268881.209***	0.000
	Poorer		
	Middle		
	Richer		
	Richest		
Location based on Residence	Urban	25897.775***	0.000
	Rural		
Occupation	Unemployed	193.462***	0.000
	Employed		
Location based on Stages and Regions	Yangon	16880.579***	0.000
	Kayah		
	Kayin		
	Chin		
	Sagaing		
	Tanintharyi		
	Bago		
	Magway		
	Mandalay		
	Mon		
	Rakine		
	Kachin		
	Shan		
	Ayeyawaday		
	Naypyidaw		

Note: ***, **, * statistically significant at 1% level, 5% and 10% level.

Source: 2019 Inter-Censal Survey, Department of Population, Ministry of Labor, Immigration and Population

Table (6) Parameter Estimation of Binary Logistic Regression Model for Cooking Fuel Choices in Myanmar

	Classification	Coefficients	Odds Ratio	Standard Errors	P-value	95% CI	
						Lower	Upper
Constant		-2.493***	0.083	0.079	0.000		
Gender	Male (ref.)						
	Female	0.157***	1.170	0.024	0.000	1.115	1.227
Household size	1-3 (ref.)						
	4-6	-0.174***	0.840	0.016	0.000	0.815	0.867
	7and above	-0.495***	0.610	0.025	0.000	0.581	0.640
Age (years)	Less than 30 (ref.)						
	30-39	-0.101***	0.904	0.035	0.000	0.844	0.967
	40-49	-0.047***	0.954	0.025	0.000	0.909	1.002
	50-59	-0.068***	0.934	0.021	0.000	0.896	0.973
	60 and above	-0.07***	0.933	0.020	0.000	0.897	0.970
Marital status	Single (ref.)						
	Married widowed, divorced	0.091***	1.096	0.035	0.009	1.014	1.163
Education	No education (ref.)						
	Primary	0.475***	1.609	0.029	0.000	1.535	1.685
	Middle	0.751***	2.119	0.021	0.000	2.012	2.235
	High and above	0.921***	2.511	0.023	0.000	2.513	2.382
Wealth quintile	Poorest (ref.)						
	Poorer	1.462***	4.315	0.033	0.000	4.043	4.608
	Middle	2.224***	9.244	0.032	0.000	8.675	9.850
	Richer	2.659***	14.282	0.033	0.000	13.402	15.225
	Richest	3.032***	20.739	0.033	0.000	19.427	22.139
Location based on residence	Urban(ref.)						
	Rural	-1.430***	0.239	0.016	0.000	0.232	0.247
Occupation	Unemployed (ref.)						
	Employed	0.216***	1.241	0.016	0.000	1.203	1.280
	Yangon(ref.)						
	Kayah	-1.051***	0.350	0.052	0.000	0.312	0.378

Explanatory variables	Classification	Coefficients	Odds Ratio	Standard Errors	P-value	95% CI	
						Lower	Upper
	Kayin	-0.061***	0.941	0.065	0.000	0.935	1.208
	Chin	-2.153***	0.116	0.054	0.000	0.104	0.129
	Sagaing	-2.034***	0.131	0.066	0.000	0.115	0.149
	Tanintharyi	-1.40***	0.246	0.045	0.000	0.226	0.269
	Bago	-3.804***	0.022	0.072	0.000	0.019	0.026
	Magway	-1.48***	0.228	0.047	0.000	0.208	0.25
	Mandalay	-1.266***	0.282	0.053	0.000	0.254	0.313
	Mon	-0.476***	0.621	0.045	0.000	0.569	0.678
	Rakine	-1.059***	0.347	0.053	0.000	0.313	0.385
	Kachin	-1.102***	0.332	0.064	0.000	0.313	0.385
	Shan	-0.611***	0.543	0.047	0.000	0.293	0.377
	Ayeyawady	-1.371***	0.254	0.047	0.000	0.495	0.596
	Naypyidaw	-2.261***	0.104	0.049	0.000	0.095	0.278

Note: ***, **, * statistically significant at 1% level, 5% and 10% level.

Source: 2019 Inter-Censal Survey, Department of Population, Ministry of Labor, Immigration and Population

FACTORS INFLUENCING SELF-CARE ABILITY AMONG THE ELDERLY IN MYANMAR

Daw May Phyo Phyo Han¹

Abstract

With the rapidly growing aging population in Myanmar, effective self-care practices have become increasingly important for ensuring the well-being and independence of the elderly. This study investigates the relationship between self-care ability and various demographic and socioeconomic factors among the elderly population in Myanmar, using data from the 2019 Inter **Census** Survey. Descriptive analysis revealed that while most elderly individuals reported no difficulty with self-care, they did not meet the criteria for successful aging due to limited engagement in active and productive activities. Pearson's Chi-square test indicated that variables such as gender, age, place of residence, marital status, education, general health status, occupation, household income, and participation in social activities were significantly associated with self-care ability. Binary logistic regression analysis further demonstrated that poor general health, rural residence, and living in Rakhine State negatively impacted self-care ability, while higher educational attainment, increased income, female gender, marital status, employment, social engagement, and residence in certain regions (e.g., Kayin, Kachin, Mandalay, etc.) had a positive effect. These findings highlight the urgent need for comprehensive government interventions to support the elderly population, including improvements in healthcare access, expansion of social protection, enhancement of long-term and mental health care services, and the promotion of social inclusion.

Keywords: Self-care ability, Elderly, Inter **Census** Survey, Health care system, Social Protection, Quality of Life

Introduction

The global demographic landscape is undergoing prominent changes, particularly with the respect to the aging population. A significant change in the distribution of population towards older ages is the aging population. This is usually reflected in an increase of the population's mean and median age. Furthermore, it is widespread across the world and advanced in the most highly developed countries (Garrouste, 2014).

World Health Organization (WHO, 2010) expressed that the world's elderly are the result of the continued decline in fertility rates and increased life expectancy. Moreover, Bucher (2014) pointed out that the current trends in aging or the rejuvenation of the population might be due to the interaction between several demographic and socioeconomic factors.

In recent years, Myanmar has been experiencing a significant increase in its aging population. In the next 30 years, the number of aging populations in Myanmar will almost triple. Moreover, the number of elderly aged 60 years and above is projected to grow from 4.5 million to 13 million as the 20 percent of the population by 2050 (Department of Population, 2017). To address the challenges of growing population, it is needed to promote quality of life and live independently and enhance the self-care ability of aging population in Myanmar as long as possible. In fact, self-care ability is recognized as a critical determinant in managing the daily lives of elderly individuals and is inherently a multidimensional concept closely linked to health outcomes (Hoy et al., 2007).

In Myanmar, older adults face a range of challenges, including limited access to healthcare

¹ Department of Applied Statistics, Yangon University of Economics

services, economic instability, social isolation, and inadequate mental health support, all of which contribute to heightened vulnerability and hinder their capacity for self-care. This study aims to examine self-care ability among the elderly in Myanmar by analyzing its association with key demographic and socioeconomic factors. Understanding these relationships is essential for addressing the barriers faced by older adults and fostering conditions that support their independence and well-being. Enhancing self-care among the elderly not only improves their quality of life but also enables them to remain active contributors to society for offering guidance to younger generations, participating in the labor force, and alleviating pressure on national economic systems.

Literature Review

Hoy et al. (2007) conducted a comprehensive review aimed at developing an understanding of self-care as a health resource among the elderly, with a particular focus on its role in health promotion. The study primarily examined literature on medical self-care prior to 1989, highlighting its supplementary function alongside professional healthcare services. Utilizing primary data sources, the researchers employed an interactive comparison of data and matrix displays to analyze key themes related to self-care. The findings revealed a two-dimensional construct of self-care, encompassing both the action capabilities and the processes necessary for maintaining health, thereby positioning self-care as a critical component of elder health resource strategies.

Sundsli et al. (2012) reported that on the ability for self-care in urban living older people in Southern Norway. In this study, it was revealed that some other European countries have experienced more increase in longevity than Norway. The main objective was to express the self-care ability among home-dwelling elders who are living in urban areas in Southern Norway. It was only emphasized on the aspects of the general living conditions, sense of coherence, screened nutritional state, physical activity, perceived self-reported health, mental health, and perceived life situation. And then, it was applied to the univariate and multivariate statistical methods with a randomized sample of 1044 men and women aged 65 years and above living in urban areas in Southern Norway. The **result** was that only eighteen three percentage of participants had higher self-care ability for themselves. Moreover, self-care agency, perceived good health, being active, being frequently active, good mental health, not being at risk of undernutrition and life satisfaction had a significant positive impact on the self-care ability, whereas the perceiving helplessness, receiving home nursing, being anxious, and being at a more advanced age had a significant negative impact on the self-care ability. This study was also observed that people who are aged 85 years and above had worse mental health, less physically active and more at risk of undernutrition.

TABRIZI et al. (2018) reported on self-care ability of older people living in urban areas of Northwestern Iran. In this study, it was a cross-sectional study done in 2015. Totally, 220 sample data were collected by using the valid and reliable questionnaire (Persian version). Sampling was conducted through systematic random method. As statistical methods, **were** applied to descriptive **statistics**, independent t-test, one-way ANOVA, Mann-Whitney, Kruskal-Wallis test and Kolmogorov-Smirnov test. According to the results, it was observed that 96.8% of participating elderlies had poor self-care ability. The educational level, life status, employment

status and marital status had significant relations with self-care ability of elder people, whereas gender, income source, and insurance status had no relations with self-care ability of the elderly people. In addition to, it was also found that self-care ability of elder people in Tabriz was at weak level.

Wei and Zhang (2020) submitted analysis of the influencing factors on the preferences of the elderly for the combination of medical care and pension (CMCP) in long-term care facilities based on the Andersen model. The main purpose was to investigate the status quo and factors that influenced on the preferences of the elderly for the combination of medical care and pension (CMCP) in long-term care (LTC) facilities and to provide an evidence-based basis for building a multi-tiered, continuous LTC system with CMCP. This study was mainly emphasized on 3260 elder people who are aged 60 years with a multi-stage sampling method. And also, it was applied to the Chi-square test and binary logistic regression analysis based on the Andersen model. Based on the results, age, education level, residence, income, and self-care ability had the greatest impact on the preference for CMCP.

Noohi (2022) emphasized on the self-care ability of the elderly and related factors. The main purpose was to evaluate the influencing factors on self-care ability among elderly. It was used as the cross-sectional study. This study was conducted on 175 people who are aged over 60 years with the convenience sampling. Based on the results, it was observed that 69% of the participants had lower self-care ability. And also, it was found that men have significantly lower self-care ability than women. Moreover, self-care ability decreased with increased age. It can also be seen that the self-care ability was significantly lower at the lower level of education. And also, rural residents had significantly less self-care ability than urban residents. Married elder people and the elders with a higher level of income had significant positive impact on the self-care.

In previous research, the relationship between self-care ability and various demographic and socio-economic factors among the elderly has been extensively explored. Building upon this foundation, this study primarily focuses on examining self-care ability, a critical determinant in the management of daily activities and overall well-being among older adults. In fact, the study aims to address key research questions through clearly defined objectives that seek to identify and analyze the influence of demographic and socio-economic variables on the self-care capacities of the elderly population. These objectives are:

- to investigate the self-care ability and the demographic and socioeconomic characteristics of the elderly in Myanmar,
- to examine the relationship between the self-care ability and demographic and socioeconomic characteristics of the elderly in Myanmar, and
- to analyze the demographic and socioeconomic factors influenced on the self-care ability among the elderly in Myanmar.

Materials & Methods

Measures

This study was emphasized on the self-care ability among elderly in Myanmar as the outcome variable, which is measured as having difficulty in self-care ability or not. Moreover, the

explanatory variables such as demographic and socioeconomic characteristics among Myanmar elderly were selected from the previous researchers. However, there are some limitations in regard of 2019 ICS data. Hence, the demographic characteristics and socioeconomic characteristics being expected to have impact on self-care ability among Myanmar elderly are gender, place of residence, age, marital status, location, education, general health status, occupation, household annual income and engaging in any social activities. The classification of outcome variable and explanatory variables is expressed in Appendix Table (1).

Data

For this research, it was utilized the survey data which were collected from the 2019 Inter **Census** Survey, Department of Population (DOP) under the Ministry of Labour, Immigration and Population of the Republic of the Union of Myanmar. Those data capture was undertaken using Computer-Assisted Personal Interviewing (CAPI) system. However, it was only covered Conventional Households and designed to produce district level data (Department of Population, 2020). It represents in fact the nationally representative samples of 548,553 individuals in 132,092 selected households were interviewed. In this research, a sample of 61453 aging population who were aged 60 years and above was applied to study the self-care ability in Myanmar.

Methods

This study was applied to the descriptive analysis which is used to describe the demographic and socioeconomic characteristics of the elderly in Myanmar and Pearson's Chi-square test which is to examine the relationship between self-care ability and those characteristics of the elderly in Myanmar. Furthermore, binary logistic regression is also mainly employed to analyze the self-care ability by the demographic and socioeconomic characteristics of the Myanmar elderly.

Binary Logistic Regression Model

Binary logistic regression is utilized when the researcher desires to model the relationship between a binary dependent variable and one or more independent variables. In this study, it was attempted to model the likelihood of self-care ability in a sample of 61453 elderly **persons** in Myanmar. The response variable in logistic regression is usually dichotomous and Bernoulli random variable with two possible values, value 1 with a probability of success, $P(Y=1) = \pi$, or the value 0 with probability of failure $P(Y=0) = 1-\pi$. This type of variable is also called a binary variable. The binary logistic regression model in the usual form is

$$Y_i = E(Y_i) + \varepsilon_i$$

Since the distribution of the error term ε_i depends on the Bernoulli distribution of the response Y_i . The expected value of each Y_i is

$$E(Y_i) = \pi_i = \frac{\exp(\beta_0 + \beta_1 X_{1i} + \dots + \beta_k X_{ki})}{1 + \exp(\beta_0 + \beta_1 X_{1i} + \dots + \beta_k X_{ki})}$$

Where, $E(Y_i)$ = conditional mean given the value of X_i

β_0 = the constant of the equation

β_i = the coefficient of the predictor variable i

The logit transformation of the probability of i^{th} elderly who are not having difficulty in self-care ability should be written as linear combinations of predictors which can be shown as follows:

$$\text{Logit}(\pi_i) = \ln\left(\frac{\pi_i}{1-\pi_i}\right) = \beta_0 + \beta_1 X_{1i} + \dots + \beta_k X_{ki}$$

The exponential function of the regression coefficient is the odd ratio which is associated with a one-unit crease in the exposure (El-Habil, 2012). To be **validated** model, it was used the goodness of fit which describe how well it fits a set of observations. There are various diagnostics analyses being needed to conduct before estimating the coefficient for assessing the appropriateness of the developed logistic regression model. Moreover, goodness of fit commonly used in statistics are: the Wald test, Pearson's Chi-square, the likelihood ratio test and Hosmer and Lemeshow Goodness of fit test (Hosmer and Lemeshow, 2000).

Findings

Descriptive analysis

The analysis presented in Table (2) highlights the demographic and socioeconomic characteristics of 61,453 elderly individuals included in the study. The findings reveal that the majority (90.9%) do not report difficulties with self-care, suggesting a relatively high level of functional independence. The sample is predominantly composed of female (58.4%), married (57.5%), and unemployed (88.9%) individuals, with a significant proportion residing in rural areas (69.7%) and falling within the 60–69 age group. Geographically, the highest concentrations of elderly are found in Mandalay and Sagaing (each 13.6%), followed by Ayeyarwady (11.3%) and Yangon (10.9%), while Kayah records **were found to have** the lowest elderly population. Educational attainment is generally low, with 47.4% having completed below primary or primary education. In terms of health, 45.2% report good health status, and 56.0% belong to households with an annual income ranging from 10 to 50 lakh kyats. Notably, a significant proportion (62.4%) are not engaged in any form of social activity. These findings suggest that while many elderly individuals in Myanmar may be experiencing aspects of healthy aging in terms of self-care and perceived health status, the low levels of social engagement and economic activity indicate an absence of productive and active aging, thereby falling short of the criteria for successful aging. Therefore, it is recommended that the government and policymakers prioritize the development of comprehensive, community-based programs that integrate health literacy initiatives, strengthen rural healthcare infrastructure, and foster social participation to promote successful aging among Myanmar's older population.

Bivariate analysis

This study was applied to Pearson Chi-square test as the bivariate analysis to examine the association between self-care ability and demographic and socioeconomic factors influenced on it among Myanmar elderly **people**. The results of this test are exposed in Appendix Table (3). These results pointed out that the association between self-care ability and all of the demographic and socioeconomic characteristics of the Myanmar elderly such as gender, place of residence, age, marital status, location, education, general health status, occupation, household annual income and engaging in any social activities are statistically significant at the 1% level. Based on the significant associations identified, it is recommended that government and policymakers develop targeted and inclusive aging policies that address key demographic and socioeconomic disparities such as gender, education, income, and social engagement to enhance self-care ability and promote the well-being of the elderly population in Myanmar.

Multivariate analysis

In this study, binary logistic regression was employed as the primary analytical method to examine the influence of demographic and socioeconomic characteristics on self-care ability among the elderly in Myanmar. The model fitting statistics and parameter estimates for the binary logistic regression analysis are presented in Appendix Tables (4) and (5).

This study employed several model fitting criteria—including the Omnibus Test of Model Coefficients, Hosmer and Lemeshow Goodness-of-Fit Test, -2 Log Likelihood, Cox & Snell R^2 , Nagelkerke R^2 , and overall correct classification rate to assess the adequacy of the binary logistic regression model in predicting self-care ability among the elderly in Myanmar. The Omnibus Test of Model Coefficients yielded a Chi-square value of 92,838.710, which was statistically significant at the 1% level, indicating that the model with one or more explanatory variables provides a significantly better fit than a null model without predictors. The Hosmer and Lemeshow Test produced a Chi-square statistic of 39.984, also significant at the 1% level, suggesting a potential lack of fit between the predicted and observed values; however, it is important to acknowledge that such global goodness-of-fit tests may not definitively reflect model inadequacy when the p-value is significant. The likelihood ratio Chi-square statistic was 28,305.784, further supporting the model's predictive capability. In terms of explanatory power, the Cox & Snell R^2 and Nagelkerke R^2 values were 0.14 and 0.35, respectively, indicating that 14% to 35% of the variance in self-care ability can be explained by the included demographic and socioeconomic variables. Finally, the model correctly classified 91.4% of elderly individuals aged 60 years and above, demonstrating a high level of predictive accuracy.

In this study, the elderly who are having difficulty in self-care ability is chosen as reference level. It means that the elderly who are not having difficulty in self-care ability have to be compared against the reference category. According to the results of binary logistic regression, the female elder people are about 0.098 times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the male elder people. And then, the elder people who are living in rural area are about 0.091 times less likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who are living in urban area. It was also observed that the elder people who are aged with in 70-79 years and 80 years and above are about 0.543 times and 0.837 times less likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who are aged with in 60-69 years.

Moreover, the married elder people are about 0.224 times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the never married elder people. By the case of location, the elder people who are living in Kayin, Kachin, Bago, Magway, Mandalay, Mon, Yangon, Shan, Saging and Naypyitaw are about (0.534, 0.410, 0.558, 0.256, 0.664, 0.209, 0.592, 0.596, 0.220 and 0.306) times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who are living in Ayeyawady. However, the elder people who are living in Rakhine state are about 0.446 times less likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who are living in Ayeyawady.

According to the educational attainment, the elder people who have completely attained below primary and primary school, middle school and high school and above are about (0.262, 0.315 and 0.312) times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who have not completely attained any education level. Furthermore, the elder people with fair and poor health level are about 0.665 and 0.910 times less likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people with good health level.

By the case of occupation, the employed **elderly** people are about 1.2473 times likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the unemployed elderly people. And then, the elderly people who have got the household annual income with ten to fifty lakhs and above fifty lakhs are about 0.115 times and 0.207 times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elder people who have got the household annual income below 10 lakhs. By the case of engaging in any social activities, the elderly people who are engaging in any social activities are about 1.898 times more likely to have not any difficulty in self-care ability than having difficulty in self-care ability compared to the elderly people who are not engaging in any social activities.

According to the comparison of elderly having difficulty in self-care ability and elderly having no difficulty in self-care ability, it was observed that gender, place of residence, age, marital status, location, education, general health status, occupation, household annual income and engaging in any social activities are mainly influenced on the self-care ability among elderly in Myanmar. Hence, it is imperative for the government to implement comprehensive, evidence-based aging policies that prioritize equitable access to healthcare, social support, and economic resources to improve self-care capacity and quality of life for Myanmar's elderly population.

Discussion

Globally, population aging presents a significant public health challenge, affecting both developed and developing countries. Myanmar, in particular, is experiencing a rapid increase in its elderly population, as evidenced by recent demographic assessments. This study examines the demographic and socioeconomic determinants of self-care ability among the elderly in Myanmar through descriptive analysis, Pearson's Chi-square tests, and binary logistic regression. The findings indicate that while some aspects of healthy aging may be present, the majority of older adults in Myanmar are not experiencing productive or active aging. Consequently, the elderly population in Myanmar has not yet achieved the standards of successful aging, highlighting the need for targeted interventions to support their well-being.

The self-care **ability** is worse in male elderly, the elderly living in rural areas, the never married elderly, unemployed elderly, lower household annual income and the elderly people with poor health level. Sundsli et al. (2012) indicated that older people might have a positive impact on their health and self-care ability. Those results are in line with some results of Myanmar in this study. Moreover, Myanmar elderly people who are living in Mandalay and **Sagaing**, people who have got the annual income of 10-50 lakh are mostly included. And then, most of them are the people who have attained the below

primary and primary but they are largely not **participate** in any social activities and **remained** unemployed. It can also be seen that self-care ability decreased with increasing age but it increased with higher educational level, general health level and annual household income.

As another similar finding, Wei and Zhang (2020) stated that the elderly have higher needs for life care and medical care than others. The elderly in rural areas had greater needs, especially the personal care, medical care, and psychological counseling, compared to those in urban areas. Hence, some results are in consonance with the similar outcomes of Myanmar in this study. Additionally, the similar findings were found out in a studying of Noohia (2022) stated that elder men, elder people who are aged over 70 years, the elders living in the village, loneliness, lack of income and low education level had a lower self-care ability.

Hoy et al. (2007) also stated that having the self-care ability can improve health and prevent illness and disabilities of the elder people. In this study, it was offered insight into self-care as a significant health resource of elders with different health status. Hence, the results of that study are in consonance with the result of Myanmar that the elder people with increasing the general health level are more likely to have not any difficulty in self-care ability. The similar findings were found by studying of TABRIZI (2018) presented that the factors such as education, life status, employment and marital status had significant relation with self-care ability of elder people. Additionally, it was observed that the higher education had a significant impact on the self-care ability of elder people. The elder people with the higher education level are able to make decision and have the judgment power to manage the daily live activities. There are in fact the relationship with the better job opportunities and the higher income. Thus, those general results are in keeping with the results of Myanmar in this study.

Conclusion

Addressing the challenges faced by the elderly population in Myanmar requires a coordinated and holistic strategy involving government authorities, policymakers, and healthcare providers. Key interventions should include the implementation of targeted, community-based programs that promote health literacy, equitable access to healthcare services, and active social participation. This involves designing demographically appropriate educational initiatives, strengthening rural healthcare infrastructure, and fostering social engagement to reduce isolation. Moreover, increasing financial assistance for low-income older adults and encouraging interdisciplinary collaboration between healthcare and social service sectors are essential measures. Collectively, these efforts aim to empower elderly individuals to improve self-care practices and enhance their overall health and quality of life.

Future research on self-care ability among the elderly in Myanmar should prioritize precise estimation through comprehensive and systematic data collection to inform the development of evidence-based policies and programs. According to the varying degrees of difficulty experienced by older adults in managing self-care, it is essential to examine key influencing factors such as multimorbidity, health literacy, self-assessed health status, mental well-being, and resilience. These elements collectively offer a comprehensive framework for understanding the determinants of self-care capacity in this population.

Additionally, longitudinal studies are warranted to monitor changes in self-care abilities over time, particularly in response to targeted interventions or shifts in health conditions. Such research will provide critical insights for designing effective strategies and fostering interdisciplinary collaboration that supports the holistic well-being of the elderly in Myanmar.

Although Myanmar has made some progress in addressing the needs of its aging population, there remains a critical need for more comprehensive policy reforms, including the introduction of a limited social pension, to ensure that older adults can age with dignity and adequate support. Drawing on effective elderly care models from other countries, Myanmar can develop a more robust framework tailored to its socio-economic context. A holistic approach—encompassing improved access to healthcare, educational initiatives, and support for physical, mental, and social well-being—is essential to enhance the self-care capacity of the elderly. Such integrated strategies would foster healthy, active, and productive aging, enabling older individuals to maintain independence, improve their quality of life, and alleviate the burden on families and healthcare systems.

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APPENDIX

Table (1) Classification of outcome variable and explanatory Variables

<i>Dependent Variable</i> Y= Self-Care Ability among Elderly = 0 if Self-care of elderly has difficulty =1 if Self-care of elderly has not any difficulty <i>Independent Variables</i> <i>Demographic Factors</i> X1= Gender = 1 if male = 2 if female X2= Place of residence = 1 if urban = 2 if rural X3= Age = 1 if 60-69 years = 2 if 70-79 years = 3 if 80 years and above X4= Marital Status = 1 if single (never married) = 2 if married = 3 if widowed and divorced/separated	X5 =Location = 1 if Ayeyarwady = 2 if Kayah = 3 if Kayin = 4 if Chin = 5 if Kachin = 6 if Tanintharyi = 7 if Bago = 8 if Magway = 9 if Mandalay = 10 if Mon = 11 if Rakhine = 12 if Yangon = 13 if Shan = 14 if Saging = 15 if Nay Pyi Taw <i>Socioeconomic Factors</i> X6= Education = 1 if no education = 2 if below primary and primary school = 3 if middle school = 4 if high school and above X7= General Health Status = 1 if good = 2 if fair = 3 if poor X8= Occupation = 1 if unemployed = 2 if employed X9 = Household Annual Income = 1 if below 10 lakh = 2 if 10-50 lakh = 3 if above 50 lakh	X10 =Engaging in Any Social Activities = 1 if no = 2 if yes

Table (2) Percent Distribution of Demographic and Socioeconomic Characteristics among Elderly in Myanmar

Variables	Categorization	Number	Percent
Self-Care Ability among Elderly	No	5609	9.1
	Yes	55844	90.9
Gender	Male	25549	41.6
	Female	35904	58.4
Place of residence	urban	18601	30.3
	Rural	42852	69.7
Age	60-69 years	35309	57.5
	70-79 years	18438	30.0
	80 years and above	7706	12.5
Marital Status	Single (never married)	4209	6.8
	Married	35326	57.5
	Widowed and Divorce/Separated	21918	35.7
Location	Ayeyawady	6949	11.3
	Kayah	622	1.0
	Kayin	2356	3.8
	Chin	1140	1.9
	Kachin	2231	3.6
	Tanintharyi	1948	3.2
	Bago	5292	8.6
	Magway	5958	9.7
	Mandalay	8327	13.6
	Mon	2532	4.1
	Rakhine	1406	2.3
	Yangon	6729	10.9
	Shan	6069	9.9
	Saging	8370	13.6
	Naypyitaw	1524	2.5
Education	No education	14603	23.8
	Below Primary and Primary school	29145	47.4
	Middle school	7385	12.0
	High school and above	10320	16.8
General Health Status	Good	27798	45.2
	Fair	25219	41.0
	Poor	8436	13.7
Occupation	No	54644	88.9
	Yes	6809	11.1
Household Annual Income	Below 10 lakh	15712	25.6
	10-50 lakh	34400	56.0
	Above 50 lakh	11341	18.5
Engaging in Any Social Activities	No	38321	62.4
	Yes	23132	37.6

Source: 2019 Myanmar Inter-censal Survey

Table (3) Bivariate Analysis of Self-care Ability by Demographic and Socioeconomic Characteristics among Elderly in Myanmar

Demographic and Socioeconomic Characteristics		Chi-square	P-value
Gender	Male Female	110.535***	0.000
Place of residence	urban Rural	30.374***	0.000
Age	60-69 years 70-79 years 80 years and above	5158.578***	0.000
Marital Status	Single (never married) Married Widowed and Divorce/Separated	938.984***	0.000
Location	Ayeyawady Kayah Kayin Chin Kachin Tanintharyi Bago Magway Mandalay Mon Rakhine Yangon Shan Saging Naypyitaw	414.307***	0.000
Education	No education Below Primary and Primary school Middle school High school and above	538.561***	0.000
General Health Status	Good Fair Poor	5470.070***	0.000
Occupation	No Yes	488.866***	0.000
Household Annual Income	Below 10 lakh 10-50 lakh Above 50 lakh	150.635***	0.000
Engaging in Any Social Activities	No Yes	1542.148***	0.000

Note: ***, **, * represent 1 percent, 5 percent and 10 percent level of significance. Source: 2019 Myanmar Inter-censal Survey

Table (4) Model Fitting Information for Self-care ability among Elderly in Myanmar

Model fitting criteria	χ^2 value	d.f	P-value
Omnibus Test of Model Coefficient	92838.710	29	0.000
Hosmer and Lemeshow (H-L) Test	39.984	8	0.000
-2Log Likelihood	28305.784		
Cox & Snell R-square	0.140		
Nagelkerke R-square	0.350		
Overall Correct Prediction	91.4 %		

Note: ***, **, * represent 1 percent, 5 percent and 10 percent level of significance.

Source: 2019 Myanmar Inter-censal Survey

Table (5) Parameter Estimates of Binary Logistic Regression Model for Self-care ability among elderly in Myanmar

Independent variables		Coef.	S.E	Wald	P-value	Odds Ratio
Constant		3.181***	0.106	897.226	0.000	24.063
Gender	Male (ref.)					
	Female	0.094***	0.036	6.772	0.009	1.098
Place of residence	Urban (ref.)					
	Rural	-0.096**	0.040	5.674	0.017	0.909
Age	60-69 years (ref.)					
	70-79 years	-0.783***	0.039	400.098	0.000	0.457
	80 years and above	-1.815***	0.043	1800.879	0.000	0.163
Marital Status	Single(never married)(ref.)					
	Married	0.202***	0.068	8.935	0.003	1.224
	Widowed and Divorced/Separated	-0.070	0.067	1.097	0.295	0.932
Location	Ayeyawady (ref.)					
	Kayah	0.220	0.148	2.226	0.136	1.246
	Kayin	0.428***	0.092	21.600	0.000	1.534
	Chin	-0.077	0.100	0.586	0.444	0.926
	Kachin	0.344***	0.093	13.715	0.000	1.410
	Tanintharyi	0.085	0.096	0.776	0.378	1.088
	Bago	0.444***	0.071	39.164	0.000	1.558
	Magway	0.228***	0.065	12.150	0.000	1.256
	Mandalay	0.510***	0.064	62.774	0.000	1.664
	Mon	0.190**	0.090	4.463	0.035	1.209
	Rakhine	-0.591***	0.092	41.410	0.000	0.554
	Yangon	0.465***	0.071	43.266	0.000	1.592
	Shan	0.467***	0.073	40.564	0.000	1.596
	Saging	0.199***	0.061	10.498	0.001	1.220
	Naypyitaw	0.267**	0.113	5.576	0.018	1.306
Education	No education (ref.)					
	Below Primary and Primary school	0.233***	0.039	35.723	0.000	1.262
	Middle school	0.274***	0.063	18.884	0.000	1.315
	High school and above	0.271***	0.055	24.247	0.000	1.312
General Health Status	Good (ref.)					
	Fair	-1.095***	0.044	615.875	0.000	0.335
	Poor	-2.406***	0.046	2701.864	0.000	0.090
Occupation	No (ref.)					
	Yes	0.906***	0.095	90.981	0.000	2.2473
Household Annual Income	Below 10 lakh (ref.)					
	10-50 lakh	0.109***	0.037	8.753	0.003	1.115
	Above 50 lakh	0.188***	0.052	12.946	0.000	1.207
Engaging in Any Social Activities	No (ref.)					
	Yes	1.064***	0.043	601.158	0.000	2.898

Note: ***, **, * represent 1 percent, 5 percent and 10 percent level of significance. Source: 2019 Myanmar Inter-censal Survey

THE MEDIATING ROLE OF SELF-EFFICACY BETWEEN SELF-LEADERSHIP AND ACADEMIC PERFORMANCE OF STUDENTS FROM MANDALAY UNIVERSITY OF DISTANCE EDUCATION*

Myint Myint Kyi¹

Abstract

This paper intends to analyse the effect of self-leadership on academic performance, and to examine the mediating role of self-efficacy between self-leadership and academic performance of oriental studies students from Mandalay University of Distance Education (MUDE). The scope is limited to only second year and third year students who enrolled at MUDE for academic year 2024. The first-year students are excluded due to early time to assess their academic performance, and the final year students are also neglected due to low benefits for them as lesson learn from this research findings: this semester is very near to finish their distance study. The two-stage sampling approach is applied. At the first stage, simple random sampling method is applied by randomly selecting one major specialization among fourteen major specializations offered at MUDE. The selected major specialization is oriental studies. There are 40 second year students and 15 third year students at this major in 2024 (total 55 students). At the second stage, the 38 students are randomly selected from 55 students (69% of total). The primary data are collected from them by questionnaire survey method. The structured questionnaires are distributed to them in classes, then collected their responses. From analyses, it is found that most of the students have high self-leadership skills, strong self-efficacy, and they have confidence in their effort to pass the exam or to gain good academic performance results. Their self-leadership skills have positive significant influence on academic performance. Moreover, their self-efficacy has positive significant mediating effect between self-leadership and academic performance. From comparing the direct effect of self-leadership on academic performance and the indirect effect of self-leadership through self-efficacy on academic performance, the direct effect is larger than indirect effect. Thus, top management and teachers should consider developing curriculum and syllabuses for enhancing the self-leadership and self-efficacy of students.

Keywords: Self-leadership, self-efficacy, academic performance

Introduction

Students must have self-managed skills and self-control behavior in learning, especially in distance learning. With distance learning, students cannot rely largely on teachers and administrators for their academic results. Their performance inherently depends on their self-learning and self-leading (self-planning, self-organizing, self-control and self-motivation). If they have the habit of finding support and guidance from others, they will not gain academic success, even they may fail or incomplete their academic journey.

In general, self-leadership skill of students can impact on their academic performance. In distance learning, self-leadership skill alone may not lead to the good academic results. Distance learning students may also need the self-efficacy besides self-leadership ability. Through distance learning system, at the one hand, they receive the opportunities to spend their time in working and in personal cases. They just need to come to distance university at the times of intensive period (normally 10 days a year) before the final exam period (6~7 days). They also need to come to school for assignment submissions (two times a year: for two semesters). However, for some

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¹ Department of Economics, Mandalay University of Distance Education

special cases (example; due to disaster effect), other persons on behalf of student can come to school for assignment submission. At the other hand, they must learn the lessons (with support of on-air broadcasting via television channels and radio channels) by themselves: they must lose the chance to meet teachers face-to-face almost the study time. Thus, their knowledge-gain will come largely from self-learning.

For good academic performance, distance learning students must have the abilities of self-leadership and self-efficacy. Self-leadership involves leading oneself to develop essential skills and qualities to achieve personal and organizational goals (Neck, 2006). If students have self-leadership ability, they will develop the set of definite policies for their self-improvement (Al-Jamal & Ghamrawi, 2015). Sydanmaanlakka (2005) described three elements of self-leadership: self-control, self-belief, and self-awareness). These elements are crucial in guiding individuals towards self-improvement and personal growth (Tuovinen, 2010).

Nel and Van Zyl (2015) presented that self-leadership is a crucial component for individuals in academic and working situations to perform effectively. The level of achievement in education goals for a student is measured by academic performance, which is assessed through continuous evaluation or cumulative grade point average (Narad & Abdullah, 2016). However, the student's academic performance is assessed with self-administered questions by (Prussia et al, 1998: Kremenkor & Novotny, 2020: Vachova et al, 2023).

Rationale of the Study

Many scholars stated the consequences of low academic performance and high academic performance. The higher academic achievement rounded off by successful finishing of university study means not only that the cost of study paid by state is not wasted, but also it is easier to get a job (graduate students have generally the lowest ratio of unemployment (Zelenka, 2018). Low academic performance will lead to failure in finishing of courses, thus they cannot go to the labor market during relevant time or they can get only low-paid jobs (Karoly, 2016). The level of academic performance can influence student's personality, their mental quality, self-confidence, and self-esteem (Tripathy & Srivastava, 2020). Repeated failure might lead to anxiety, depression, and burnout, and result in giving up their study, and eventually their occupational goals (Sorberg Wallian, 2019).

Since the negative effect of poor academic performance can result not only in lowering personal values but also in barriers to country's development as mentioned above, finding ways to support to students for good academic performance must be urgently focused. Among students, the academic performance of distance learning students may be relatively more tied with their self-leadership and self-efficacy. If it is true, teachers and top management of distance universities should manage the pedagogy to upgrade students' self-leadership and self-efficacy.

Problem Statement

Students used to rely on parents, teachers, study-guides, and others throughout their study at primary and secondary levels. Thus, it is very difficult for them to change such habit into self-management habit when their primary and secondary periods are over. When they arrive at university or collage, the learning nature is significantly changed, especially at universities of distance education. They must stand on their feet: they must manage their time, learning materials,

learning styles by themselves, and self-learning is necessary. However, most of students at universities of distance learning may find support from student service staff, and also from teachers through informal ways. By doing so, office staff and teachers may act unethical behavior by doing many tasks on behalf of students (submitting assignments and taking informal extra classes to compensate students' lack of self-learning, lack of self-leadership and self-efficacy abilities).

Research Questions

The three research questions are explored from observation and preliminary literature search:

- (1) To what extent the students from Mandalay University of Distance Education have the self-leadership ability?
- (2) How can the self-leadership effect on academic performance of students from Mandalay University of Distance Education?
- (3) How can self-efficacy support to the influence of self-leadership on academic performance of students from Mandalay University of Distance Education?

Research Objectives

This study has two main objectives:

- (1) To analyse the effect of self-leadership on academic performance of students from Mandalay University of Distance Education
- (2) To investigate the mediating support of self-efficacy on the influence of self-leadership on academic performance of students from Mandalay University of Distance Education

Scope and Methods of the Study

This study focuses only on the self-leadership, self-efficacy, and academic performance of the second year and third year students from Mandalay University of Distance Education (MUDE). The first-year students cannot mention their academic performance at university (the first-year exam result has not yet out). The fourth-year students may not be beneficial from this study findings due to no time for lesson learn: this final year exam may be the last exam for them before going to the labor market. There are 14 bachelor's degree-courses offered by MUDE.

In this study, the two stage sampling approach is followed. At the first stage, the simple random sampling method is applied to select one major-specialization from total fourteen. This randomly selected one is "oriental studies" major. There are 55 (40 second year and 15 third year students) students who enrolled in 2024 academic year. At the second stage, the 38 students are randomly selected from total 55 students (69% of total). The questionnaire survey is used to collect the primary data from them. Data collection period is during October 2024. For data analysis, both descriptive and regression methods are applied.

Literature Review

The first part of this section presents the concepts and definitions of key variables of this study: self-leadership, self-efficacy, and academic performance. Then, the empirical studies on the relationships between these three variables followed.

(1) Concepts and Definitions of Key Variables

The three key variables are considered in this study.

Self-leadership

Self-leadership involves the influence people exert over themselves to achieve the self-motivation and self-direction needed to behave in desirable ways (Manz, 1992b). Stewart et. al (2019) defined self-leadership as a holistic self-influence process, encompassing driving oneself to perform tasks that are intrinsically compelling or necessary but not intrinsically motivating. Neck (2006) also defined self-leadership as the method of inducing oneself to acquire the necessary management and personality traits to fulfill tasks and responsibilities. Zakir et. al (2023) mentioned that self-leadership is a process by which individuals successfully influence themselves to attain the self-motivation and self-direction required to complete their jobs. According to (Cranmer et al., 2019), self-leadership revolves around self-awareness and guidelines that inspire individuals to give their best effort.

Self-efficacy

Self-efficacy is the extent to which an individual believes him or herself capable of successfully performing a specific behavior (Bandura, 1986). The individuals who have high self-efficacy will be more confident about success in a particular task than individuals who are lack in self-efficacy. Bhati (2022) stated that self- efficacy concerns with the question of how an individual holds belief in his/her ability to execute a course of action, rather than how much a person likes him/her or what skills and abilities a person possesses. Cheng and Chiou (2010) observed some dimensions of academic self-efficacy such as time management, learning process, comprehension, memory, reading, goal orientation, adjustment and examination, peer relationship and teacher-student relationship.

Academic Performance

Academic achievement, academic performance, academic success and similar terms refer in general to the ability of (mostly university) students to handle and manage the demands of the university study process, achieve good learning outcomes, successfully finish university study, and (ideally) succeed in the labor market (Farooq et. al, 2011). There are several approaches to measure academic performance. York et. al (2015) stated that the grade point average (GPA) and cumulative grade point average (CGPA) are the best single indicators of academic performance. However, at the other hand, Prevatt et. al (2011) and Weinstein and Palmer (2002) described general aspects of academic performance: study skills, attitude, motivation, anxiety, information processing, self-organization, and concentration. Thus, the psychological aspects of one's personality greatly contribute to academic performance.

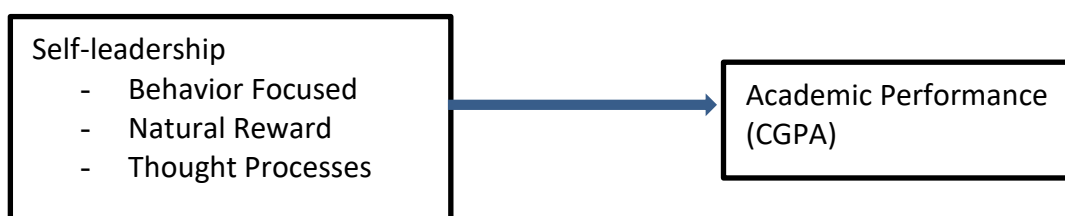
(2) Empirical Studies

The two closely relating articles are reviewed thoroughly. Some other relating articles are also briefly reviewed.

Self-leadership and Academic Performance

Numerous studies have shown that self-leadership has a definite, favorable impact on performance, efficacy, and self-confidence (Zakir et al., 2023). Many scholars pointed out that the

self-leadership resulted in high performance indices such as good psychological functioning, communication, working relationships, quality control, reduced work-related stress, and higher job satisfaction (Dolbier, et al, 2001). It is also relating to better health, increased toughness, less stressful atmosphere, and decreased interpersonal distrust among college students (Dolbier et al., 2001). At workplace or at schools, due to changing situations (new technologies, new challenges, and new constraints as well as new opportunities), employer-employee relationship or student-teacher relationship is shifting to the cooperative nature, and employees or students must take personal responsibility (Salminen-Tuomaala, 2009). Zakir et al, (2023) presented the conceptual model (as shown in Figure-1) showing the link between self-leadership and academic performance of university students.



Source: Zakir et al (2023)

Figure (1) Link between Self-leadership and Academic Performance

Zakir et al (2023) mentioned that self-goal setting, self-reward, self-cueing and self-observation are the elements of behavior focused self-leadership skill; self-talk, visualizing successful performance, and evaluating believes and assumptions are the elements of thought processes self-leadership skill. This study analysed the link between self-leadership and academic performance of students from Women University of AJK Bagh. The quantative approach was applied conducting a survey method. The sample size is 326 students, and the closed-ended questionnaires were distributed to them. The Pearson correlation method was applied, and the findings showed that the strong positive correlation between self-leadership and academic performance of university students.

Mediating Role of Self-efficacy between Self-leadership and Academic Performance

Prussia et. al (1998) examined whether the influence of self-leadership on academic performance is mediated by self-efficacy. Structural equation modeling was applied to analyse the data received from sample 151 students who enrolled in three separate undergraduate entrepreneurship classes at a large southwestern university. The self-efficacy is considered as the mediating variable, the dependent variable is academic performance, and independent variable is self-leadership. The conceptual model of this research is shown in Figure (2).



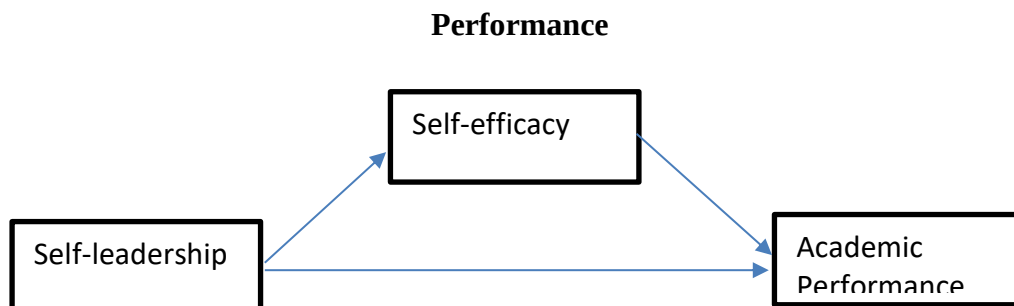
Source: Prussia et al .(1998)

Figure (2) Self-leadership, Self-efficacy, and Performance

This study approved that the self-leadership skills had a significant effect on self-efficacy, and self-efficacy directly effected performance. It also found that the self-efficacy fully mediated the self-leadership/performance relationship.

Conceptual Framework of the Study

The conceptual framework of the study is shown in Figure (3).



Source: Own Compilation (2024)

Figure (3) Mediating Role of Self-efficacy between Self-leadership and Academic Performance

The two previous studies as mentioned above are based to develop the conceptual framework of the study. The major assumption is that the self-efficacy may be mediating between self-leadership and academic performance of students from Mandalay University of Distance Education. It is also assumed that the self-leadership alone can lead to academic performance.

Reliability Analysis

The data reliability is tested with Cronbach's Alpha values. The Cronbach's Alpha values of each of the variables are shown in Table (1).

Table (1) Reliability Test Results

Sr. No.	Variable	Cronbach's Alpha	No. of Question Items
1	Self-leadership	0.796	9
2	Self-efficacy	0.809	9
3	Academic Performance	0.848	8

Source: Survey Data, 2014

Since the Cronbach's Alpha values are greater than 0.7, it can be assumed that the data collected in this research have good internal consistency (Nunnally & Bernstein, 1994).

Findings from Descriptive Analysis

To explore the level of self-leadership skills perceived by students who are attending at second year and third year oriental studies major at Mandalay University of Distance Education, the descriptive analysis is conducted. The results (mean values of the question items of self-leadership) are shown in Table (2).

Table (2) Students' Perception on Their Self-leadership Skill

Sr. No.	Question Items	Mean Values
1	Thinking always about the self-improvement	4.42
2	Monitoring and keeping effort on track to be on the right direction to goals	4.19
3	Keeping the own goals on mind	4.38
4	Keeping records on the progress	3.58
5	Having no desire to put effort for high results: trying just for minimum requirement (R)*	4.54
6	Solving by self the self-problems	4.23
7	Finding ways by self to own problems	3.88
8	Always finding ways for success or improvements in life	4.38
9	Trying to change the current life into better life	4.58
General Mean		4.24

Source: Survey Data, 2014

(R)* Reversed question item (data are converted into reverse direction) in mean calculation

According to the mean values as shown in Table (2), most of the oriental studies second year and third year students have high level of self-leadership skills. They used to solve their problems by themselves, and they are finding ways for improvement and success in life. They are also ambitious to change their status quo into better state. They are learning through distance education system not because of desire to get minimum requirement (just pass the exam with above the margin line) but because of intention to step onto higher life standard. They have consciousness for not vary from desired goals when they are walking the study journey. Thus, they keep track onto the right way and keep records their progress. The results (mean values of the question items of self-efficacy) are shown in Table (3).

Table (3) Students' Perception on Their Self-efficacy

Sr. No.	Question Items	Mean Values
1	Being understand the teaching in classes	4.23
2	Believing that enough practice will provide understanding all subjects	4.19
3	Believing that regular practice will provide higher skills	4.46
4	Having ability to reach the target once decided to gain	4.31
5	Having confidence to reach self-goals	4.35
6	It is difficult to turn back once decided to overcome the difficult cases	3.73
7	I believe myself I have capacity to learn any major specialization	3.85
8	Gaining more and more capacity through hard working	4.27
9	Anyone can upgrade skills through hard working	4.65
General Mean		4.23

Source: Survey Data, 2024

According to the mean values as shown in Table (3), most of the oriental studies second year and third year students have high level of self-efficacy. They have confidence in hard working that will lead to ease in learning various subjects, high results, high skills and reaching goals. They are also highly dedicated to their academic goals. The results (mean values of the question items of academic performance) are shown in Table (4).

Table (4) Students' Self-administration on Their Academic Performance

Sr. No.	Question Items	Mean Values
1	Being ready for all subjects	3.58
2	Listening and learning well in classes	4.27
3	Having desire to get high marks	4.58
4	Participating in class discussions	4.04
5	Believing in gaining desired goals	4.42
6	Believing to be easy in exam due to self-learning at home	4.42
7	Used to overcome by self the difficulties	4.04
8	Submitted all assignments early to the deadlines	4.42
General Mean		4.22

Source: Survey Data, 2024

According to the mean values as shown in Table (4), most of the oriental studies second year and third year students are sure that they can gain good academic performance. They are now ready for the exam due to self-practice at home and active in classes.

Findings from Regression Analysis

Regression analysis is conducted to investigate the effect of self-leadership on academic performance (objective-1 of the study) of oriental studies second year and third year students. Then, in this analysis, the mediating role of self-efficacy between self-leadership and academic performance (objective-2 of the study) of oriental studies second year and third year students. The regression results for the objective (1) are shown in Table (5).

Table (5) Effect of Self-leadership on Academic Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	1.141	0.710		1.608	0.121	1.000
Self-leadership	0.726***	0.166	0.665	4.361	0.000	1.000
R Square	0.442					
Adjusted R Square	0.419					
F Value	19.019***					

Dependent Variable is "Academic Performance"

*** Significant at 1 percent

** Significant at 5 percent level

* Significant at 10 percent level

The survey results showed that the self-leadership skills of students are leading to good academic performance of students who are attending at second year and third year oriental studies at MUDE.

For the objective (2), to analyse the mediating effect of self-efficacy between self-leadership and academic performance, at the first step, the total effect is found. The total effect value is 0.726 (the unstandardized coefficient value of self-leadership) in finding the effect of self-leadership on academic performance (as shown in Table (5)).

At the second step, the effect of self-leadership (independent variable) on self-efficacy (mediating variable) is tested. The regression results are shown in Table (6). From these results, the unstandardized coefficient value and standard error value of independent variable (self-leadership) are used as input data in Sobel test in next step.

Table (6) Effect of Self-leadership on Self-efficacy

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	1.667	0.701		2.376	0.026	1.000
Self-leadership	0.603***	0.165	0.599	3.667	0.001	1.000
R Square	0.359					
Adjusted R Square	0.332					
F Value	13.445***					

Dependent Variable is "Self-efficacy"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

The self-leadership has positive effect on self-efficacy. At the third step, the multiple regression analysis is conducted to show the effect of self-leadership (independent variable) and self-efficacy (mediating variable) on academic performance (dependent variable). The results are shown in Table (7).

Table (7) Effect of Self-leadership and Self-efficacy on Academic Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	0.346	0.711		0.488	0.630	
Self-leadership	0.438**	0.187	0.401	2.340	0.028	1.560
Self-efficacy	0.477**	0.186	0.440	2.563	0.017	1.560
R Square	0.566					
Adjusted R Square	0.528					
F Value	15.001***					

Dependent Variable is "Academic Performance"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

Both self-leadership and self-efficacy respectively has positive effect on academic performance. To test the mediating role of self-efficacy between self-leadership and academic performance, the SPSS PROCESS Macro by Hayes (2022) is applied. The results are as below:

Output for Mediating Effect Analysis

Model : 4

Y : AP

X : SL

M : SE

Sample Size: 38

***** TOTAL EFFECT MODEL *****

OUTCOME VARIABLE: AP

Model Summary

R	R-sq	MSE	F	df1	df2	p
.6649	.4421	.1252	19.0191	1.0000	24.0000	.0002

Model

	coeff	se	t	p	LLCI	ULCI
constant	1.1411	.7097	1.6080	.1209	-.3236	2.6058
SL	.7258	.1664	4.3611	.0002	.3823	1.0693

Standardized coefficients

coeff

SL .6649

***** TOTAL, DIRECT, AND INDIRECT EFFECTS OF X ON Y *****

Total effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
.7258	.1664	4.3611	.0002	.3823	1.0693	.6649

Direct effect of X on Y

Effect	se	t	p	LLCI	ULCI	c'_cs
.4382	.1873	2.3396	.0284	.0507	.8256	.4014

Indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SE	.2876	.1312	.0216
			.5423

Completely standardized indirect effect(s) of X on Y:

Effect	BootSE	BootLLCI	BootULCI
SE	.2635	.1156	.0186
			.4785

Source: SPSS Output, 2024

Since the BootLLCI and BootULCI values in indirect effect analysis table are positive (not crossing the “0”), there is a mediating effect of self-efficacy between self-leadership and academic performance. The students’ self-leadership quality upgrades their self-efficacy, and this self-efficacy positively effect on their academic performance. According to the data shown in direct effect analysis table, there is a significant direct effect of self-leadership on academic performance. Thus, the mediating effect is a partial effect.

The indirect effect is 0.2876, and the direct effect is 0.4382. The total effect is 0.7258 (0.2876+0.4382).

Discussions

Most of the second year and third year oriental studies students have high self-leadership skills, good self-efficacy perception and they believe they will gain academic success. Their self-leadership skills are positively affecting on their academic performance. They are capable to try for reaching their academic goals. This capacity is resulted from their good management (self-motivation, self-thinking, self-control, and self-determination: self-leadership skills).

The self-leadership can enhance self-efficacy besides it can directly influence on academic performance. This self-efficacy can also support to good academic performance. The indirect effect is greater than direct effect. Thus, self-leadership can more support to good academic performance through developing the self-efficacy of students.

Conclusion

In Myanmar, there are only two distance education universities: Yangon University of Distance Education and Mandalay University of Distance Education. However, during recent years, through one-campus two systems, many universities take responsibility for distance education. Thus, education sector authorities need to consider the strategies for upgrading self-leadership skills and self-efficacy through effective syllabus and teaching styles at primary and secondary levels.

Suggestions

For effective distance education, the top management of distance universities and teachers should tactfully induce students to change attitude from relying on teachers to self-managing in problem solving, goal setting, developing strategies to reach goals, and upgrading self-confidence. Parents should provide self-leadership skills through direct and indirect teaching and communicating. Students must have habitual behavior of self-leadership.

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ROLE OF ENTREPRENEURIAL EDUCATION IN PROMOTING ENTREPRENEURIAL BEHAVIOR FOR MICRO, SMALL AND MEDIUM ENTERPRISES DEVELOPMENT IN MYANMAR

Yin Min Htwe¹

Abstract

Entrepreneurial education has been identified as a significant aspect to the growth of Micro, Small and Medium Enterprises (MSMEs) in a nation by enhancing the entrepreneurial self-efficacy of individuals and developing entrepreneurial behavior. Recognizing the pivotal role of MSMEs in shaping the Myanmar economy, the government pays special attention and encouragements to MSMEs development. In efforts to support and nurture human resources for entrepreneurship, entrepreneurship education in Myanmar is still needed to promote their knowledge, skills and abilities for managing entrepreneurial venture. This study aims to analyze how entrepreneurial education and intrinsic motivation influence on entrepreneurial self-efficacy of higher education students and to investigate the effect of their entrepreneurial self-efficacy on entrepreneurial behavior. The study was conducted based on the random sample of 152 students from Executive Master of Business Administration (EMBA) Programme and Master of Sustainable Entrepreneurship and Social Innovation (MSESI) Programme of Yangon University of Economics. The findings revealed that entrepreneurial education and intrinsic motivation had a positive and significant effect on self-efficacy of students. The study also found that self-efficacy had a positive influence on their entrepreneurial behavior. With the contribution of understanding entrepreneurial education in higher education, this study provides insights on how entrepreneurship education programmes could be made more effective in developing MSMEs in Myanmar.

Keywords: Entrepreneurial education, entrepreneurial self-efficacy, intrinsic motivation, entrepreneurial behavior

Introduction

Micro, Small and Medium Enterprises (MSMEs) play as the main driver in economic growth and job creation. The robust development of MSMEs significantly promotes the economy with the solutions to social issues and creates the growth opportunities. With the importance of MSMEs, entrepreneurial education has been widely recognized as a vital role in enhancing the entrepreneurial skills, attitudes and behavior of individuals. Entrepreneurial education equips potential entrepreneurs and existing entrepreneurs with knowledge, abilities, and mindsets to handle the challenges, obstacles and uncertainties in the real business world. With entrepreneurial education, entrepreneurs are able to improve self-efficacy of believing their abilities to accomplish tasks in different context.

Moreover, intrinsic motivation of individuals has a strong association with his or her self-efficacy of entrepreneurship. As intrinsic motivation is the drive to engage in activities for their inner satisfaction and enjoyment rather than external rewards, intrinsically motivated persons prefer to set challenging goals, realize the goals, and create own destiny. They have the potential to engage in entrepreneurship because of the interest and pleasure derived from it. By embracing the pressures and risks of entrepreneurship, intrinsic motivation drives entrepreneurs to be persistence, flexibility and skills development that increase self-efficacy.

¹ Dept. of Management Studies, Naypyitaw State Academy.

Self-efficacy also has a profound effect on entrepreneurial behavior. This behavior is an intentional behavior of entrepreneurs to realize their specific ideas into operating and profitable ventures. Entrepreneurs engage in continuous efforts to generate innovative ideas for products and to seize the business opportunities with effectively and efficiently. Meanwhile, high self-efficacy promotes an entrepreneur's self-belief and capability to accomplish entrepreneurial activities.

Nowadays, governments worldwide foster the role of entrepreneurs for economic development. Entrepreneurs are nurtured for launching new ventures and for creating more job opportunities. The government of Myanmar is also focusing on economic growth, with a particular emphasis on promoting MSMEs. Through policies, infrastructure development and supports, a conducive business environment for MSMEs in Myanmar is continuously created. However, Myanmar MSMEs still faces several challenges on financial access, market access and networking, technology advancement, and human resource development. Concerning human resource development, a number of empirical studies has been explored on inadequate knowledge and abilities of entrepreneurs, and insufficient entrepreneurial training and programs in Myanmar. This highlights to promote the awareness on entrepreneurial education at all level of education in Myanmar. With entrepreneurial education, people able to expand their knowledge and abilities, increase their entrepreneurial self-efficacy, and hence affecting their entrepreneurial behavior.

In fact, this study is mainly conducted to analyze the effect of entrepreneurial education on entrepreneurial behavior of students based on formal entrepreneurial education provided at Executive Master of Business Administration (EMBA) Programme and Master of Sustainable Entrepreneurship and Social Innovation (MSESI) Programme of Yangon University of Economics. These students have already learned entrepreneurship course as core course and they would have understood the context of entrepreneurship. This can enhance students to get more value on entrepreneurial behavior. Therefore, it is worthwhile to study the role of entrepreneurial education on promoting entrepreneurial behavior for MSMEs development in Myanmar by analyzing the effect of the entrepreneurial education on entrepreneurial behavior of higher education students from Yangon University of Economics.

Objectives of the Study

The objectives of the study are as follows:

- (1) To analyze how entrepreneurial education and intrinsic motivation influence on entrepreneurial self-efficacy of higher education students
- (2) To investigate the effect of entrepreneurial self-efficacy on entrepreneurial behavior of higher education students

Scope and Method of the Study

This study analyzes how entrepreneurial education and intrinsic motivation influence on entrepreneurial self-efficacy of higher education students and investigate the effect of their entrepreneurial self-efficacy on entrepreneurial behavior. Thus, the survey was conducted to collect reliable primary data. The population for the study was students from EMBA Programme and Master of Social Entrepreneurship and Social Innovation (MSESI) in Yangon University of Economics. For the survey, 152 students are chosen as sample from the population of 244 students

by using simple random sampling method. Primary data for the study was collected by using structured questionnaire composed with six sections. The secondary data are collected from reference books, international research papers, journal articles, and internet websites. The analytical methods of descriptive and regression analysis are used to analyze the collected data for research objectives.

Measure of Variables

Five-point Likert scales were used to measure for all variables of entrepreneurial education, intrinsic motivation, self-efficacy and entrepreneurial behavior. Based on Johannisson (1991) and Souitaris et al. (2007), entrepreneurial education of providing entrepreneurial knowledge, skills, intuition, value and social interaction were measured with nine items. Intrinsic motivation such as personal achievement, being own boss, social recognition was evaluated with six items of Boada-Grau et al. (2018) and Al-Jubari (2019). For self-efficacy, seven items of De Noble et al. (1999) and Moberg (2012) were applied. These items concern the skills of risk management, innovation, interpersonal, opportunity recognition, resources management, human resource management, and financial literacy. Following Schmidt et al. (2018), six items of entrepreneurial behavior were measured by assessing entrepreneurial characteristics of respondents.

Literature Review

This section presents the theoretical background and previous studies of entrepreneurial education, intrinsic motivation, self-efficacy and entrepreneurial behavior. The conceptual framework of the study is also presented.

Entrepreneurial Education

Entrepreneurship education is a process of education that provides entrepreneurial attitudes, knowledge, and skills to identify and exploit business opportunities. Linan (2004) stated that entrepreneurial education includes all series of education and training activities that provide entrepreneurial behavior, entrepreneurial knowledge, and the feasibility of business activities. It focuses on the specific initiatives that entrepreneurs perform emphasizing innovation and business growth rather than business administration aspect. The concept covers more than teaching how to start a business but it also involves several valuable learning experiences of an educational setting. This means that entrepreneurial education makes positive contribution to people with entrepreneurial mindset, abilities, creativity, drive, courage, and confidence needed to generate jobs for themselves and others.

In this way, entrepreneurial education encourages learners with aspiration, acceptance to change, adaptability to new situations and taking risks. Through entrepreneurial education, their interest to entrepreneurship is enhanced and able to develop knowledge and abilities to overcome challenging issues in the entrepreneurial process. This leads to boost entrepreneurship by advancing cognitive abilities required for business opportunity exploitation and new business creation (Honig, 2004).

With the increasingly acceptance of entrepreneurship can be taught, universities pay offers entrepreneurship programme and courses to enhance entrepreneurial skills to students and motivation to create their own business (Lackeus, 2015). It has been widely acknowledged that entrepreneurial education is a lifelong process and inspiring people to engage in entrepreneurship

regardless of their educational background or specialization. Promoting entrepreneurship education at all level of education from primary to higher education is also recognized as an investment to equip students with entrepreneurial skills and enhance development.

Many researchers pointed out that the positive effect of entrepreneurship education on MSMEs development. Akinbami et al. (2016) described entrepreneurial education creates and promotes many capable entrepreneurs who can effectively start innovative ventures, operates, and cultivate them to sustainable growth. In other words, it equips learners with necessary skills and knowledge needed to launch and manage MSMEs. By encouraging creativity and problem-solving skills, entrepreneurial education inspires innovative mindset of MSMEs to be adaptable in the dynamic market and to achieve competitive advantage (Kozlinska & Vitola, 2023). Additionally, entrepreneurial education often supports opportunities to overcome the resource constraints through valuable networks with potential investors, mentors and industry experts. Thus, Jayeoba (2015) highlighted that entrepreneurship education will contribute to socio-economic development of nations, such as job opportunities and employment generation.

Intrinsic Motivation

Intrinsic motivation is an internal motivation of people that arises from an innate passion, self-fulfillment an inherent desire to practice in an activity. Kang et al. (2021) defined intrinsic motivation as a behavior that drives people to engage in activities for their own inherent satisfaction and enjoyment without expecting external rewards. Intrinsically motivated person is driven to do an act for meaningful and personal pleasure. In contrast with external motivation of engagement in behavior to attain external rewards, intrinsic motivation is non-instrumental in nature.

As intrinsic motivation comes from within the individuals, they perform actions with a sense of achievement, and personal growth. Deci and Ryan (2008) described that intrinsic motivation is associated with natural human tendency to look for novelty, creativity and challenge, as well as learning to achieve one's potential. As personally rewarding from inner, intrinsically motivated persons fulfill their psychological needs such as competence, self-determination and relatedness. In order to increase intrinsic motivation, social environment supports of individual play in vital role. This means that based on perceived competence and autonomy of personal choice for performing behaviors, intrinsic motivation might be enhanced or decreased.

In entrepreneurial setting, individuals operate in entrepreneurial activities for intrinsic motivation and extrinsic motivation. As for intrinsic motive, entrepreneurs engage in new ventures for their self-realization, independent, being passionate, and development. They tend to be more creative and persistent to develop entrepreneurial capability and commercialization of products and sustainable business growth. These attributes are important to the development of entrepreneurship, and it navigates that intrinsic motivation has profound effect on entrepreneurial process. The empirical studies confirmed that intrinsic motivation enhances entrepreneurial intention, learning, performance and self-dependent of individuals. Damanik and Candrasa (2022) examined the influence of motivation for interest in entrepreneurship of woman entrepreneurs and it was found that intrinsic motivation has positively significant effect on entrepreneurship interest.

Self-Efficacy

Self-efficacy is the belief of individual in his or her capability to complete a task successfully in prospective scenarios (Bandura, 1977). In fact, self-efficacy is a person's

confidence or self-reliance on his competences to organize the inspiration, intellectual skills, or courses of action required to carry out a certain task and attain intended result within a certain circumstance. Self-efficacy is the conviction that one can perform the behavior that results in the desired outcome. Thus, Stajkovic and Luthans (1998) remarked that people's perceived self-efficacy of their own capabilities influences how they act in certain ways under a variety of situations. In contrast to those with low self-efficacy, individuals with high self-efficacy are more likely to exhibit interest to undertake the tasks and more willing to work hard.

Chen et.al (1998) explained the worth of self-efficacy in entrepreneurship field since it plays a vital role in developing an individual's entrepreneurial intention and engagement in entrepreneurial behavior. In the context of entrepreneurship, they defined self-efficacy as one's beliefs in their capability to successfully accomplish the tasks of entrepreneurship. Entrepreneurship process involves challenging situations and it requires not only risk-taking, innovation, leadership, but also demands interest and persistence. To meet these requirements of entrepreneurship, high self-efficacy of entrepreneurs is pertinent. Shaker (2018) suggested that a person must have a can-do sense of self-efficacy to arouse the desire of launching a new venture. Indeed, the confidence in oneself abilities is central theme in entrepreneurial context.

Lumpkin and Dess (1996) highlighted that importance of self-efficacy in MSMEs where the level of entrepreneur's belief on own capabilities is directly influence on implementing business strategies. Empirical evidences supported the effect of self-efficacy on entrepreneurial performance by improving entrepreneur's interests, motivation, intention, behavior and persistence levels (Chen et. al,1998; Baum and Locke, 2004). In this regard, understanding the self-efficacy in entrepreneurial setting can be able to differentiate the entrepreneurial behavior with those of non-entrepreneurs and business owners.

Entrepreneurial Behavior

As defined by Bird and Schjoedt (2009), entrepreneurial behavior is the behavior of recognizing and exploiting business opportunities through creating and developing new ventures. Indeed, entrepreneurial behavior occurs in the process of identifying opportunities, creating a new firm to take advantage of the opportunities, and leading to its growth. It is the unique set of entrepreneur's intentional behaviors to search market opportunities, develop innovate new products, and then launch new venture. In that way, entrepreneurial behavior connects between exploring opportunities and creation of venture (Baron, 2007).

Van Dam et.al (2010) mentioned opportunity recognition, risk management, and initiative as three characteristics of entrepreneurial behavior. In addition, Shaheen and Al-Haddad (2018) discussed skills, knowledge, and motivation of individuals are all factors that affect the entrepreneurial behavior. However, the changing environment has evoked more distinct and unique entrepreneurial behavior to meet the challenges of dynamic situations.

Entrepreneurial Education and Self-Efficacy

Previous studies investigated the relationship between entrepreneurial education and self-efficacy of education. Malebana and Swanepoe (2014) conducted the comparative study of the effect of entrepreneurial education on self-efficacy for entrepreneurship among commerce final-year students in South Africa Universities. The results of the study pointed out that students who had exposure to entrepreneurship education were more believed on their entrepreneurial self-

efficacy that led to more entrepreneurial intention. The study of Othman and Hisam (2020) also revealed that the influence of entrepreneurial education on self-efficacy of 317 polytechnic students in Malaysia. According to the results, students who have been learned in entrepreneurship course have more entrepreneurial self-efficacy compared to students who have not involved in entrepreneurial education.

Intrinsic Motivation and Self-Efficacy

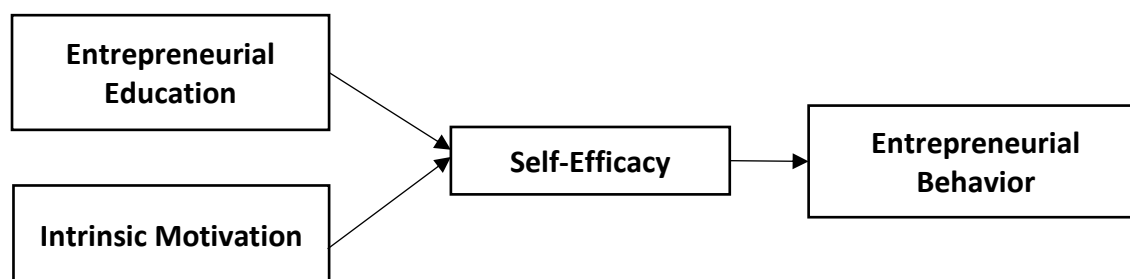
Several empirical studies on the intrinsic motivation and self-efficacy of entrepreneurship revealed that the connection between intrinsic motivation of individuals and their entrepreneurial self-efficacy. Hu (2021) examined the antecedents of entrepreneurial behavior of 300 farmers in China. The findings of the results indicated that intrinsic motivation of farmers was a positive significant effect on their self-efficacy, influencing their entrepreneurial behavior. Jordann (2014) examined the influence of intrinsic motivation on self-efficacy of nascent necessity-entrepreneur business start-up behavior in South-Africa. The results showed that there was partially relationship between intrinsic motivation and self-efficacy of nascent necessity-entrepreneurs.

Self-Efficacy and Entrepreneurial Behavior

Previous research findings indicated that self-confidence in conducting entrepreneurial tasks is strongly related to entrepreneurial behavior. The effect of entrepreneurial self-efficacy on entrepreneurial behavior was studied by Shaheen and AL-Haddad (2018) in Jordan. In this study total 155 of the entrepreneurs and the employees of entrepreneurial firms were involved and the results showed that entrepreneurial self-efficacy had a positive effect on entrepreneurial behavior. Moreover, Neto et.al (2018) also revealed that the influence of self-efficacy on entrepreneurial behavior. In their study, total sample of 401 teachers from USA was included and the findings indicated that self-efficacy of teachers had a positive effect on their entrepreneurial behavior.

Conceptual Framework

Based on literature review and findings of the empirical studies, this study focuses on to investigate entrepreneurial education and entrepreneurial behavior. Figure (1) represents the conceptual framework of the study.



Source: Own Compilation

Figure (1) Conceptual Framework of the Study

As shown in Figure, the study firstly analyzes the influence of entrepreneurial education and intrinsic motivation on self-efficacy of students EMBA and MSESI Programmes of Yangon University of Economics. Then, the effect of entrepreneurial self-efficacy on entrepreneurial behavior of the students is also examined.

Analysis and Results

To meet the research objectives of the study, descriptive analysis and regression analysis are conducted and the results are shown in this section.

Demographic Profile of Respondents

In the study, the descriptive analysis on the demographic factors of 152 respondents was conducted. The findings on the factors of age, gender, programme and class are presented in Table (1). As a result of age group, it was found that the majority of respondents were in the ranges of 31 to 40 years old and 41 to 50 years old. Comparing with other two age ranges of under 31 years and over 51 years old, the middle age range between 31 and 50 years are likely to seek the opportunities for learning entrepreneurship and business management course. At this age range, they may be motivated to enhance their skills and abilities for managing entrepreneurial ventures.

Table (1) Demographic Profile of Respondents

Particulars		No. of Respondents	Percent
Total		152	100
Age (Years)	Under 31	4	2.60
	31-40	78	51.30
	41-50	55	36.20
	Above 51	15	9.90
Gender	Male	68	44.70
	Female	84	55.30
Programme	EMBA	134	88.20
	MSESI	18	11.80
Class	First Year	17	11.20
	Second Year	135	88.80

Source: Survey Data (2024)

The gender of the respondents can be observed that 55.30 percent was female and 44.70 percent was male. It shows that females are interest to learn entrepreneurial knowledge to seize opportunities from favorable business environment to women in Myanmar, and to adapt the changing social norm of empowering women entrepreneurs. In terms of programme of respondents, 134 respondents were currently attending EMBA and 18 respondents were studying at MSESI. In this study, most respondents were from second year, with a total of 135 respondents which was 88.80 percent. The rest of 17 respondents were from first year class.

Entrepreneurial Background of Respondents

The entrepreneurial background of the respondents was studied based on having experience in running own business, consideration for running own business, family background and prior experience in entrepreneurship before attending the current Master programme. The findings are presented in Table (2).

Table (2) Entrepreneurial Background of Respondents

Particulars		No. of Respondents	Percent
Total		152	100
Own business experience	Yes	71	46.70
	No	81	53.30
Consideration for running own business	Yes	138	90.80
	No	14	9.20
Being family members are business owners	Yes	106	69.70
	No	46	30.30
Prior experience in entrepreneurship	Yes	55	36.20
	No	97	63.80

Source: Survey Data (2024)

The survey results showed that 81 of respondents out of total 152 have no experience in starting their own business. However, nearly ninety one percent of the respondents have ever considered running their own business. This means that most of the respondents have the desires to operate their own businesses with the expectation of taking risks for returns. The majority of the respondents have the business ventures background because their family members are business owners. The prior experience of respondents in entrepreneurship before attending current Master programme was also studied. It can be seen that most of the respondents did not have any experience in entrepreneurship.

Reliability Test

A reliability test was conducted to analyze the strength of the internal consistency of the variables in the study. Cronbach's alpha coefficients were computed to check the unidimensionality of the items. The alpha coefficients for the four variables of the study are shown in Table (3).

Table (3) Reliability Test

Particular	No. of Items	Cronbach's Alpha
Entrepreneurial Education	9	0.874
Intrinsic Motivation	6	0.805
Self-Efficacy	7	0.834
Entrepreneurial Behavior	6	0.783

Source: Survey Data (2024)

The Cronbach's alpha values for all variables of entrepreneurial education, intrinsic motivation, self-efficacy and entrepreneurial behavior were greater than 0.70. This means that all variables were above the minimum acceptable value indicating that they were reliable.

Entrepreneurial Education, Intrinsic Motivation, Self-Efficacy and Entrepreneurial Behavior

The descriptive analysis was applied to explore the perception on the key variables of entrepreneurial education, intrinsic motivation, self-efficacy and entrepreneurial education. Five-point Likert were used to examine for all variables. As suggested by Pallant (2020), mean values were categorized into three levels: low (1.00 - 2.33), moderate (2.34 - 3.67) and high (3.68 - 5.00). Table (3) shows the descriptive statistics for each variable of the study.

Table (3) Descriptive Statistics of Variables

Variables	No. of Items	Overall Mean	Std. Dev. Range
Entrepreneurial Education	9	4.02	0.545 to 0.668
Intrinsic Motivation	6	3.99	0.541 to 0.667
Self-Efficacy	7	3.90	0.554 to 0.679
Entrepreneurial Behavior	6	3.80	0.539 to 0.679

Source: Survey Data (2024)

According to the survey data, overall mean values for all variables were high. The mean score for entrepreneurial education was 4.02, indicating that respondents highly perceived that the entrepreneurial course they have learned enhanced their entrepreneurial knowledge, and skills and abilities for performing entrepreneurship. Similarly, intrinsic motivation exhibited the high mean score of 3.99. This means that they were mainly driven to do actions by their internal rewards of personal development, controlling over their work, and creating successful outcomes. For self-efficacy, the mean score was 3.90 showing that they have strong beliefs on their entrepreneurial self-efficacy. They highly perceived that they could perform the critical areas of entrepreneurship such as idea generation, innovation, stress management, and relationship with investors. In terms of entrepreneurial behavior, the mean score was 3.80. The mean score above 3.68 is considered high that showed the positive view of respondents towards their entrepreneurial behavior. It is particularly notable that they were inclined to engage the entrepreneurial behavior of creating innovative products, thinking strategically, recognizing market opportunities, taking risk, and building relationship with stakeholders.

Analysis on Influence of Entrepreneurial Education and Intrinsic Motivation on Self-Efficacy

The analysis of how entrepreneurial education and intrinsic motivation influence on self-efficacy of students was conducted by using multiple regression analysis. As shown in the conceptual framework, the two independent variables are entrepreneurial education and intrinsic motivation, and the dependent variable is self-efficacy. The results of the regression model summary, ANOVA and the regression coefficients were used to determine whether all independent variables of entrepreneurial education and intrinsic motivation predict and explain dependent variable of self-efficacy. The results are shown in Table (4).

Table (4) Effect of Entrepreneurial Education and Intrinsic Motivation on Self-Efficacy

Variables	Unstandardized Coefficient		Standardized	t	Sig.
	B	Std. Error	Beta		
Constant	1.088	.328		3.320	.001
Entrepreneurial Education	.271***	.075	.263	3.642	.000
Intrinsic Motivation	.431***	.073	.428	5.917	.000
R	.583				
R Square	.340				
Adjusted R Square	.331				
F Value	38.298***				

Source: Survey Data (2024)

Note: *** Significant at 1 percent level

In this study, the R value, which shows the strength of the relationship between variables, is 0.583. R-square is 0.340 and Adjusted R-square is 0.331, which indicate that the model can explain 33.1% of the variance of the dependent variable of self-efficacy and the independent variables of entrepreneurial education and intrinsic motivation. The F value, which measures the overall significance of the model, is 38.298 with a p-value of 0.000. It means the model is strongly significant at a 1% and valid.

According to the results illustrated in Table (4), it indicates that entrepreneurial education and intrinsic motivation have positively effect on self-efficacy of students. Entrepreneurial education is strongly significant at 1% level with a p-value of 0.000 and coefficient value of 0.271. Intrinsic motivation is strongly significant at 1% level with a p-value of 0.000 and coefficient value of 0.431.

Based on the results, it can be inferred that more comprehensive entrepreneurial education that equips individuals with entrepreneurial skills and knowledge tend to enhance their self-efficacy to start and run a venture. This means that providing adequate entrepreneurial education develops a stronger sense of self-efficacy to the entrepreneurs. Regarding intrinsic motivation, greater internal motivation towards creating personal interest has a profound effect on greater entrepreneurial self-efficacy. The reason is that achieving more internal satisfaction of entrepreneur is more likely to enhance his confidence and self-belief to perform entrepreneurship tasks.

Analysis on Effect of Self-Efficacy on Entrepreneurial Behavior

In this study, simple linear regression model was used to analyze the effect of self-efficacy on entrepreneurial behavior of students. The results of the regression model summary, ANOVA and the regression coefficients were used to determine whether independent variable of self-efficacy predict and explain dependent variable of entrepreneurial behavior. The results are shown in Table (5).

Table (5) Effect of Self-Efficacy on Entrepreneurial Behavior

Variables	Unstandardized Coefficient		Standardized	t	Sig.
	B	Std. Error	Beta		
Constant	1.471	.233		6.310	.000
Self-Efficacy	.596***	.059	.634	10.037	.000
R	.634				
R Square	.402				
Adjusted R Square	.398				
F Value	100.745***				

Source: Survey Data (2024)

Note: *** Significant at 1 percent level

The result of the analysis on the effect of self-efficacy on entrepreneurial behavior, it can explain 39.8% about the variation of entrepreneurial behavior, since the value of R square is 0.398. The value of F test, the overall significant of the model, is highly significant at 1% significant level with F value of 100.745. The coefficient value of 0.596 indicates the effect of self-efficacy significantly contributes to engage entrepreneurial behavior. Enhancing self-efficacy of individuals to overcome the several challenges of entrepreneurial process will lead to improve their entrepreneurial behavior.

Discussions

This study analyzes the role of entrepreneurial education in promoting entrepreneurial behavior for MSMEs development in Myanmar. The total number of 152 post graduate students from EMBA and MSESII programmes of Yangon University of Economics was selected to ensure that they have experience in entrepreneurial education. This study emphasizes to analyze how entrepreneurial education and intrinsic motivation influence self-efficacy, which subsequently affects entrepreneurial behavior that leads to development of MSMEs in Myanmar.

In this study, the majority of students who are primarily middle-aged indicate that learning formal entrepreneurial education is important to promote their business management skills and knowledge systematically. It allows them to develop their positive and self-believe in entrepreneurship and/or the career development. Regarding gender, more female is participated than male, possibly women in Myanmar tend to accept challenging role to meet their personal interest and to run their own business. This is the reason why they have the strong desire to learn entrepreneurship and small business management at University.

According to the results of the study, the majority of respondents had experience in operating their own business and their family members also operate businesses. Despite having business management experience, they may face challenges with their entrepreneurial attitudes, knowledge and abilities. This can be implied that how crucial it is to study entrepreneurship instead of traditional business education in order to meet the changing needs of business environment. It is important to note that, nearly ninety-one percent of the respondents have the desire to start and run their own business. Thus, providing learning opportunities to those who are interested in start

new venture and MSMEs development with entrepreneurial education will achieve remarkable economic development in Myanmar.

Concerning with the effect of entrepreneurial education on self-efficacy, the study showed that entrepreneurial education has a positive significant effect on self-efficacy of higher education students. Most of the students feel that entrepreneurship course helped them to get more knowledge on entrepreneurial concepts and business management. In fact, entrepreneurship course that cover entrepreneurship knowledge tend to provide them more understanding on functions such as product idea generation, opportunities seeking, business planning, marshalling resources, innovation, and risk management. This could contribute to enhance their capabilities of identifying and exploiting opportunities in entrepreneurial process. As for MSMEs, the owners and/or managers must have adequate knowledge of entrepreneurship to deal with business problems. Thus, getting more knowledge on entrepreneurship through entrepreneurial education would increase their confidence on launching business, resource acquisition, responsiveness to market opportunities, and business expansion.

Apart from providing fundamental concepts of entrepreneurship, the entrepreneurship course arouses students to get more awareness on attitudes and values of entrepreneurs and why they initiate the business. The study showed that the course reflects them the role and importance of entrepreneurship for individuals and society. In addition, the entrepreneurship course inspires them an entrepreneurial spirit. It can be conferred that, better recognizing the entrepreneurial spirit of entrepreneurs and their role in society fosters MSMEs owners/managers to fulfill the needed skills for entrepreneurial endeavor. While inspiration, a positive mindset and knowledge accumulation nurtured by entrepreneurship education can enhance the skills of them to build up sustainable businesses.

Based on the results of the study, learning entrepreneurial course seems an effective way to enhance self-efficacy of students with exposure to entrepreneurial profession. By accessing the success of entrepreneurs and knowledge from their entrepreneurial cases, they perceived that entrepreneurship is attractive and possible. Students felt that the course upgraded their abilities to create entrepreneurial network. Further, the essential skills for entrepreneurial success gained during the entrepreneurship course directly influence their confidence of to deal with risks and generate innovative ideas. Hence, entrepreneurial attitude and knowledge of MSMEs developers can be awoken with effective entrepreneurial education to improve their self-efficacy in performing entrepreneurial tasks.

From the perspective of intrinsic motivation and self-efficacy, the results showed a positively significant effect of intrinsic motivation on self-efficacy of the students. They have the desire to be their own boss indicated that they were strongly motivated to control their own work and decision making. This could imply that stronger in seeking opportunities for personal development and internal satisfaction, it not only positively affects individuals' determination to achieve goals but also greatly improve self confidence in their ability towards entrepreneurship.

For research objective two, the study investigated the effect of self-efficacy on entrepreneurial behavior of the students. The result of a strong positive influence of self-efficacy on entrepreneurial behavior was explored. Students highly perceived that they were capable to generate innovative ideas and develop new products. They also agreed that they were able to

manage stress, pressure, and conflict while performing effectively. In addition, they felt confident in their capacity of building work environment with talented employees and analyzing financial statements. With stronger beliefs in their abilities, it directly encourages entrepreneurial behavior such as being creative and innovative, searching for personal development, and setting goals and implementing for future success. In fact, greater self-efficacy to facing entrepreneurial difficulties leads to greater entrepreneurial behavior.

The results of the study highlighted that nurturing motivated entrepreneurs or potential entrepreneurs with ample education improves self-belief on their distinctive capacities that generate constructive entrepreneurial behavior. Since the expansion of MSMEs is significantly depended on the development of entrepreneurship, it needs to provide them entrepreneurial education to unlock their potential. By encouraging entrepreneurial education at all level of education with relevant types in different context in Myanmar, the growth of MSMEs could be supported.

Conclusion

This study investigated the influence of entrepreneurial education and intrinsic motive on self-efficacy, which in turn effect on entrepreneurial behavior of higher-education students. The results indicated that both entrepreneurial education and intrinsic motivation improve self-efficacy to develop entrepreneurial behavior. Hence, government should provide supports for promoting awareness on the vital role of entrepreneurial education for MSMEs development. In addition, it should offer entrepreneurial education programme or trainings that encompass the requisite entrepreneurial knowledge, skills and capacities to nurture the sustainability of MSMEs. This study only emphasized on entrepreneurial education of higher education level. Although this study provides some useful insights of formal entrepreneurial education to MSMEs in Myanmar, it would be appreciated if the further research could investigate the integration of entrepreneurial education into technical and vocational training programs.

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INFLUENCE OF ENERGY SAVING BEHAVIOR OF ACADEMIC STAFF AT MANDALAY UNIVERSITY OF DISTANCE EDUCATION

Cho Cho Thin¹, Myint Myint Kyi²

Abstract

This study intends to analyze the effect of subjective norm, income, government policies and prices and attitude on energy saving behavior of academic staff at Mandalay University of Distance Education (MUDE). This study focused on 72 sample academic staff out of total 147 academic staff working at this university, by using simple random sampling method. Complete responses are received from 65 respondents. Questionnaire survey is conducted with structured questionnaires. From descriptive analysis (by analyzing the mean values), most of the academic staff at MUDE have positive attitude towards energy-saving. They believe that their energy-saving will be contributing to environmental sustainability, also to reducing global warming effect and air pollution, and in solving energy shortage problems. Academic staff at MUDE have positive perception on government energy policies although they are worrying about price increase. They perceived that the policies of pushing efficient usage on energy are practical. They also believe that the government energy policies can bring benefits to people. They noticed that the energy prices increase, and they are worries about the energy price increase. Most of the academic staff at MUDE are not influenced by the people around them. The family members, friends, and colleagues cannot influence large upon them regarding the energy-saving. They are participating in energy-saving not because of the behaviors and encouragement of people around them: they practice energy saving by their own sake. Most of the academic staff at MUDE worried much on living cost increase and expenses greater than income problem. Most of the academic staff at MUDE act good in electricity saving: they are participating in energy saving actively, and also encouraging others for electricity saving. They have the concern of others' evaluation on their behavior of electricity saving. From regression analysis, it is found that only the academic staff attitude towards electricity saving has positive significant effect on their electricity saving behavior at MUDE. The subjective norm, income, and academic staff perception on policies and prices have no effect on electricity saving behavior of academic staff at MUDE. Thus, universities should have the mechanism for knowledge sharing and training for enhancing knowledge in electricity saving techniques and materials, and consequences of electricity saving like environmental sustainability and weather changes.

Keywords: Academic Staff, Mandalay University of Distance Education, Perception on Subjective Norm, Income, Policies and Prices, Attitude, and Energy Saving Behavior

Introduction

The government policies regarding electricity, oil and gas, and the prices for electricity are playing at the crucial role in the context of shortage of energy sources all around the world, including Myanmar. Governments with intentions to electricity saving, have to reset the policies and prices during the time of depletion and climate change. To reduce the energy, particularly electricity, oil and gas usage; the role of public organizations including universities become prominent role. If the staff take care to eliminate the idle usage of electricity at offices, campuses, and classrooms, the significant amount of electricity spending can be reduced.

Electricity saving at universities can significantly contribute to the environmental protection and the resolution the depletion problem. Thus, universities' energy-saving plan and

¹ Department of Economics, Mandalay University of Distance Education

² Department of Economics, Mandalay University of Distance Education

practices reflect the national context and diverse institutional priorities. Electricity saving culture should be included in universities' environmental practices.

Rationale of the Study

Efficient use of energy at organizations has more important role than the role of households and individuals because it is relatively easier to set guidelines and disciplines for electricity saving at organizations, especially at government organizations. Although the energy usage at households and individuals cannot be directly controlled and managed by laws and rules, organizational usage can be directly controlled by rules and systems, especially at government organizations. Thus, energy using behavior of government staff must be changed with the focus on environmental sustainability.

At the government organizations, it is not obvious the electricity cost by section or department specifically, and also no need to charge on staff for their usage. Efforts to promote energy-saving behavior change form an important part of the policy agenda in many countries (Brounen et al., 2012; Geller et al., 2006). Similarly, due to the energy shortage problem worldwide, Myanmar government consider the energy buying and selling to involve in the important part of policy agenda.

While Myanmar government is encouraging to reduce electricity waste and unnecessary spending by rising charges and changing policies, some government staff may not be conscious in energy efficiency. Even the government staff motivated to change their energy-saving behavior, they may fail to change their habitual responses to similar situations in the light of altered intentions (Kastner & Matthies, 2014). However, the staff income, behavior and encouragement of people around them (family, friends, bosses and colleagues), their attitude towards electricity saving will also impact on their electricity saving behavior. Thus, government policies and price rates alone will not be enough to change government staff electricity saving behavior. For effective saving, at the first step, the electricity saving behavior of academic staff must be emphasized because their education and income level are normally higher than nonacademic staff, and their behavior will significantly influence on students' behavior.

Research Questions

The four research questions are explored considering the rationale of the study, and some preliminary observation on the research area:

- (1) How do the influence of subjective norm of academic staff effective for energy saving behavior at the Mandalay University of Distance Education?
- (2) How does the income of academic staff influence on their energy saving behavior in Mandalay University of Distance Education?
- (3) Are the changes in government policies and prices regarding electricity, oil and gas effective for reducing usage in Mandalay University of Distance Education?
- (4) How do the attitude of academic staff effect on their energy saving behavior in Mandalay University of Distance Education?

Objective of the Study

The following main objective is explored to give answers to the research questions described above:

- (1) To analyze the effect of subjective norm, income, government policies and prices and attitude on energy saving behavior of academic staff at Mandalay University of Distance Education (MUDE)

Scope and Method of the Study

This study focuses only on academic staff at Mandalay University of Distance Education. There are 147 academic staff working at MUDE. By using the Raosoft sample size calculator (with 5% margin of error, 95% confidence level, 90% response distribution) is used to identify the sample size: sample size is 72. Simple random sampling method is used without concern on department and position. Questionnaire survey is conducted by distributing the structured questionnaires to randomly selected 72 academic staff. The complete responses are received from 65 respondents. For data analysis, descriptive and regression methods are applied.

Literature Review

In this study, the literature review is divided into two parts: review on background theories and concepts and review on previous articles relating to main variables used in this study.

Theoretical background

Ajzen (1991) presented the theory of planned behavior, which is based on the logical concepts that people's rational thinking and gathered information will lead their behavior systematically. Human behavior is shaped by their attitude towards behavior and subjective norm (influence of surroundings) (Fishbein & Ajzen, 1975). Ajzen (1991) added one more influencing factor, which is perceived behavioral control. Income will be included in the behavioral control factors because human have the capacity to decide to behave or not to behave in many cases due to their monetary sufficiency.

Attitude is an individual's feelings (either positive or negative) with a behavior or situation (Ginting, 2018). Attitude is a forming part of behavior (Lubis, 2021). People will behave by concerning their values, knowledge, beliefs, and feelings. If they believe an action is suitable and good, they will do this action positively. Similarly, they will not participate or conduct negatively if they are sure that this action is malpractice and not relevant.

While some people consider their feeling alone, many people consider both their individual feeling and perception of people around them. They have concern whether other people will accept or reprimand the action. Ruby et al., (2019) stated that an individual will do a certain behavior if his or her behavior can be accepted by people who are important in his or her life. Munandar (2014) named it as subjective norms, which are the feelings or expectations of a person against the expectations of the people in life regarding the behavior or not being done. Sreen et al., (2008) supported this concept by pointing out that the subjective norm is the one's perceived social pressure of people who are important for him or her. This social pressure (subjective norm) will influence the intention to perform or not perform the behavior.

The behavior of an individual can also be managed by capacity of that person to control (act or not to act). Behavioral control is a predictor of person's intention to behave (Manocha, Bhullar & Gupta, 2023). It is the person's perception of ease or difficulty to act or to do a particular case (Paul et al., 2016). Perceived behavioral control is related to the resources (including monetary capacity or income) owned and the opportunity (government policy and set price) to do something (Tan & Teo, 2000).

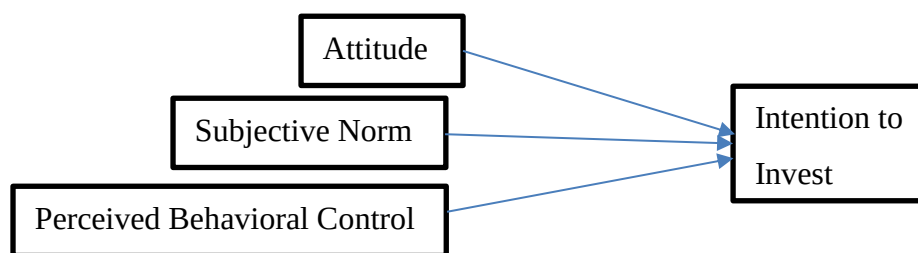
Empirical studies

The two previous papers, which are closely relating to major assumptions of the conceptual framework of this study are reviewed. The first reviewed paper is "Energy saving on campus: a comparison of students' attitudes and reported behaviors in the UK and Portugal" by (Cotton, Shiel and Paco, 2016). They explored similarities and differences between students' energy-related attitudes and reported behaviors, as well as their perceptions of their institution's energy saving efforts using data from two universities of UK and one university of Portugal.

The population includes 800 students from Portugal (University of Beira Interior), 679 students from Plymouth University, UK and 815 students from Bournemouth University, UK. Sample size is 800 (34.9% from Portugal, 29.6% and 65.1% from UK two universities respectively). The findings showed that there are differences between two countries reflecting the different contexts of countries. Thus, different policies regarding energy-saving will influence the energy-saving behaviors of different country's citizens. This research applied just one-way ANOVA, and no conceptual framework is presented.

The second review paper is "The effect of attitude, subjective norms and control of behavior towards intention in share investment" by (Rahadjeng & Fiandari, 2020). This paper intends to determine and analyse the effect of attitudes, subjective norms and behavioral control on investment intentions in the capital market. The population is scholars in Malang, who are familiar with finance courses. The sampling method is purposive sampling, determining the sample according to the research objectives. The sample size is 110.

The questionnaire survey method is used by distributing questionnaires to 110 scholars of the Faculty of Economics and Business, University of Muhammadiyah Malang, and complete responses from 100 are received. Likert scale is used to measure attitudes, opinions and perceptions: each question is measured with Likert scale which has five levels of preference answers, each of which is given a weighting of 1 to 5 with breakdown of a score of 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The path analysis is used, and found that the attitudes, subjective norms and behavioral control have an influence on the intention to invest in shares. The conceptual framework of this research is shown in Figure (1).



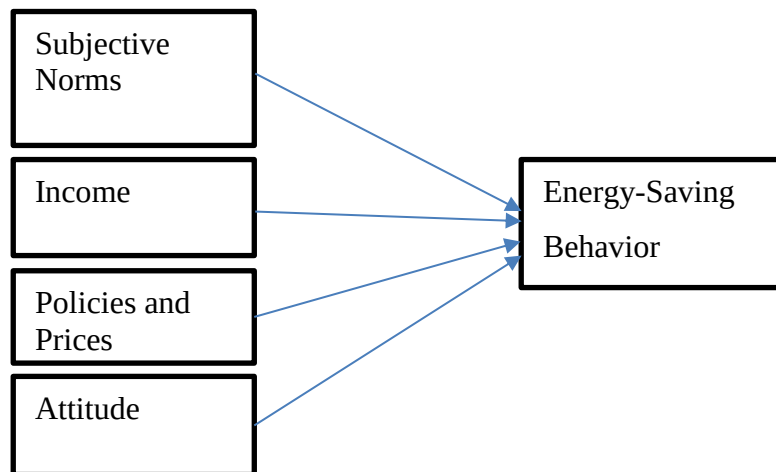
Source: Rahadjeng & Fiandari (2020)

Figure (1) Conceptual Model of Rahadjeng & Fiandari (2020)

Findings from this research showed that the attitude, subjective norm (influence of important people), and perceived behavioral control are positively influencing on the intention to behave a particular action.

Conceptual Framework of the Study

The conceptual framework is developed based on the theory of planned behavior, and the findings from the two previous papers as mentioned above. The conceptual framework is shown in Figure (2).



Source: Own Compilation

Figure (2) Conceptual Framework of the Study

This study's conceptual framework is developed with four conceptual assumptions:

- (1) The influence of subjective norms (people around) the academic staff working at the Mandalay University of Distance Education (MUDE) has positive effect on their energy saving behavior.
- (2) The income (behavioral control) of academic staff working at the Mandalay University of Distance Education (MUDE) has positive influence on their energy saving behavior.
- (3) The government policies and price are influencing on energy saving behavior of academic staff working at the Mandalay University of Distance Education (MUDE).
- (4) The attitude of academic staff working at the Mandalay University of Distance Education (MUDE) has positive influence on their energy saving behavior.

Hypotheses

The following hypotheses are developed for this study:

- (1) The influence of subjective norms (people around) academic staff has positive significant effect on their energy saving behavior at MUDE.
- (2) Academic staff income has negatively significantly influence on their energy saving behavior at MUDE.
- (3) Academic staff perception on energy policies and prices has positively significantly influence on their energy saving behavior at MUDE.

- (4) Academic staff attitude towards electricity saving positively significantly influence on their electricity saving behavior at MUDE.

Findings from Descriptive Analysis

To explore the academic staff attitude towards energy saving, the mean values based on their response scores are calculated. Data are received from 65 academic staff. The attitude of academic staff from Mandalay University of Distance Education towards electricity saving is shown in Table.

The subjective norm (influence of people around academic staff) in Mandalay University of Distance Education is shown in Table (1).

Table (1) Perception on Subjective Norm

Sr. No.	Items	Mean	Std. Dev.
1	Households need to be conscious of electricity saving behavior.	4.22	0.63
2	One's electricity saving behavior is influenced by family, friends, or neighbors.	1.98	0.88
3	If everyone around participates in saving electricity, a person will participate more actively in saving electricity.	3.56	0.96
Overall Mean		3.26	

Source: Survey Data (2024)

Most of the academic staff at MUDE is not influenced by the people around them. The family members, friends, and colleagues cannot influence large upon them regarding the electricity saving. In this study, as perceived behavioral control, income of academic staff is analyzed. The data from analysis on staff perception of their income are shown in Table (2).

The data from analysis on staff perception of their income are shown in Table (2).

Table (2) Perception on Income

Sr. No.	Items	Mean	Std. Dev.
1	Daily living cost is higher and higher	4.63	0.65
2	Worrying about income less than expenses	4.33	0.74
3	Spending tightly due to worries on income deficit	4.45	0.71
Overall Mean		4.47	

Source: Survey Data (2024)

Most of the academic staff at MUDE worried much on living cost increase and expenses greater than income problem. All question items are developed with negative direction. Thus, instead of behavioral control, unable to control aspect is based.

In this study, according to the conceptual framework as shown above, the attitude; subjective norm; perception on electricity policies and price, and income would have influence on

electricity saving behavior. The energy-saving behavior of academic staff from MUDE is analyzed by calculating the mean values on their response scores. The results are shown in Table (3). Academic staff from Mandalay University of Distance Education on government policies and prices is shown in Table (3).

Table (3) Perception on Policies and Prices

Sr. No.	Items	Mean	Std. Dev.
1	Policies encouraging economical and efficient use of electricity are practical	4.03	0.53
2	Electricity saving policies bring many benefits to people	3.83	0.79
3	The current price of electricity is high compared to the average income	4.67	0.47
4	The price of electricity gradually increases	4.64	0.48
5	Feel worried when electricity price increase	4.44	0.75
Overall Mean		4.32	

Source: Survey Data (2024)

Academic staff at MUDE has positive perception on government electricity policies although they are worrying about price increase. They understand that government must promulgate rules and policies relevant to the new challenges of energy shortage. Moreover, they have knowledge about the causes of the energy price increase. To overcome this energy price increase problem, they must take responsibility by reducing waste and unnecessary usage of electricity. The attitude of academic staff from Mandalay University of Distance Education towards electricity saving is shown in Table (4).

Table (4) Perception on Attitude

Sr. No.	Items	Mean	Std. Dev.
1	Saving electricity in daily life will be helpful for environmental protection	4.02	0.75
2	Saving electricity in daily life will help reducing global warming and pollution	3.95	0.76
3	Saving electricity in daily life is valuable to alleviate the current electricity shortage problems	3.66	1.00
Overall Mean		3.88	

Source: Survey Data (2024)

Most of the academic staff at MUDE generally have positive attitude towards electricity saving. As they are educated and they are trying to be role models of their students, they have strong beliefs that the electricity saving by individuals can contribute at large to electricity shortage problem resolution, disaster effect and climate change, and also to environmental sustainability.

In this study, according to the conceptual framework as shown above, the attitude; subjective norm; perception on energy policies and price, and income would have influence on electricity saving behavior. The electricity saving behavior of academic staff from MUDE is analyzed by calculating the mean values on their response scores. The results are shown in Table (5).

Table (5) Electricity Saving Behavior of Academic Staff

Sr. No.	Items	Mean	Std. Dev.
1	Participating in daily electricity saving activities	4.08	0.78
2	Willing to use skills to reduce electricity consumption (turn off equipment when not in use)	3.84	0.91
3	Willing to pay to invest in electricity saving products.	4.44	0.59
4	Reminding others for electricity saving and efficient use	3.66	0.88
5	Taking concern the behavior and perception of family and the people around regarding electricity usage	3.67	0.89
Overall Mean		3.94	

Source: Survey Data (2024)

Most of the academic staff at MUDE act good in energy saving; they are participating in electricity saving actively, and also encouraging others for energy saving. They have the concern of others' evaluation on their behavior of electricity saving.

Findings from Regression Analysis

To reach the main objectives of this research, multiple linear regression analysis is conducted to examine the effect of subjective norm, income, policies and prices, and attitude of academic staff at MUDE on their electricity saving behavior. Data from 65 academic staff are analyzed, and the results are shown in Table (6).

Table (6) Factors Influencing Energy-Saving Behavior of Academic Staff

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	- 0.409	0.819		- 0.499	0.619	
Subjective Norm	0.196	0.145	0.155	1.348	0.183	1.272
Income	0.251	0.167	0.218	1.504	0.138	2.029
Policies and Prices	0.392	0.258	0.214	1.517	0.135	1.918
Attitude	0.231**	0.123	0.223	1.884	0.045	1.355
R Square	0.389					
Adjusted R Square	0.347					
F Value	9.373***					

Source: Survey Data (2024)

Dependent Variable is "Energy-Saving Behavior"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

From regression analysis, it is found that only the academic staff attitude towards electricity saving has positive significant effect on their energy saving behavior at MUDE. The subjective

norm, income, and academic staff perception on policies and prices have no effect on electricity saving behavior of academic staff at MUDE. Only the hypothesis (4) is accepted.

Discussions

Academic staffs at MUDE believe that their electricity saving will be contributing to environmental sustainability, also to reducing global warming effect and air pollution, and in solving energy shortage problems. They perceived that the policies of pushing efficient usage on energy are practical. They also believe that the government policies can bring benefits to people. They are participating in electricity saving not because of the behaviors and encouragement of people around them: they practice electricity saving by their own sake.

The academic staff attitude towards the electricity saving positively influences on the electricity saving behavior. Only if they believe that the energy saving is beneficial to their society, they will participate in electricity saving effectively. Their family members, friends and colleagues cannot influence them to behave actively for energy saving. Their understanding on energy policies is not effective for their energy saving actions. Their income level has also no effect on their electricity saving behavior.

Conclusion

For energy saving, the academic staff at MUDE behave by their own attitude. Their behavior cannot be influenced largely by the influence of family members, friends and colleagues, and also cannot be influenced by government policies and prices. Thus, electricity saving education and knowledge should be enlarged by universities for staff positive attitude towards electricity saving. This attitude will shape their electricity saving behavior.

Suggestions and Recommendations

In general, academic staff attitude is crucial for effective energy saving at universities like Mandalay University of Distance Education. Thus, universities should have the mechanism for knowledge sharing and training for enhancing knowledge in electricity saving techniques and materials, and consequences of electricity saving like environmental sustainability and weather changes.

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EFFECT OF RETIREMENT PIANS ON ORGANIZATIONAL WORK ATTITUDE AND ENGAGEMENT OF NONACADEMIC STAFF AT MANDALAY UNIVERSITY OF DISTANCE EDUCATION

Khin Than Phy¹, Me Me Kyaw Oo²

Abstract

This study intends to explore the effect of nonacademic staff perception on government retirement plan on their attitude to work, and the influence of this attitude on their engagement at Mandalay University of Distance Education. This study focused on 112 sample staff out of total 203 nonacademic staff working at this university, by using simple random sampling method. Complete responses are received from 110 respondents. Questionnaire survey is conducted with structured questionnaires. From descriptive analysis (by analyzing the mean values), most of the nonacademic staff perceived positively the government retirement plan. They feel that this retirement benefit will be safety for them when they are at old age. Lump sums amount (gratuity) they can get when they retire is also incentive to them. They also have good attitude to their work. They do not conduct malpractice at office for finding extra money, and they do not go outside work during office hours. They come to work regularly, even in after office time; they stay at office if it is necessary. They have high conscious for not go outside during office time and not off early. Since they have high engagement, they feel that their university provides good information sharing between top and lower levels and also between same ranks and among peers. They believe that their work is meaningful and important, and their contributions are recognized. From regression analysis, it is found that the government retirement plan is impacting on their work attitude, and this attitude influences on their engagement. In general, nonacademic staff attitude toward work is very important for university image and also for students' satisfaction. Currently, nonacademic staff of Mandalay University of Distance Education have good attitude towards their work, and they concern the ethical conduct. This good status must be retained for education qualification and university quality and image.

Keywords: Nonacademic Staff, Mandalay University of Distance Education, Retirement Plan, Organizational Attitude to Work, Engagement

Introduction

Higher education institutions such as colleges and universities require individuals who are engaged to their work. The quality and attainment of goals of all educational organizations (schools, colleges and universities) largely rely not only on the willingness of teachers but also on the willingness and engagement of nonacademic staff. In Myanmar, in higher education institutions, the committed staff has strong psychological ties to their universities by considering not only current salaries but also the retirement benefits (retirement plan). Thus, their engagement would be upgraded by effective and attractive pension rewards. Moreover, their attitude towards their work can effect on their engagement.

Nearly fifty years ago Whyte (1956) evolved the concept of 'The organization man' as one who is over committed to his organization. Whyte described the organization man as a person who not only worked for the organization, but also belonged to it. Organization men believed in the administers, leaders of the universities (e.g., rectors), and also to the disciplines and systems they have to be compliance with. Among the systems of higher education institutions, the retirement

¹ Department of Economics, Mandalay University of Distance Education

² Department of Economics, Mandalay University of Distance Education

system has large influence on their desire to stay with respective university for long-term. However, the retirement system alone would not be enough to upgrade their engagement. Their love on work and their commitment to work will also influence on their dedication, and loyalty. Thus, in Myanmar higher education institutions, there would be many organization men and their engagement would tie with the retirement plan and work attitude.

Rationale of the study

Myanmar government had planned the systematic retirement plan for all government staff, including staff working at the universities. In Myanmar universities, not only academic staff but also nonacademic staff has serious concern on the retirement benefits. The staff expectation on retirement benefits can effect on staff's attitude towards their work, and this work attitude will solicit the commitment and loyalty (engagement) from them. While the government has justified the pension rate with changing living cost, the retirement plans become attractiveness to the staff.

Employee engagement can be defined as a positive attitude held by the employee towards the organization and its values (Robinson, Perryman, & Hayday, 2004). An engaged employee is aware of business context, and works with colleagues to improve performance within the job for the benefit of the organization. In the education sector, the work attitude and employee engagement can change positively or negatively the quality of education and the development and image of universities. In this modern era, the engagement and work attitude of nonacademic staff become crucial in providing student service to their convenient and smart learning especially in distance learning. Thus higher education institutions, particularly universities must work to develop and nurture engagement and good work attitude of nonacademic staff.

In Myanmar, universities, especially universities delivering the distance education, need urgently to consider the engagement and work attitude of nonacademic staff because their administrative work and their student service are at the crucial role in developing the flawless processes throughout the student study period (from entering into university to the end of study). Thus, the engagement of nonacademic staff must be emphasized by the administrators and leaders of the universities. They can develop attractive retirement plan at the one hand, and at the other hand, they must develop the atmosphere for upgrading good work attitude of nonacademic staff.

Research questions

The four research questions are explored:

- (1) Is current retirement plan attractive to nonacademic staff at the Universities of Distance Education?
- (2) How do the nonacademic staffs show their attitude towards work at the Universities of Distance Education?
- (3) How do the nonacademic staffs engage at the Universities of Distance Education?
- (4) How do the retirement plan and work attitude influence on the engagement of nonacademic at the Universities of Distance Education?

Objectives of the study

- (1) To analyze the effect of the perception towards the retirement plans on organizational attitude to work of nonacademic staff at Mandalay University of Distance Education (MUDE)
- (2) To analyze the effect of organization attitude to work on the engagement of nonacademic staff in Mandalay University of Distance Education (MUDE)

Methods of the study

This study focuses only on universities which are delivering the distance education. There are two government distance-universities in Myanmar: Yangon University of Distance Education and Mandalay University of Distance Education. The two-stage sampling approach is applied in this study. At the first stage, one distance university is randomly selected from two distance universities: Mandalay University of Distance Education is randomly selected.

There are 203 nonacademic staff who are working at the Mandalay University of Economics. By using the Raosoft sample size calculator (with 5% margin of error, 95% confidence level, 203 populations and 80% response distribution) is used to identify the sample size: sample size is 112. Simple random sampling method is used without concern on department and position. Questionnaire survey is conducted by distributing the structured questionnaires to randomly selected 112 nonacademic staff. The complete responses are received from 110 respondents. For data analysis, descriptive and regression methods are applied.

Literature Review

This section contains the definitions and concepts of main variables described in developing the conceptual framework: the retirement plan, organizational attitude to work, and employee engagement. Then, the review on the previous articles relating to these variables is presented. The review on these previous articles mainly focused on their conceptual frameworks, variables they used, methods and findings from their analyses.

General purposes of retirement plan

The general purposes of retirement plans are to ensure that every government staff receives retirement benefits as and when due, to assist improvident individuals by ensuring that they save to cater for their livelihood during old age, and to establish a uniform set of rules and regulations for the administration and payment of retirement benefits.

Attitude to work

Newman, Joseph & Hulin (2010) described that the three elements of work or job attitude are job satisfaction, job involvement and affective organizational commitment. According to Loke (1976), job satisfaction is defined as a pleasurable or positive emotional state resulting from the appraisal of one's job. This definition includes both appraisal and emotional elements of work. The affective or emotional components of job satisfaction focus on the emotions an individual experiences based on the perception that the work allows the fulfillment of individual's values (Locke, 1969).

Kanungo (1982) identified job involvement as a cognitive state of an individual that is the result of the ability to satisfy intrinsic needs of the individual. Those who are involved in their jobs are individuals who satisfy critical psychological needs (e.g., need for autonomy) (Kanungo, 1979). Solinger et al. (2008) defined organizational commitment as an attitude of an employee reflected in a combination of affect, cognition, and action readiness to serve and enhance the organization's success.

Employee engagement

Engagement at work was conceptualized by Kahn, (1990) as the 'harnessing of organizational members' selves to their work roles. In engagement, people employ and express themselves physically, cognitively, and emotionally during role performances. Csikzentmihalyi (1975) defined it as the 'holistic sensation' that, people feel when they act with total involvement.

Employee engagement is the level of commitment and involvement an employee has towards their organization and its values. Thus, employee engagement is a barometer that determines the association of a person with the organization. Engagement is most closely associated with the existing construction of job involvement (Brown 1996). Job involvement is defined as 'the degree to which the job situation is central to the person and his or her identity (Lawler & Hall, 1970).

Job involvement results form a cognitive judgment about the needs satisfying abilities of the job. There are three basic aspects to promote employee engagement:

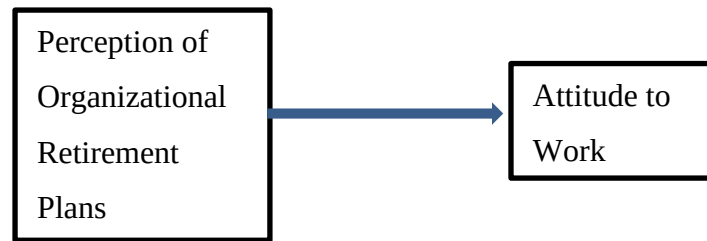
- (1) the employees and their own unique psychological makeup and experience,
- (2) the employers and their ability to create the conditions, and
- (3) the interaction between employees at all levels.

In this regard, employees and their personality, the employers' attitude and ability, and communication between employees are equally important for developing employee engagement. A highly engaged employee will consistently deliver beyond expectations. In the workplace research on employee engagement (Harter, Schmidt & Hayes, 2002) have repeatedly asked employees 'whether they have the opportunity to do what they do best everyday'. Thus, employee engagement is critical to any organization that seeks to retain valued employees.

Employee perception on retirement plan and employee work attitude

Manuel and Asuquo (2010) presented the effect of university workers' perception of organizational retirement plans on their attitude to work. Their study objectives are to examine the perception of the university retirement plan, to find out the university workers perception about their university retirement plan influence their attitude towards work, to establish the type of attitude, university workers develop towards as the result of their university retirement plan, and to identify universities retirement plans which have been established for their workers.

Their study's targeted population is 100 academic staff and 100 nonacademic staff, and sample size is 50 each (total 100). They used the structured questionnaire consists of 5 point scaled question items for main variables. The results showed that workers' attitude to work was largely unfavorable. However, there was a significant influence of perception of retirement plan on attitude to work across all categories of workers. Their conceptual framework is showed in Figure (1)



Source: Manuel and Asuquo (2010)

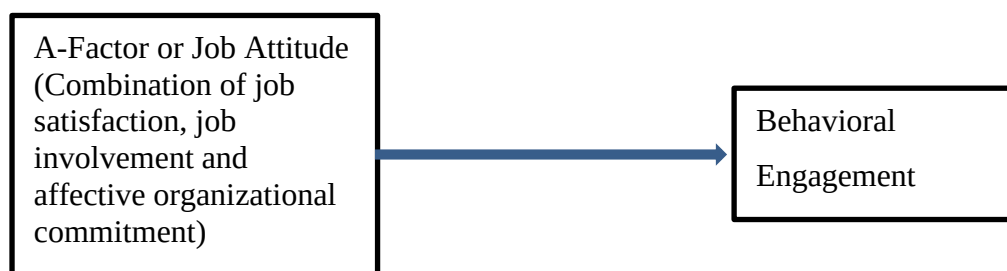
Figure (1) Conceptual Model of Manuel and Asuquo (2010)

The previous paper focused on two variables: perception of organizational retirement plans and attitude to work. This paper framed with two universities (University of Port Harcourt and Rivers State University of Science and Technology, located in Port Harcourt, Rivers State, Nigeria.

Attitude to work and employee engagement

Harrison et al., (2006) and Newman et al., (2010) proposed the attitude-engagement model in which attitude predicts individual effectiveness: Newman and Harrison (2008) labeled engagement. It is important to note that the most common conceptualization of employee engagement has been as an attitudinal variable, which is like job or work attitude.

Koenig (2013) conducted the research on the effect of job (work) attitude factors such as job satisfaction, job involvement and affective organizational commitment on employee engagement. In this research, researcher termed “A-Factor” as the combination of these three elements of job attitude. Their conceptual model is shown in Figure (2).



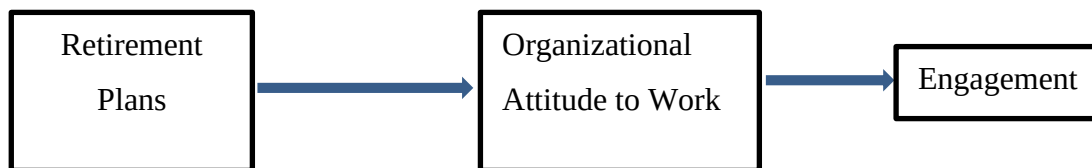
Source: Koenig (2013)

Figure (2) A-Factor (Job Attitude) and Behavioral Engagement

Findings from this previous research showed that the A-Factor (job attitude elements) influenced on behavioral engagement.

Conceptual framework of the study

The conceptual framework is developed based on some employee engagement theories and some findings from two previous studies as mentioned above. The conceptual framework is shown in Figure (3).



Source: Own Compilation

Figure (3) Conceptual Framework of the Study

This study's conceptual framework is developed with two conceptual assumptions: nonacademic staff on the retirement plan has the impact on their organizational attitude to work, and this organizational attitude to work influences on their engagement. These assumptions are conceptually adapted to the findings from research of two previous papers as mentioned above.

Hypotheses

In this study, the two hypotheses are proposed concerning the links between variables shown in the conceptual framework.

- (1) Nonacademic staff perception on the retirement plans has positive significant effect on their organizational attitude to work at Mandalay University of Distance Education
- (2) Nonacademic staff's organizational attitude to work influences on their engagement at Mandalay University of Distance Education

Findings from Descriptive Analysis

To explore the nonacademic staff perception level on the retirement plan of government, their work attitude level, and their engagement level, the descriptive analysis is conducted. Data are received from 110 staff. Mean values based on the response scores given by respondents and standard deviation values are calculated. The question items of each of the variables are adapted to the question items developed by the previous authors. The staff perception on retirement plan in Mandalay University of Distance Education is shown in Table (1).

Table (1) Perception on Retirement Plan

Sr. No.	Description	Mean	Std. Dev.
1	Knowing that entitled to a full age pension for current position	3.82	1.16
2	The old-age pension system can meet the demand for employees	3.83	0.78

Sr. No.	Description	Mean	Std. Dev.
3	Old age pension is helpful to the retirement plan to some extent	4.00	0.56
4	The pension benefit does not significantly support for old age*	2.52	1.01
5	Old age pensions do not provide sufficient security to employees	3.85	0.78
6	Having a pension system brings comfort to the employees	4.20	0.48
7	Retirement plan is one of the expectations of employees	4.47	0.52
Overall Mean		3.81	

Source: Survey Data (2024)

* Reverse Question Item

Most of the nonacademic staff at MUDE perceived positively the government retirement plan. They know that they can get full pension amount at the retirement age, it is helpful, and it would meet their demand, expectations and fulfill security at old age.

In this study, the staff attitude to work is also analyzed descriptively. The staff attitude to work is approached from the aspects of commitment to working time at the office and ethical value regarding the working time at office. The staff attitude to work in Mandalay University of Distance Education is shown in Table (2).

Table (2) Organizational Attitude to Work

Sr. No.	Description	Mean	Std. Dev.
1	Going to work regularly	4.31	0.65
2	Being in a regular office full time	4.25	0.68
3	Being in working outside as the salary is not enough*	2.38	1.13
4	There is no strict return by working hours	3.35	0.98
5	Doing a few transactions in the office to get extra cash*	1.81	0.87
6	Working/not working full time has no effect on pension entitlement	3.37	1.13
7	Has no penalty for doing other work during working hours	2.65	1.02
Overall Mean		3.16	

Source: Survey Data

* Reverse Question Item

Nonacademic staff at MUDE have good attitude to their work. In this study, as the result of staff perception on retirement plan and their work attitude, their engagement is assessed with descriptive method. The staff engagement in Mandalay University of Distance Education is shown in Table (3).

Table (3) Engagement

Sr. No.	Description	Mean	Std. Dev.
1	Feeling that organization is transparent and has good communication	3.85	0.83
2	Feeling comfortable speaking up and sharing opinions	3.98	0.47
3	No difficulty to present ideas to superiors and discuss with colleagues	3.91	0.67
4	Clear understanding of respective role and responsibilities	3.96	0.47
5	Opportunities for professional development and growth	3.62	0.78
6	Feel that respective work is meaningful and important	3.96	0.51
7	Good working relationship with colleagues	4.15	0.63
8	Feeling that staff contributions are recognized and appreciated	3.88	0.52
Overall Mean		3.91	

Source: Survey Data, 2024

In MUDE, most of the nonacademic staff has high engagement to their university. They feel that their university provides good information sharing between top and lower levels and also between same ranks and among peers.

Findings from Regression Analysis

To reach the main objectives of this research, simple linear regression analysis is conducted to examine the effect of perception on retirement plan on work attitude, and the effect of work attitude on engagement of nonacademic staff at MUDE. Data from 110 nonacademic staff are analyzed, and the results about the influence of perception on retirement plan on work attitude are shown in Table (4).

Table (4) Effect of Perception on Retirement Plan on Attitude to Work

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	1.729	0.493		3.504	0.001	
Perception on Retirement Plan	0.470***	0.129	0.331	3.641	0.000	1.000
R Square	0.109					
Adjusted R Square	0.101					
F Value	13.259***					

Dependent Variable is "Attitude to Work"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

From regression analysis, it is found that the nonacademic staff perception on retirement plan has positive significant effect on their organizational attitude to work at Mandalay University of Distance Education. Thus, the hypothesis (1) is accepted. The results about the influence of work attitude on staff engagement are shown in Table (5).

Table (5) Effect of Attitude to Work on Engagement

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig	VIF
	B	Std. Error	Beta			
(Constant)	3.265	0.283		11.541	0.000	
Attitude to Work	0.182**	0.080	0.215	2,282	0.024	1.000
R Square	0.046					
Adjusted R Square	0.037					
F Value	5.209**					

Dependent Variable is "Engagement"

*** Significant at 1 percent level

** Significant at 5 percent level

* Significant at 10 percent level

Survey results showed that the attitude to work has positive significant effect on nonacademic staff engagement to Mandalay University of Distance Education. Thus, the hypothesis (2) is accepted.

Discussion

Nonacademic staff at MUDE believes that the pension amount will bring comfort to them at the old age. They do not conduct malpractice at office for finding extra money, and they so not go outside work during office hours. They come to work regularly, even in after office time, they stay at office if it is necessary. Even though their working hours are not relating to pension amount, they are not considering their working hours for extra work. They understand their roles and responsibilities, and they feel that their work is meaningful and important, and their contributions are recognized.

The good attitude to work of nonacademic staff can be shaped by their positive perception on the retirement plan of the government. This good work attitude will retain them at MUDE with high commitment.

Conclusion

Most of the nonacademic staff at MUDE perceived positively the government retirement plan. They feel that this retirement benefit will be safety when they are at old age. Lump sums amount they can get when they retire is also incentive to them. Nonacademic staff at MUDE have good attitude to their work. They do not conduct malpractice at office for finding extra money, and they do not go outside work during office hours. They come to work regularly, even in after office time; they stay at office if it is necessary. Even though their working hours are not relating to

pension amount, they are not considering their extra working hours, as well as they have high conscious for not go outside during office time and not off early. In MUDE, most of the nonacademic staff has high engagement to their university. They feel that their university provides good information sharing between top and lower levels and also between same ranks and among peers. They believe that their work is meaningful and important, and their contributions are recognized. The government retirement plan is impacting on their work attitude, and this attitude influences on their engagement.

Suggestions and Recommendations

In general, nonacademic staff at distance universities plays at the crucial supporting role. Thus, their attitude toward work is very important for university image and also for students' satisfaction. Currently, nonacademic staff of Mandalay University of Distance Education have good attitude towards their work, and they concern the ethical conduct. This good status must be retained for education qualification and university quality and image.

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ANALYSIS ON THE RELATIONSHIP BETWEEN TOTAL QUALITY MANAGEMENT (TQM) AND OPERATIONAL PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) IN PANGLONG

Yan Yan Myo Naing¹ and Myat Mon Phyo²

Abstract

This study aims to analyze the relationship between total quality management (TQM) and operational performance of micro, small and medium enterprises in Panglong. Customer focus, employee knowledge and education, employee quality management, process management and quality practices of top management all play critical roles in improving the operational performance of micro, small and medium-sized enterprises (MSMEs) of Myanmar. Micro, small and medium-sized firms must overcome several obstacles in order for the country's economy to thrive. This study addresses this issue. A quantitative technique is used in this research. Data were acquired through personal interview with structured questionnaire. Data are collected from April 2023 to May 2023. To reach research objectives, multiple linear regression analysis is applied. Among the total quality management practices, the findings of the study suggested that only process management and quality practices of top management have positively significant effect on operational performance of MSMEs in Panglong. The study's findings have a number of implications for MSME management including the importance of production process and quality practices of top management or owners in achieving better performance standards.

Keywords: Customer Focus, Employee Knowledge and Education, Employee Quality Management, Process Management, Quality Practices of Top management and Operational Performance

Introduction

Economic development is an important role for most developing nations. By boosting productivity and creating jobs, micro, small and medium-sized enterprises (MSMEs) have an important role to play. These appears to be a substantial and expanding corpus of academic study on the speed of innovation, which is defined as the time passed between the original idea and the final market introduction of a new product. Myanmar, as a developing economy, is confronted with the difficulty of matching specification and expectations in terms of sales and service supply, which has resulted in significant economic waste and in calculable difficulties in the country. In general, it is a management concept that aims to incorporate all organizational tasks to objectively meet consumers' needs. Its goal is to make quality less on an operational issue and more of a concern for the whole organization. All units, departments, and divisions of the company will be responsible for total quality management.

Businesses today operate in increasingly competitive and dynamic markets require goods to be brought to the market faster, global competitiveness, an exponential increase in innovation, and changing consumer expectations are promoting product quality improvements and requirements for rapid product development. A sustained enterprise keeps its ability to acquire both

¹ Department of Economics, Panglong University

² Department of Commerce, Naypyitaw State Academy.

short-term and long-term benefits in a leading competitive market. This is essential for future growth.

In the context of small and medium-sized manufacturing industries, only few academics have addressed total quality management practices in MSME's operational performance. Scholars have claimed that there exists a positive relationship between total quality management and MSME's operational performance. Nevertheless, believes that TQM has a negative impact and a less-than-optimal outcome on the performance of MSMEs. The result of these contradictory and inconsistent findings and there is a shortage of research that explores the relationship between TQM and MSMEs performance, especially in Panglong setting, an investigation is truly needed to bridge this gap.

A deeper knowledge of TQM practices of firms in Panglong will be gained from this research. Specifically, this study will try to answer the question: Are there any direct impacts of total quality management practices on MSMEs operational performance in Panglong.

As a result, improving the performance of MSMEs necessitates effective TQM practices. Consequently, the purpose of this study is to investigate the relationship between total quality management and operational performance of micro, small and medium enterprises (MSMEs) in Panglong.

Objective of the Study

The main purpose of this study is to examine whether the TQM practices of MSMEs can support business firms to increase their operational performance. The specific objective of the study is:

- To analyze the effect of TQM practices on operational performance of MSMEs in Panglong

Method of the Study

This study focuses on the factors influencing MSMEs performance in Panglong. In this study, both primary and secondary data are used. According to the data from Loilem township municipal association, there are 412 MSMEs in Panglong last year. The Roasoft sample size calculator is used for sample size. It is taking into account a confidence interval of 90 %, margin of error of 5 %. A simple random sampling method is used for the sample. 176 MSMEs are chosen as sample by simple random sampling method. In these sample businesses, number of small foods shops and restaurants are 58, grocery stores are 23, stationery shops are 10, hardware shops are 8, motor cycle repairs are 8, sewing shops are 6 equipment and accessories shops are 5 and the rest 58 businesses are 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,

Personal interview method is applied by using structured questionnaire with 5-point likert scale. Secondary data are sourced from relevant websites, previous papers, international journals and textbooks. The descriptive and linear regression methods are applied for data analysis.

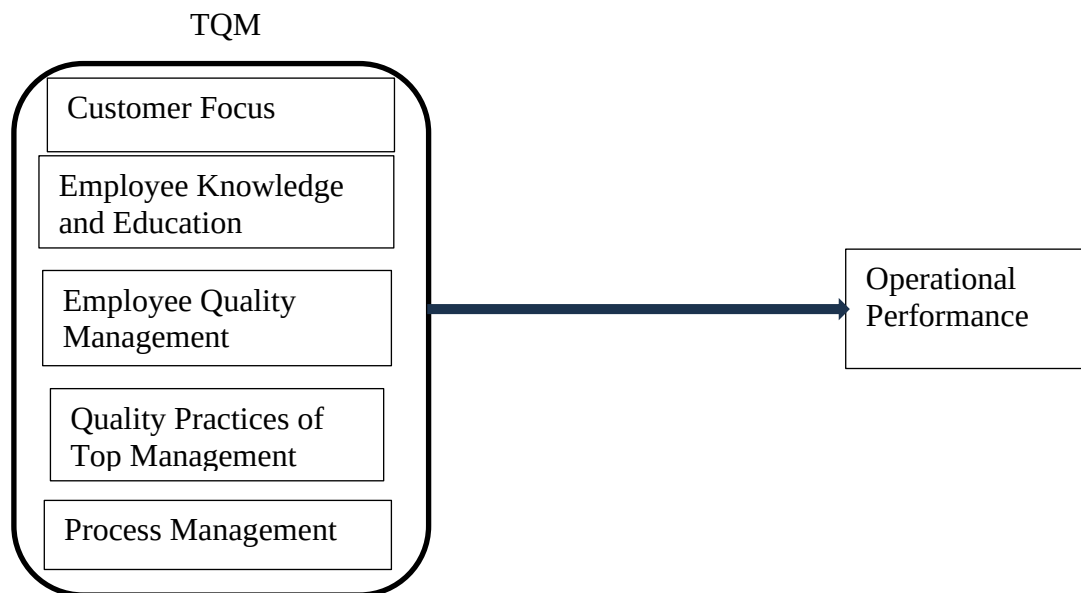
Conceptual Framework of the Study

Conceptual model of this study is adapted to two previous researchers' models which are closely related to basic assumptions of this study. the first model focus on investigating the role of innovation speed in mediating the relationship between total quality management and performance of small and medium-sized enterprise in Nigeria. The main objective of the second model was to find out the effect of total quality management on operational performance of commercial banks in Mombasa County, Kenya (Nyamari, 2017).

The first model adapted by this study is developed by Niyi Anifowose, Ghasemi and Olaleye (2022). The findings of this study suggested that total quality management is positively related to operational performance which has a substantial on the nexus between total quality management (TQM) and small and medium-sized enterprises'(SME) performance. The second model considered in this study is the model developed by Nyamari (2017). This previous model pointed out that TQM practices as independent variables had a significant relationship with operational performance. Additionally, TQM practices were realized to have a positive effect on operational performance such that as TQM practice varies, the latter varies to a large extent.

Conceptual Model of the Study

The conceptual model of this study is developed by covering the factors mentioned above with theoretical aspects, and previous researchers' findings. The conceptual model of this study is shown in Figure (1).



Source: Own Compilation

Figure (1) Conceptual Model of the Study

In this study, the five major assumptions are developed: customer focus, employee knowledge and education, employee quality management, process management and quality practices of top management are relation to operational performance of MSMEs in Panglong. The concept adapted that TQM is a set of controllable practices that businesses use to produce the response they want, operational performance.

Analysis and Results

The main purpose of the study is to analyze the effect of TQM practices on operational performance of MSMEs in Panglong. To explore this effect, the study intends to identify the TQM practices such as customer focus, employee knowledge and education, employee quality management, process management and quality practices of top management that influence the operational performance of MSMEs in Panglong. The descriptive statistics and multiple linear regression analysis were conducted to analyze the effect of TQM on operational performance.

Profiles of MSMEs in Panglong

The profile of MSMEs in Panglong consists of kinds of businesses and their contribution. In the last year, there are 412 MSMEs in Panglong (Loilem township municipal association). This study is based on these 412 businesses. According to the business number, MSMEs businesses are divided into two categories: above ten shops and below 10 shops. Types of businesses which have more than 10 shops are restaurants and food shops, grocery stores, stationery stores, hardware shops, motorcycle repair shops, sewing shops and equipment and accessories shops. Types of business which have less than 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,.

Among 412 businesses, the largest portion of businesses (33 %) is small food shops and restaurants. The reason is that Panglong is the town where Panglong University is located. Both of day and distance students study at Panglong University. Most of the students come from other towns around Panglong. In addition, most of the university teachers come from Yangon, Mandalay and Taungyi. Therefore, demand for food has exceeded supply. The second largest portion (13 %) is grocery stores. Both kinds of stationery and hardware shops have five percent contribution rate each. Moreover, motorcycle repair shops and sewing shops are four percent each of all MSMEs businesses in Panglong. Three percent of all MSMEs businesses are equipment and accessories shops. The rest percent of businesses consists of 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,.

Relationship between Total Quality Management (TQM) and Operational Performance

The analysis on the relationship between total quality management and operational performance is conducted by using survey data. In this study, TQM practices are concerned with customer focus, employee knowledge and education, employee quality management and process management and quality practices of top management. Operational performance measurements consist of customer satisfaction, quality development, cost management, responsiveness and productivity. The TQM practices of surveyed businesses can be seen with the mean value data. Firstly, practices concerning customer focus can be seen in Table (1).

Table (1) Customer Focus

Sr.	Items	Mean	Std.Dev
1	Analyzing customer needs	4.133	0.720
2	Publicizing customer needs to all employees	4.044	0.790

Sr.	Items	Mean	Std.Dev
3	Measuring customer satisfaction periodically	3.978	0.747
4	Acting on customer complaints/feedback	4.244	0.640
5	Having systems to manage customer relationships	4.133	0.620
	Overall Mean	4.106	

Source: Survey Data (2023)

As shown in Table (1), customer focus mean score of respondents is high (4 and nearly 4). It can be concluded that they show strength in performing customer focus activities. According to the results of each item, it is found that they are rarely measure customer satisfaction periodically. However, they are mainly acts on customer complaints and feedback. The reason for this is that most of the businesses believe, if there is no complaint, customers are satisfied. In fact, only some portion of unsatisfied customers are complaint. The rest portion of unsatisfied customers are no complaint. In reality, number of unsatisfied customers are not equal to number of customer complaints. Therefore, the businesses should take into account these facts.

After that, the analysis focuses on practices of businesses on employee knowledge education. The employee knowledge education practices of surveyed businesses can be assessed with the mean values shown in Table (2).

Table (2) Employee Knowledge and Education

Sr.	Items	Mean	Std.Dev
1	Evaluating educational programs	3.222	1.136
2	Having knowledgeable and knowing-how employees	3.778	0.729
3	Having educated employees in subjects concerning their specialty and daily work	3.600	0.830
4	Absorbing educational subjects by employees	3.244	0.949
5	Providing resources for educational reasons	3.311	1.032
	Overall Mean	3.431	

Source: Survey Data (2023)

As shwon in Table (2), employee knowledge education mean score of respondents is in acceptable level (greater than 3). It can be concluded that, the businesses indicate level of intensity in performing employee knowledge education activities. To maintain long-term customer satisfaction and loyalty, employee knowledge education is important. According to the result of each item, the employees have enough knowledge and know-how. However, it can be found that there is some extent of weakness in performing and evaluating educational programs such as training and development programs.

The next part is analysis on practices of businesses for employee quality management. The level of commitment of businesses to employee quality management practices can be seen with mean values shown in Table (3).

Table (3) Employee Quality Management

Sr.	Items	Mean	Std.Dev
1	Awarding employees who improve quality	4.000	0.762
2	Evaluating employees	4.044	0.633
3	Motivating employees to improve their performance	4.022	0.832
4	Collecting data from employees regarding their satisfaction	3.911	0.814
5	Collecting data from employees regarding their suggestions for improvement	3.778	0.894
6	Taking initiatives by employees	3.289	0.937
7	Taking into consideration quality data from employees during their daily work	3.644	0.901
	Overall Mean	3.812	

Source: Survey Data (2023)

As shown in Table (3), three variables of employee quality management mean scores are fairly high (greater than 4). It can be concluded that the businesses indicate strengths in providing quality award, evaluating employee performance and motivating employees to improve their performance. The rest four variables mean scores are in the acceptable because the mean scores are greater than 3. It can also be concluded that the businesses point out their strengths in data collection regarding employee satisfaction and suggestions for improvement, encouraging employees to take initiatives and taking into consideration daily work quality data from their employees.

Another part of the analysis is focused on process management. The level of concentration of businesses to process management practices can be seen with mean values shown in Table (4).

Table (4) Process Management

Sr.	Items	Mean	Std.Dev
1	Detecting process and product nonconformities through internal audits	3.778	0.788
2	Recording and analyzing process quality data	3.800	0.780
3	Determining-evaluating the critical processes	3.756	0.767
4	Detecting the points/places where time is lost to minimize the cost of the internal processes	3.778	0.698
5	Providing employees with work instructions	3.889	0.769
6	Formulating specific organizational structure to support quality improvement	3.889	0.708
	Overall Mean	3.815	

Source: Survey Data (2023)

As shown in Table (4), process management overall mean score of respondents is in tolerable level (greater than 3). It can be concluded that the businesses reveal their level of concentrated in practicing process management. Process management of businesses should be

systematic approach to ensure that effective and efficient business processes are in place. According to the results of each item, all employees are provided with clear work instructions and specific organizational structure has been formulated to support quality improvement. However, it can be noticed that there is somewhat weakness in determining and evaluating the critical processes. This is because potential biases, challenges in data interpretation, and resource intensives are occurred in determining and evaluating the critical processes. It requires careful planning and a systematic approach to address these limitations effectively.

The later element is analysis on quality practices of top management. The extent of execution to quality practices of top management can be examined with mean values shown in Table (5).

Table (5) Quality Practices of Top Management

Sr.	Items	Mean	Std.Dev
1	Setting the quality issues on the agenda of the managers' meetings	3.911	0.663
2	Participating actively in quality improvement efforts by top management	3.933	0.648
3	Giving the authority to employees to manage quality problems	3.733	0.882
	Overall Mean	3.859	

Source: Survey Data (2023)

As shown in Table (5), the highest mean score is concerned with “Top management actively participates in quality improvement efforts”. It can be said that top managers are actively participate in standardizing processes and structure to reduce variation, achieving predictable results, and improving outcomes for customers, customer service systems, and organizations.

According to the results of each item, the lowest mean score is related with “Top management gives the authority to employees to manage quality problems”. It can be exclaimed that top managers are rarely put into practices in involving employees in planning, distributing information and, encouraging learning and growth. This is because many managers hesitate to empower their employees because they are stuck on the traditional view of empowerment, which is giving employees extra authority.

The last item is the dependent variable of the study. This is operational performance of the businesses. The level of execution to improve operational performance can be scrutinized with mean scores shown in Table (6).

Table (6) Operational Performance

Sr.	Items	Mean	Std.Dev
1	Better customer satisfaction as compared to key competitors	3.778	0.788
2	Better quality development as compared to key competitors	3.622	0.771

Sr.	Items	Mean	Std.Dev
3	Better cost management as compared to key competitors	3.467	0.688
4	Better responsiveness as compared to key competitors	3.778	0.816
5	Better productivity as compared to key competitors	3.711	0.721
	Overall Mean	3.671	

Source: Survey Data (2023)

As shown in Table (6), operational performance mean score of respondents is in the acceptable level (greater than 3). It can be concluded that the businesses show enough strength in executing operational performance. According to the results of each item, it can be seen that the highest mean score is related with “customer satisfaction of our organization is better as compared to key competitors” and “responsiveness of our organization is better as compared to key competitors”. It can be said that the businesses focus on meeting customer expectations than the competitors through their products and services, and it can also be assumed that how quickly and efficiently an organization responds to the needs of its customers. It is determined by assessing how quickly customer inquiries and complaints are answered and how effectively recommendation is implemented and feedback is received. On the other hand, the lowest mean score is related with “cost management of our organization is better as compared to key competitors”. It can be understood that the businesses are some extents of weaknesses in the process of planning and controlling the costs associated with running a business. In the cost management process, collecting, analyzing and reporting cost information to more effectively budget, forecast and monitor costs are included.

Analysis on the Effect of TQM Practices on Operational Performance

This analysis intends to test the relationship between TQM practices and operational performance. In this study, multiple linear regression analysis is conducted to test this relationship. The results for the effect of TQM practices on operational performance are shown in Table (7).

Table (7) Relationship between TQM practices and Operational Performance

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	Sig	T	Tolerance	VIF
	B	Std. Error	Beta				
(Constant)	0.563	0.312		0.073	1.802		
Customer focus	0.057	0.063	0.054	0.370	0.898	0.873	1.145
Employee knowledge and education	0.086	0.061	0.094	0.161	1.407	0.722	1.385
Employee quality management	0.025	0.086	0.025	0.772	0.291	0.432	2.313

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	Sig	T	Tolerance	VIF
	B	Std. Error	Beta				
Process management	0.285	0.091	***0.285	0.002	3.143	0.388	2.574
Quality practices of top management	0.363	0.081	***0.357	0.000	4.467	0.500	1.999
R			0.667				
R.Square			0.445				
Adjusted R.Square			0.429				
Durbin-Watson			1.936				
F (P<0.05)			27.874				

Source: Survey Data (2023)

*, **, ***: Indicate statistical significance at the 10 % level, 5 % level and 1% level

As shown in Table (7), R^2 (proportion of the variance in the dependent variable accounted by model) is 0.445 and adjusted R^2 is 0.429. Thus, the model has accounted for 42.9 % of the variance in the dependent variable. It is found that the relationship between process management and operational performance is positively significant at 99 % confidence interval. A unit increase in “process management” will lead to 0.285 units increase in effect on operational performance while taking all other independent variables at zero. In addition, it is also found that the relationship between quality practices of top management and operational performance is positively significant at 99 % confident interval. A unit increase in “quality practices of top management” will lead to 0.357 units increase in effect on operational performance while taking all other independent variables at zero. However, the relationship between customer focus, employee knowledge and education, employee quality management and operational performance are not significant.

There is no autocorrelation in sample because the Durbin Watson value is 1.936 (nearly 2). All VIFs (variance inflation factor) of independent variables are less than 10. Thus, there is no problem of multi collinearity (correlation between independent variables). According to the results from the survey, it can be concluded that there is an effect of process management and quality practices of top management on operational performance of MSMEs in Panglong.

To increase the level of operational performance of MSMEs in Panglong, process management and quality practices of top management should be emphasized by owners or managers of MSMEs in Panglong. The rest variables such as customer focus, employee knowledge and education, and employee quality management are not too supportive to increase the level of operational performance.

Conclusion

The study extracted significant research findings that have emerged from the analysis of research data on customer focus, employee knowledge and education, employee quality management, process management, quality practices of top management and operational

performance of MSMEs in Panglong. Based on the results of findings from regression analysis, both of process management and quality practices of top management are important to increase the operational performance.

Operational performance is increased because of detecting process and product non conformities through internal audit, recording and analyzing process quality data, determining and evaluating the critical process, detecting the points/places where time is lost to minimize the cost of the internal processes, providing employees with work instructions and formulating specific organizational structure to support quality improvement. Furthermore, high operational performance is come from setting the quality issues by top management on the agenda of the managers' meeting, participating actively by top management in quality improvement efforts and giving the authority to employees by top management to manage quality problems.

However, according to the results from the analysis on the effect of TQM practices on operational performance, some TQM practices such as customer focus, employee knowledge and education and employee quality management are not relevant practices to increase the level of operational performance.

After evaluating the several aspects of operational performance, the conclusion is that there is a need to evaluate strategic TQM practices using multilevel analysis that would consider both micro and macro contents. The study discovers two general themes: process management and quality practices of top managements that play a significant role in operational performance of businesses particularly MSMEs in Panglong.

Suggestion and Recommendation

Total quality management is a cogent construct in manufacturing firms, and previous research has highlighted its impact on several financial and non-financial organizational outcomes. The current study aimed to identify the influence of TQM on operational performance. The results revealed that two TQM practices: process management and quality practices of top management positively influence the operational performance of MSMEs in Panglong. These findings suggest that the significance of process management and quality practices of top management will enhance MSMEs' operational performance. The study also revealed that for any manufacturing firm (micro, small and medium) to flourish in its day-to-day operations, there is a need to actively integrate process management and quality practices of top management to get their benefits. However, it is recommended that management empowers and regularly involves its employees. Continuous improvement should be part of all the processes and job description. Top management should create the right culture through proper hiring. Business process reengineering can help micro, small, medium and large manufacturing companies capture customers' hearts.

This study's findings can help Panglong manufacturing owners/managers understand the importance of quality management and continual improvement. It may inspire owners/managers to dedicate organizational resources to TQM adoption for greater performance. Organizations should practice constant value making through employee training for the fast transformation and actualization of the enterprise's goals.

Contributions of the Study

For practitioners, the current study has very important insights into increasing the operational performance with the help of process management and quality practices of top

management. This study provides vital clues for managers while making strategies to increase the operational performance among MSMEs in Panglong. This study provides evidence that MSMEs can increase their performance through detecting process and product non conformities through internal audit, recording and analyzing process quality, determining and evaluating critical processes, detecting the points/places where time is lost to minimize the cost of the internal processes, providing employees with work instructions, formulating specific organizational structure to support quality improvement, setting quality issues on the agenda of the managers' meetings, actively participating of top management in quality improvement efforts and giving the authority to employees to manage quality problems. Hence, the current research is much more productive for Panglong MSMEs.

This study has implications for owners/managers. Although owners or managers recognize the importance of TQM practices, their implications for and demands on the rest of the organization are often ignored in the process toward its success. This study calls on firm owners/managers to be aware of the importance of process management and quality practices of top management.

This study makes a considerable contribution to the existing literature on production and operations management, and TQM practices of MSMEs, particularly in regards to explaining the performance of Panglong MSMEs.

Needs for Further Studies

The current study has different limitations that may influence the results. This study did not consider the control variables. Control variables (as operational performance can be heavily influenced by them) include age, R&D expenditure, firm size (some MSMEs may be quite large), and industry technological orientation (high-tech versus low-tech firms). The study has a small sample size, which may affect the final outcomes. Additionally, the current study is based on a quantitative research method. However, mixed method (quantitative and qualitative) may help to get accurate results. Moreover, this study does not classify the types of firms into the categories.

Although the results provide new insights to current research, this field is far from well developed, and a continued research effort is needed to understand TQM practices and their integrated influences on firm's operational performance.

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EFFECT OF KNOWLEDGE MANAGEMENT ON ORGANIZATIONAL PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) IN PANGLONG

Yan Yan Myo Naing¹ and Myat Mon Phyo²

Abstract

This study aims to analyze the effect of knowledge management on organizational performance of MSMEs in Panglong. Entrepreneurial orientation, entrepreneurial innovation, and knowledge management all play critical roles in improving the performance of micro, small and medium-sized enterprises (MSME) of Myanmar. Micro, small and medium-sized firms must overcome several obstacles in order for the country's economy to thrive. This study addresses this issue. A quantitative technique is used in this research. Data were acquired through personal interview with structured questionnaire. Data are collected from April 2023 to May 2023. To reach research objectives, multiple linear regression analysis is applied. From the analysis, it is found that entrepreneur orientation and organizational innovation are critical factors in enhancing the knowledge management of MSMEs. The findings of the study also suggested that knowledge management has positively significant effect on organizational performance of MSMEs in Panglong. The study's findings have a number of implications for MSME management including the importance of knowledge management in achieving better performance standards.

Keywords: Entrepreneurial Oriesntation, Organizational Innovation, Knowledge Management, Organization Performance

Introduction

Micro, small and medium-sized enterprises (MSMEs) are often the main drivers of long-term economic growth, simply because MSMEs contribute most to economic development. Economic expansion is difficult without consistent performance of micro, small and medium-sized enterprises (Azarloo, Eshghiaraghi, Salehi, Habibpoor, & Jahangiri, 2017). Approximately 99.4 % of all businesses in Myanmar are classified as MSMEs. On average, MSMEs in Myanmar account for 50-95 % of employment and contribute 30-53 % of GDP in ASEAN member states.

The Government recognizes that SME entrepreneurship will define the country's future national economic development (www.charltonsmyanmar.com). With the ASEAN Free Trade Area coming into full effect by 2015, MSMEs in Myanmar will no longer be able to rely on government tariffs to protect them from overseas competition. By the same token, the opening up of regional markets represents an enormous opportunity for MSMEs in Myanmar but only if they are ready and able to meet the new challenges ahead. MSME performance can be improved with the help of entrepreneurial orientation and organizational innovation. Firstly, it is clear from the previous literature that entrepreneurial orientation is one of the tools to gain superior performance (Herath & Mahmood, 2012).

Various entrepreneurial activities have an important contribution to local economic development (Ayandibu & Houghton, 2017). This local economic development enhances performance and creates employment opportunities, which automatically boost the nation's

¹ Department of Economics, Panglong University.

² Department of Commerce, Naypyitaw State Academy.

economic growth. Secondly, organizational innovation also has an important contribution to MSMEs' performance. More innovations in organizations lead to more performance (Tsai, 2001). Innovation is a main contributor to MSME business performance. Nonetheless, entrepreneurial orientation and organizational innovations are not achievable outside of appropriate knowledge management strategies. The favorable results of an entrepreneurial exercise require the management of several applicable ideas. Both internal and external ideas are mandatory for innovation development (Chesbrough, 2006), and it needs suitable management of ideas. Knowledge management system is crucial in assisting MSMEs to become more innovative and enterprising. Additionally, it's an excellent tool for illustrating how innovation and an entrepreneurial mindset improve the success of small and medium-sized businesses.

Previous literature shows that different studies (Soto-Acosta, Popa, & Palacios-Marqués, 2016; Taheri, Bititci, Gannon, & Cordina, 2019) were carried out on entrepreneurship. However, most of the studies did not consider the two important factors; entrepreneurial orientation and organizational innovation. These two factors are most important for getting the highest performance in the presence of knowledge management. Knowledge management approaches that are both entrepreneurially oriented and innovative must therefore be carefully considered. Many previous research on the performance of MSMEs, undertaken by various academics, have missed the role of knowledge management through entrepreneurial orientation and innovation (Ahmed, Halim, & Ahmad, 2018). Entrepreneurial orientation and entrepreneurial innovation are major contributors to MSMEs' performance, according to the study's findings. Better results can be achieved through the implementation of knowledge management strategies. Knowledge management and an entrepreneurial orientation are intertwined (Liu & Lee, 2015). Despite this, Yan (2018) claims that entrepreneurial orientation and innovation are intimately linked. As a result, improving the performance of MSMEs necessitates effective knowledge management. Consequently, the purpose of this study is to investigate the relationship between entrepreneurial orientation, entrepreneurial innovation and knowledge management in MSME sector of Myanmar.

Objectives of the Study

The main purposes of this study are to examine whether the entrepreneurial orientation and organizational innovation of MSME can support business firms to increase their performance. The specific objectives of the study are:

1. To investigate the effect of entrepreneurial orientation and organizational innovation on knowledge management of MSME in Panglong
2. To examine the effect of knowledge management on organizational performance of MSME in Panglong

Method of the Study

This study focuses on the factors influencing MSMEs performance in Panglong. In this study, both primary and secondary data are used. According to the data from Loilem township municipal association, there are 412 MSMEs in Panglong last year. The Roasoft sample size calculator is used for sample size. It is taking into account a confidence interval of 90 %, margin of error of 5%. A simple random sampling method is used for the sample. 176 MSMEs are chosen as sample by simple random sampling method. . In these sample businesses, number of small foods shops and restaurants are 58, grocery stores are 23, stationery shops are 10, hardware shops

are 8, motor cycle repairs are 8, sewing shops are 6 equipment and accessories shops are 5 and the rest 58 businesses are 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,.

Personal interview method is applied by using structured questionnaire with 5-point likert scale. Secondary data are gathered from relevant websites, previous papers, international journals and textbooks. The descriptive and linear regression methods are applied for data analysis.

Conceptual Framework of the Study

Conceptual model of this study is adapted to five previous researchers' models which are closely related to basic assumptions of this study. The first model is not limited to a specific industry; its focus is on Pakistan's small and medium-sized enterprises. The second model is about the role of knowledge management in the relations of entrepreneurial orientation and innovation performance of SMEs in Iran. The third model emphasized on the effect of entrepreneurial orientation, innovation capability and knowledge creation on performance of SMEs in Malaysia. The fourth model examined on the effects of organizational innovation and knowledge management strategy in information technology companies in R&D departments on service quality and product innovation. The fifth model focused on the impact of knowledge management on organizational performance.

The first model adapted by this study is developed by Khan, Tufail and Ali (2021). The findings of this study suggested that entrepreneurial orientation and innovation are critical factors in enhancing the success of SMEs. The second model considered in this study is the model developed by Madhovi, Sadati, Delavari, Mehdivand and Mihandost (2011). This previous model pointed out that entrepreneurial orientation both directly and indirectly through the knowledge management affected innovation performance. The third model adapted by this study is developed by Omar, Aris and Nazi (2016). This model indicated that innovation capability is positively related to knowledge creation, but entrepreneurial orientation does not have a significant impact on knowledge creation. The fourth model examined in this study is developed by Sonmez Cakir, Kalaycioglu and Adiguzel (2024). The findings of this model suggested that both knowledge management strategies and organizational innovation have a positive effect on the success of service quality and product innovation. The fifth model took into account in this study is developed by [Abuaddous, Al Sokkar and Abualodous \(2018\)](#). The results of this model pointed out that knowledge management affect positively on organizational performance.

Conceptual Model of the Study

The conceptual model of this study is developed by covering the factors mentioned above with theoretical aspects, and previous researchers' findings. The conceptual model of this study is shown in Figure (1).

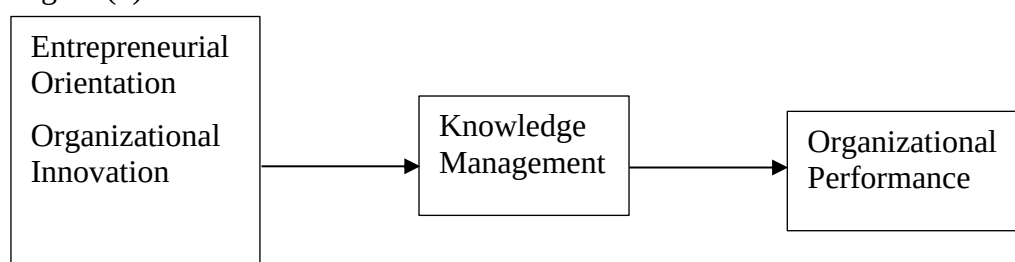


Figure (1) Conceptual Model of the Study

Source: Own Compilation

In this study, the three major assumptions are developed: both of entrepreneurial orientation and organizational innovation are relating to knowledge management; and there is an effect of knowledge management on organizational performance of MSMEs in Panglong. The concept adapted is that knowledge management is a set of controllable practices that businesses use to produce the response they want.

Analysis and Results

The main purpose of the study is to analyze the relationship between knowledge management and organizational performance of MSMEs in Panglong. To explore this relationship, the study also intends to identify the entrepreneurial orientation, organizational innovation and knowledge management practices that influence the organizational performance of MSMEs in Panglong. The descriptive statistics and multiple linear regression analysis were conducted to analyze the effect of entrepreneurial orientation and organizational innovation on knowledge management, and the relationship between knowledge management and organizational performance.

Profile of MSMEs in Panglong

The profile of MSMEs in Panglong consists of kinds of businesses and their contribution. In the last year, there are 412 MSMEs in Panglong (Loilem township municipal association). This study is based on these 412 businesses. According to the business number, MSMEs businesses are divided into two categories: above ten shops and below 10 shops. Types of businesses which have more than 10 shops are restaurants and food shops, grocery stores, stationery stores, hardware shops, motorcycle repair shops, sewing shops and equipment and accessories shops. Types of business which have less than 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,

Among 412 businesses, the largest portion of businesses (33 %) is small food shops and restaurants. The reason is that Panglong is the town where Panglong University is located. Both of day and distance students study at Panglong University. Most of the students come from other towns around Panglong. In addition, most of the university teachers come from Yangon, Mandalay and Taungyi. Therefore, demand for food has exceeded supply. The second largest portion (13 %) is grocery stores. Both kinds of stationery and hardware shops have five percent contribution rate. Moreover, motorcycle repair shops and sewing shops are four percent of all MSMEs businesses in Panglong. Three percent of all MSMEs businesses are equipment and accessories shops. The rest percent of businesses consists of 10 shops are lathes, dried tea leave shops, workshops, clothing shops, betel leave and nut shop, purified drinking water manufacturing businesses, furniture shops, beauty salons, printing services, pharmacy (drug stores), fuel shops, handsets and accessories, etc.,

Effect of Knowledge Management on Organizational Performance of MSMEs

The analysis on factors influencing MSMEs performance is conducted by using survey data. In this study, influencing factors is concerned with entrepreneurial orientation, organizational innovation and knowledge management. The practices of surveyed business for their entrepreneurial orientation can be seen with the mean value data shown in Table (1).

Table (1) Practices on Entrepreneurial Orientation

Sr.	Items	Mean	Std.Dev
1	Placing a high value on innovation and R&D operations	3.773	0.705
2	Being well-known for rapidly introducing innovative products and services	3.659	0.707
3	Encouraging risk-taking tactics in product creation	3.705	0.695
4	Motivating employees to take the lead and make proactive decision	3.636	0.858
5	Being frequently the first to market with new products and technologies	3.205	0.728
6	Having a strong competitive stance when it comes to competition.	3.591	0.780
	Overall Mean	3.595	

Source: Survey Data (2023)

As shown in Table (1), entrepreneurial orientation mean score of respondents is fairly high (greater than 3). It can be concluded that they show strength in performing entrepreneurial orientation activities. According to the results of each item, it is found that they are rarely market new products and technologies. The reason for this is that getting attention for a new offering is a big challenge so most of the MSMEs do not introduce new products and technologies as a strategic tool in their growth and continuation. Moreover, these businesses are lack of understanding of the target market and customer needs. On the other reason for this is that most of the consumers do not take risk of using new products and technologies. However, these businesses are more emphasis on placing a high value on innovation and R&D operations and encouraging risk-taking tactics in product creation than any other activities.

At the second step, the analysis focuses on practices of businesses on organizational innovation. The organizational innovation practices of surveyed businesses can be assessed with the mean values shown in Table (2).

Table (2) Practices on Organizational Innovation

Sr.	Items	Mean	Std.Dev
1	Opening new ideas, both external and internal	4.023	0.842
2	Seamless communication between partners on innovation efforts	4.023	0.623
3	Sharing enough information between my teammates and me to encourage creative problem solving	3.727	0.838
4	Having enough resources to bring about the innovation we need	3.500	0.725
5	Having a R&D department for innovation	3.591	0.809
	Overall Mean	3.773	

Source: Survey Data (2023)

As shown in Table (2), organizational innovation variable mean score of respondents is also fairly high (greater than 3). It can be concluded that the businesses indicate strengths in performing organizational innovation activities. In innovating their businesses, they mainly based

on opening new ideas from both external and internal, and seamless communication between partners on innovation efforts. According to the results of each item, it is found that they rarely have enough resources to bring about the innovation they need.

The third part is analysis on practices of businesses for knowledge management. The level of commitment of businesses to knowledge management practices can be seen with mean values shown in Table (3).

Table (3) Practices on Knowledge Management

Sr.	Items	Mean	Std.Dev
1	Having processes in place for both developing and acquiring new knowledge	3.818	0.914
2	Encouraging employees to share ideas and information through systems we have in place	3.841	0.707
3	Rewarding employees who contribute fresh perspectives and information	3.682	0.764
4	Keeping track of employee suggestions for improvement	3.909	0.823
5	Having put in place tools to absorb and impart information from people	3.500	0.659
	Overall Mean	3.750	

Source: Survey Data (2023)

As shown in Table (3), the knowledge management variable mean score of respondents is fairly high (greater than 3). It can be concluded that they show strengths in performing knowledge management activities. However, according to the results of each item, it is found that they pin point weakness in having put in place tools to absorb and impart information from people such as suggestion box, hotlines, etc. This is because most of the businesses rarely accept feedbacks from people.

The final part is analysis on organizational performance of businesses. The level of organizational performance of businesses can be seen with mean values shown in Table (4).

Table (4) Practices on Organizational Performance

Sr.	Items	Mean	Std.Dev
1	The number of customer complaints within the last period has decreased strongly.	3.773	0.672
2	Employees' trust into leadership is high.	3.659	0.639
3	Productivity of employees is much higher than industry average.	3.750	0.713
4	Work organization is efficient.	3.659	0.880
5	Work costs per employee are well below the industry average.	3.796	0.788
6	Return on investment (ROI, %) in our business is well above the industry average.	3.773	0.824
7	Employees feel very committed to the organization.	4.045	0.770
	Overall Mean	3.779	

Source: Survey Data (2023)

As shown in Table (4), the organizational performance variable mean score of respondents is fairly high (greater than 3). It can be concluded that the businesses indicate strengths in organizational performance. In improving their organizational performance, they mainly based on the fact that employees feel very committed to the organization, and Work costs per employee are well below the industry average. According to the results of each item, it is found that they point out weakness in Employees' trust into leadership is high, and Work organization is efficient.

Analysis on the Effect of Entrepreneurial Orientation and Organizational Innovation on Knowledge Management

This analysis intends to test the relationship between entrepreneurial orientation and organizational innovation and knowledge management. In this study, multiple linear regression analysis is conducted to test this relationship. The results for the effect of entrepreneurial orientation and organizational innovation on knowledge management are shown in Table (5).

Table (5) Effect of Entrepreneurial Orientation and Organizational Innovation on Knowledge Management

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	Sig	T	Tolerance	VIF
	B	Std. Error	Beta				
(Constant)	0.519	0.260		0.048	1.995		
Entrepreneurial Orientation	0.234	0.072	***0.205	0.001	3.233	0.732	1.367
Organizational Innovation	0.634	0.071	***0.570	0.000	8.975	0.732	1.367
R			0.699				
R.Square			0.489				
Adjusted R.Square			0.483				
Durbin-Watson			1.830				
F (P<0.05)			82.740				

Source: Survey Data (2023)

*, **, ***: Indicate statistical significance at the 10 % level, 5 % level and 1% level

As shown in Table (5), R^2 (proportion of the variance in the dependent variables accounted by model) is 0.489 and adjusted R^2 is 0.483. Thus, the model has accounted for 48.3 % of the variance in the dependent variable.

It is found that the relationship between entrepreneurial orientation and knowledge management is positively significant at 99 % confidence interval. A unit increase in entrepreneurial orientation will lead to 0.205 units increase in effect on knowledge management while taking all other independent variables at zero. Moreover, it is also found that the relationship between organizational innovation and knowledge management is positively significant at 99 % confidence interval. A unit increase in organizational innovation will lead to 0.570 units increase in effect on knowledge management while taking all other independent variables at zero.

There is no autocorrelation in sample because the Durbin-Watson value is 1.83 (nearly 2). All VIFs (variance inflation factors) of independent variables are less than 10. Thus, there is no problem of multicollinearity correlation between independent variables. According to the results from the survey, it can be concluded that there are effects of entrepreneurial orientation and organizational innovation on knowledge management of MSMEs in Panglong.

To increase the level of knowledge management, both of entrepreneurial orientation and organizational innovation should be emphasized by owners or managers of MSMEs in Panglong.

Analysis on the Effect of Knowledge Management on Organizational Performance

This analysis intends to test the relationship between knowledge management and organizational performance. In this study, multiple linear regression analysis is conducted to test this relationship. The results for the effect of knowledge management on organizational performance are shown in Table (6).

Table (6) Effect of Knowledge Management on Organizational Performance

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	Sig	T	Tolerance	VIF
	B	Std. Error	Beta				
(Constant)	1.459	.185		0.000	7.903		
Knowledge Management	.619	.049	***0.694	0.000	12.711	1.000	1.000
R			0.694				
R.Square			0.481				
Adjusted R.Square			0.479				
Durbin-Watson			2.668				
F (P<0.05)			161.580				

Source: Survey Data (2023)

*, **, ***: Indicate statistical significance at the 10 % level, 5 % level and 1% level

As shown in Table (6), R^2 (proportion of the variance in the dependent variables accounted by model) is 0.481 and adjusted R^2 is 0.479. Thus, the model has accounted for 47.9 % of the variance in the dependent variable.

It is found that the relationship between knowledge management and organizational performance is positively significant at 99 % confidence interval. A unit increase in knowledge management will lead to 0.694 units increase in effect on organizational performance while taking all other independent variables at zero.

There is no autocorrelation in sample because the Durbin-Watson value is 2.668 (nearly 2). All VIFs (variance inflation factors) of independent variables are less than 10. Thus, there is no problem of multicollinearity correlation between independent variables. According to the results from the survey, it can be concluded that there is an effect of knowledge management on organizational performance of MSMEs in Panglong.

To increase the level of organizational performance, knowledge management should be emphasized by owners or managers of MSMEs in Panglong.

Conclusion

The study extracted significant research findings that have emerged from the analysis of research data on entrepreneurial orientation, organizational innovation, knowledge management and organizational performance of MSMEs in Panglong. Based on the results of findings from regression analysis, both of entrepreneurial orientation and organizational innovation practices are important to improve the knowledge management practices. In addition, the results also found that knowledge management practices are important to increase the organizational performance.

Knowledge management practices of MSMEs are improved because of entrepreneurial orientation practices consist of placing a high value on innovation and R&D operations, encouraging risk-taking tactics in product creation, being well-known for rapidly introducing innovative products and services, motivating employees to take the lead and make proactive decision, having a strong competitive stance when it comes to competition and being frequently the first to market with new products and technologies.

Furthermore, improved knowledge management practices of MSMEs are coming from opening new ideas from both external and internal of the organization, seamless communication between partners on innovation efforts, sharing enough information among team members to encourage creative problem solving, having a R&D section for innovation and having enough resources to bring about the needed innovation.

Additionally, as stated by the findings from the analysis on the effect of knowledge management practices on organizational performance, high level of organizational performance is obtained because of keeping track of employee suggestions for improvement, encouraging employees to share ideas and information, having processes in place for both developing and acquiring new knowledge, rewarding employees who contribute fresh perspectives and information, and having put in place tools to absorb and impart information from people.

After evaluating the aspects of organizational performance, the conclusion is that two themes that play a significant role in knowledge management at work – entrepreneurial orientation and organizational innovation – both of them are crucial in the development of employee knowledge. Moreover, one theme, knowledge management also plays a significant role in organizational performance. All of which – entrepreneurial orientation, organizational innovation, knowledge management practices and organizational performance – are crucial in the development of businesses, particularly MSMEs in Panglong.

Suggestions and Recommendations

The current study's findings established a strong correlation between the overall organizational performance of MSMEs and their entrepreneurial orientation. Increased entrepreneurial orientation and organizational innovation boost the performance of MSMEs. When micro, small and medium-sized firms (MSMEs) lack entrepreneurial orientation and innovation, they perform poorly. Nonetheless, MSMEs face significant obstacles in developing an entrepreneurial orientation and transforming their organizations. Micro, small and medium-sized businesses (SMEs) are unable to maximize their entrepreneurial and innovative activities. However, a recent study discovered that persuasive knowledge management may enable

organizations to innovate and adopt a more entrepreneurial mindset (Rezaei & Ortt, 2018). Knowledge management is crucial for micro, small and medium-sized enterprises to accelerate internal innovation and nurture an entrepreneurial culture. Knowledge management bolsters the beneficial effect of entrepreneurial innovation and entrepreneurial orientation on the increased performance of MSMEs.

It is suggested for MSMEs to embellish entrepreneurial and organizational innovation activities via persuasive knowledge management approaches. These firms should develop an innovative culture. The employees should be entrepreneurially oriented, which will automatically lead to better performance. Additionally, knowledge management activities should also be needed to support the organization. The government should work on various activities related to knowledge management. Government efforts on the topic of "how to manage knowledge" is crucial.

Contributions of the Study

For practitioners, the current study has very important insights into increasing the organizational performance with the help of entrepreneurial orientation, organizational innovation and knowledge management. This study provides vital clues for managers while making strategies to increase the organizational performance among MSMEs in Panglong. This study provides evidence that MSMEs can increase their knowledge through placing a high value on innovation and R&D operations, rapidly introducing innovative products and services, encouraging risk-taking tactics, having a strong competitive stance when it comes to competition, opening new ideas, communicating seamlessly, sharing enough information, having enough resources and having a R&D department for innovation. This study also provides evidence that MSMEs can increase their organizational performance through having processes in place for both developing and acquiring new knowledge, sharing ideas and information through systems in place, rewarding employees who contribute fresh perspectives and information, keeping track of employee suggestions for improvement and putting in place tools to absorb and impart information from people. Hence, the current research is much more productive for Panglong MSMEs.

This study has implications for owners/managers. Although owners or managers recognize the importance of entrepreneurial orientation, organizational innovation and knowledge management practices, their implications for and demands on the rest of the organization are often ignored in the process toward its success. This study calls on firm owners/managers to be aware of the importance of entrepreneurial orientation, organizational innovation and knowledge management to increase organizational performance.

This study makes a considerable contribution to the existing literature on entrepreneurship and small business management and knowledge management practices of MSMEs, particularly in regards to explaining the organizational performance of Panglong MSMEs.

Needs for Further Studies

The current study has different limitations that may influence the results. This study did not consider the control variables. Control variables (as organizational performance can be heavily influenced by them) include age, R&D expenditure, firm size (some MSMEs may be quite large), and industry technological orientation (high-tech versus low-tech firms). The study has a small sample size, which may affect the final outcomes. Additionally, the current study is based on a

quantitative research method. However, mixed method (quantitative and qualitative) may help to get accurate results. Moreover, this study does not classify the types of firms into the categories.

Although the results provide new insights to current research, this field is far from well developed, and a continued research effort is needed to understand the practices of entrepreneurial orientation, organizational innovation, knowledge management and their integrated influences on firm's organizational performance.

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A BEST-FIT PROBABILITY DISTRIBUTION FOR THE ESTIMATION OF RAINFALL IN MYANMAR*

Toe Kyaw¹

Abstract

Climate change presents a global challenge, with varying effects across regions. Understanding these changes, particularly rainfall patterns, is essential for long-term agricultural planning, irrigation management, and watershed strategies. This study reviews the benefits of rainfall analysis, emphasizing its role in informing management systems and developing effective water allocation policies, especially in anticipation of drought conditions. Rainfall data in Myanmar from 1961 to 2022 were sourced from the World Bank. The main aim of the study is to find the best-fit probability distribution of rainfall in Myanmar using seven probability distributions: Normal, Log-Normal, Gumble, Generalized Extreme Value, Weibull, Log-Pearson Type-III, and Logistic (2-parameter) distributions. Based on the sources of goodness-of-fit tests, Gumbel Distribution was found to be the best-fit probability distribution of rainfall in Myanmar and probability analysis was used to evaluate rainfall trends. The findings indicate that there is a 15.87% probability of experiencing a minimum rainfall of 2193.397 mm with a 6.3-year return period whereas a maximum rainfall of 2483.941 mm has a 1.59% probability with a 63-year return period. This expected rainfall is useful for design engineers in planning hydrologic projects and designing soil conservation and drainage structures in Myanmar.

Keywords: Climate Change, Rainfall Analysis, Probability Distributions, Return Period.

Introduction

Myanmar experiences three distinct seasons: the hot season (mid-February to mid-May), the rainy southwest monsoon (mid-May to late October), and the cool northeast monsoon (late October to mid-February). As one of the most climate-vulnerable countries globally, Myanmar is significantly threatened by climate hazards, including floods, cyclones, extreme heat, and landslides. Coastal regions are especially at risk, affecting over 5 million people living in low-lying areas. According to the World Bank (2021), Myanmar's climate varies across its ecological zones, influenced by distance from the coast and altitude. The southern regions, such as the Ayeyarwady Delta and the coasts of Rakhine, Mon, and Tanintharyi, have a typical Southeast Asian climate, characterized by high temperatures and significant rainfall of 2,500 to 5,500 mm annually, making them prone to tropical cyclones. In contrast, the central region is drier, with annual rainfall between 500 and 1,000 mm and greater temperature fluctuations, occasionally exceeding 40°C. The northern and eastern mountainous areas are generally cooler, receiving moderate rainfall of 1,000 to 2,000 mm per year.

Rainfall is the primary water source for regions, significantly affecting water availability. Both excessive rainfall and prolonged drought can lead to serious issues like flooding and water shortages. Understanding precipitation patterns is crucial for grasping the global hydrological balance and for managing limited water resources, especially in semi-arid regions facing increased stress from population growth and economic development. Analyzing rainfall data is essential for addressing these challenges and promoting sustainable water management practices (Rawat, Rahman and Abdulla, 2018).

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¹ Department of Statistics, Yangon University of Economics

Understanding extreme rainfall patterns is vital for assessing risks linked to climate-related hazards. Analyzing these patterns enables stakeholders to devise long-term strategies to mitigate flooding and drought impacts, protecting lives and property while promoting soil and water conservation and effective irrigation planning. Establishing a comprehensive rainfall monitoring system enhances predictive capabilities, allowing farmers and policymakers to respond proactively to changing weather patterns. The probability analysis is crucial for building resilience in agricultural systems and ensuring sustainable food security amid climate change. By integrating scientific research with traditional knowledge, Myanmar can better adapt to extreme weather challenges and work toward a more sustainable agricultural future (Basak et al, 2019).

Therefore, this study was made to determine the statistical parameters and annual rainfall in Myanmar at various probability levels using seven probability distributions and to find the best-fit probability distribution of rainfall in Myanmar.

Literature Review

Vivekanandan (2014) studied the comparison of probability distributions for frequency analysis of annual maximum rainfall for Banswara and Visakhapatnam stations in Pune. The daily rainfall data were collected at the Banswara for the period 1969-2012 and Visakhapatnam for the period 1973-2012. The probability distributions (Exponential (EXP), Extreme Value Type 1 (EV1), Extreme Value Type 2 (EV2), Generalized Extreme Value (GEV), Generalized Pareto (GPA), and Normal (NOR)), Goodness-of-Fit (using χ^2 and KS) tests and diagnostic (using D-index) tests were utilized in this study. According to the results, the χ^2 -test showed that the GPA distribution is acceptable for estimation of rainfall for Banswara whereas the five distributions other than NOR was acceptable for Visakhapatnam. The KS test showed that the distributions other than EV2 (for Banswara) and GPA (for Visakhapatnam) are acceptable for estimation of rainfall. By considering the trend lines of the fitted curves by probability distributions in the tail regions, the study identified that the EV1 distribution is the most appropriate distribution for estimation of rainfall for Banswara whereas GEV for Visakhapatnam. Furthermore, the 1000-year return period rainfall of about 665 mm (using EV1) and 500 mm (using GEV) were considered for the design of hydraulic structures in Banswara and Visakhapatnam stations respectively.

Amin, Rizwan and Alazba (2016) designed the best-fit probability distribution for the estimation of rainfall in northern regions of Pakistan. Annual maximum rainfall data based on 24-hour duration at six rainfall-gauging stations such as Kalam, Oghi, Daggar, Mardan, Puran and Besham Qilla in northern Pakistan were used in this study. Rainfall data from northern Pakistan were evaluated with four probability models such as Normal, Log-Normal, Log-Pearson Type-III and Gumble (EVI) to find the best-fit model. As the result of this study, the normal distribution provided the best-fit probability distribution for Mardan rainfall gauging station and the Log-Pearson Type-III distribution was the best-fit probability distribution at the rest of the rainfall gauging stations based on the scores of the goodness-of-fit tests.

Basak et al. (2019) analyzed probability distribution of daily rainfall data for six different geographical locations in West Bengal-A case study. The daily rainfall data ($0.5^\circ \times 0.5^\circ$ resolution) of 37 years (1st January 1982 to 31st December 2018) for six different locations of West Bengal such as Kharagpur, Kolkata, Darjeeling, Bolpur, Balurghat and Berhampur. In this study,

probability distribution viz Normal, Log-Normal, Exponential, Gumble, Generalized Extreme Value, Weibull, generalized gamma, Log-Pearson Type-III, Logistic distribution with two parameter and two-parameter Log-Logistic distribution for daily maximum rainfall data of 37 years for six different locations of West Bengal were utilized to find the best-fit distribution model among each location by using Goodness-of-Fit test, Kolmogorov-Smirnov test and Anderson Darling test. According to the results, Log-Pearson Type-III distribution is the best fitted for three geographical locations such as Kharagpur, Bolpur and Balurghat, followed by Gumble in Kolkata, Log-Logistic in Darjeeling and Generalized Extreme Value in Berhampur.

Babatunde and Olaomi (2022) investigated that modeling of rainfall and its probability distribution in Nigeria. The monthly rainfall data of 80 years were collected from the Nigeria Meteorological Agency Abuja, Nigeria. The data were from seven major synoptic stations in the Northern Nigeria such as Yola, Jos, Yelena, Kano, Maiduguri, Sokoto and Lokoja. It measured the trend of intensity in rainfall and obtained the best-fit trend on yearly rainfall. In this study, three statistical goodness-of-fit test, Anderson Darling test, Chi-squared test and Kolmogorov-Smirnov test, were carried out in order to select the best-fit probability distribution on the basis of highest rank with minimum value of the test statistic. As the result of this study, the trend increased exhibit exponential distributions at every point of change with high degree of skewness with a similar peak being at every year. And the Log-Normal and Gamma distribution were found that the best-fit probability distribution for the annual rainfall in seven synoptic stations.

Muniyan and Lallawmzuali (2024) examined that probability analysis of annual and monthly rainfall in Mizoram, India for 36 years : period (1980-2021). The objective of this study is to identify the best-fit probability distribution of annual and monthly rainfall of Mizoram using Kolmogorov-Smirnov, Anderson-Darling, and Chi-squared tests for each of 18 probability distributions. The results indicate that the General Extreme Value distribution was the best-fit for 5 out of the 12 months, while the Log-Pearson Type-III distribution was the best fit for 2 months. For annual rainfall in Mizoram, the Gamma (3P) distribution proved to be the most suitable. Notably, August recorded the highest percentage of annual rainfall at 16.8%, whereas January had the lowest at 0.4%. These findings can inform the selection of appropriate probability distribution functions for rainfall prediction across different months, considering factors such as linear trends, cyclic trends, and random components.

Materials and Methods

This study is based on time series data related to annual rainfall data (1961-2022) in Myanmar. The annual rainfall data of 62 years were collected from the World bank. The data are fed into the excel spreadsheet, where it is arranged in chronological order and Weibull plotting position formula is given by

$$p = \frac{m}{N + 1}$$

where, m = rank number

N = number of years

The recurrence interval or return period is given by

$$T = \frac{1}{p} = \frac{N + 1}{m}$$

The rainfall data in Myanmar are subjected to various probability distribution functions such as Normal, Log-Normal, Gumble, Generalized Extreme Value, Weibull, Log-Pearson Type-III, and Logistic (2-parameter). The probability density function for each distribution is shown below.

Normal Distribution (N)

The **Normal Distribution** is one of the most widely used probability distributions in statistics. It is symmetric and bell-shaped, characterized by its mean (μ) and standard deviation (σ). The probability density function of normal distribution is

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{x-\mu}{\sigma}\right)^2}; -\infty < x < \infty$$

where, $-\infty < \mu < \infty, \sigma > 0$.

Log-Normal Distribution (LN)

A **Log-Normal Distribution** arises when a variable is the product of many independent random variables. If the logarithm of a variable is normally distributed, then the variable itself follows its distribution. The probability density function of log-normal distribution is

$$f(x) = \frac{1}{x\sigma\sqrt{2\pi}} e^{-\frac{1}{2}\left(\frac{\ln(x)-\mu}{\sigma}\right)^2}; 0 < x < \infty$$

where, $0 < \mu < \infty, \sigma > 0$.

Gumbel Distribution (GUM)

The **Gumbel Distribution** is used to model extreme values, particularly the maximum or minimum values in a dataset (e.g., the maximum temperature of a given year, maximum rainfall). It is commonly applied in fields such as hydrology, engineering, and meteorology. The Gumbel distribution is asymmetrical and typically used in modeling the largest (or smallest) value from a set. The probability density function of Gumbel distribution is

$$f(x) = \frac{1}{\sigma} e^{(-z-e^{-z})}$$

where, $z = \frac{x-\mu}{\sigma}, -\infty < x < \infty, -\infty < \mu < \infty, \sigma > 0$

Generalized Extreme Value Distribution (GEV)

The **Generalized Extreme Value (GEV) Distribution** unifies three extreme value distributions: the Gumbel distribution, the Fréchet distribution, and the Weibull distribution. It is used to model the extreme values of datasets, such as the maximum or minimum of a series of observations. The probability density function of generalized extreme value distribution is

$$f(x) = \begin{cases} \frac{1}{\sigma} \exp\left(-(1+kz)^{\frac{1}{k}}\right) (1+kz)^{-1-\frac{1}{k}}; & k \neq 0 \\ \frac{1}{\sigma} \exp(-z - \exp(-z)) & ; k = 0 \end{cases}$$

where, $z = \frac{x-\mu}{\sigma}, 0 < x < \infty, 0 < \mu < \infty, \sigma > 0$.

Weibull Distribution (W)

The **Weibull Distribution** is a versatile distribution that can model a variety of types of data, including life data, failure times, and extreme events. The probability density function of Weibull distribution is

$$f(x) = \frac{\alpha}{\beta} \left(\frac{x}{\beta}\right)^{\alpha-1} \exp\left[-\left(\frac{x}{\beta}\right)^{\alpha}\right]; \quad 0 \leq x < \infty$$

where, $\alpha > 0, \beta > 0$.

Log-Pearson Type III Distribution (LP)

The **Log-Pearson Type III Distribution** is often used in hydrology to model the distribution of streamflow, rainfall, or flood data. It is a transformation of the Pearson Type III distribution, where the data is log-transformed before modeling. This distribution is used primarily for modeling skewed data and is part of the larger Pearson distribution family. The probability density function of log-Pearson type 3 distribution is

$$f(x) = \frac{1}{x|\beta|\Gamma(\alpha)} \left(\frac{\ln(x) - \gamma}{\beta}\right)^{\alpha-1} \exp\left(-\frac{\ln(x) - \gamma}{\beta}\right);$$

where, $\alpha > 0, \beta \neq 0; 0 < x \leq e^{\gamma}, \beta < 0; e^{\gamma} \leq x < \infty, \beta > 0$.

Logistic Distribution with two parameters (LG)

The **Logistic Distribution** is similar in shape to the normal distribution but has heavier tails. It is commonly used in logistic regression and in modeling growth processes. The logistic distribution is characterized by its location (mean) and scale parameters. It is often used to model the distribution of scores in social sciences, such as the probability of an event occurring. The probability density function of logistic distribution with two parameters is

$$f(x) = \frac{\exp(-z)}{\sigma(1 + \exp(z))^2}$$

where, $z = \frac{x-\mu}{\sigma}, -\infty < x < \infty, -\infty < \mu < \infty, \sigma > 0$.

The criteria of the best-fit probability distribution are tested by using Goodness-of-fit test (Chi-squared test), Kolmogorov-Smirnov test and Anderson Darling test. The descriptions of the tests are expressed below.

Goodness-of-fit Test (Chi-squared (χ^2) test)

The Goodness-of-fit (Chi-squared test) is a non-parametric test. It is used to determine whether a sample comes from a population with a specific distribution or not. It is used for continuous sample data only. The Chi-squared statistic is defined as

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i}$$

where, O_i is the observed frequency for class i and E_i is the expected frequency for class i .

H_0 : The data follow the specified distribution.

H_1 : The data do not follow the specified distribution.

H_0 is rejected at the level of significance if calculated $\chi^2 > \text{tabulated } \chi^2_{\alpha, k-1}$ where α is the significance level and k is the number of classes. Otherwise, it is accepted.

Kolmogorov-Smirnov Test (K-S test)

It is also a popular non-parametric test. This test is used to decide if a sample comes from a hypothetical continuous distribution or not. It is based on the empirical cumulative distribution function. Assume that a random sample $x_1, x_2, \dots, x_n$ from some distribution with cumulative distribution function (CDF) of X . The empirical CDF is denoted by

$$F_n(x) = \frac{1}{n} \cdot [\text{Number of observations} \leq x]$$

Its statistic is denoted by D , is based on the maximum positive difference between the theoretical and the empirical cumulative distribution function:

$$D = \max[F_n(x_i) - F_0(x_i)]$$

where, F_0 is the hypothetical cumulative distribution function.

H_0 : The data follow the specified distribution.

H_1 : The data do not follow the specified distribution.

H_0 is rejected at the level of significance if calculated $D >$ tabulated $D_{\alpha,n}$ where α is the significance level and n is the number of observations. Otherwise, it is accepted.

Anderson Darling Test

The Anderson-Darling is also a distribution-free method or non-parametric method of the testing procedure to compare the fit of an observed cumulative distribution function to an expected cumulative distribution function. Its statistic is defined as

$$A^2 = -n - \frac{1}{n} \sum_{i=1}^n (2i - 1) [\ln F(x_i) + \ln (1 - F(x_{n-i+1}))]$$

where, F denotes the cumulative distribution function.

H_0 : The data follow the specified distribution.

H_1 : The data do not follow the specified distribution.

The critical values for the Anderson-Darling test depend on the specific distribution that is being tested. The hypothesis regarding the specific distribution is rejected at the level of significance if the test statistic, A^2 , is greater than the critical value obtained from a table.

Results and Findings

This study analyzes annual rainfall data from Myanmar spanning 1961 to 2022, using descriptive statistics to summarize overall rainfall patterns. It focuses on understanding rainfall distribution across various probability levels, which is essential for estimating the likelihood of specific rainfall events and assessing their variability. Selecting an appropriate probability distribution helps predict design rainfall for a given Annual Exceedance Probability (AEP). This analysis not only enhances the understanding of historical rainfall patterns but also supports future planning and risk assessment related to water resource management, agriculture, and infrastructure development. The descriptive statistics and graphical representation of the annual rainfall data are provided in Table 1 and Figure 1, respectively.

Table (1): Descriptive Statistics of Annual Rainfall in Myanmar

Statistic	Value	Percentile	Value
Sample Size	62	Min	1641.56
Range	714.15	5%	1814.55
Mean	2049.5568	10%	1838.93
Variance	24518.91	25% (Q1)	1942.36
Std. Deviation	156.58515	50% (Median)	2056.59
Coef. of Variation	0.07639952	75% (Q3)	2168.04
Std. Error	19.886334	90%	2248.95
Skewness	-0.22179898	95%	2282.7
Excess Kurtosis	-0.26742211	Max	2355.71

Source: Own Computation

According to the Table (1), the sample size of this analysis is based on 62 data points, which is a reasonable size for statistical analysis. The range is 714.15 shows that the difference between the maximum and minimum values in the dataset, suggesting there is a substantial spread in the rainfall amounts observed. The average rainfall over the sample period is approximately 2049.56 units, providing a central value for the data. The variance is 24518.91. This measures the dispersion of the rainfall data around the mean. A high variance indicates a wide spread of data points from the average. The standard deviation is the square root of variance, indicating that on average, individual rainfall measurements deviate from the mean by about 156.59 units. Coefficient of Variation is the ratio of the standard deviation to the mean, expressed as a percentage (approximately 7.64%). It provides a standardized measure of dispersion relative to the mean, suggesting relatively low variability in the data. Standard Error is 19.89. This estimates the accuracy of the sample mean as an estimate of the population mean. A smaller standard error suggests a more precise estimate. Skewness is -0.22. This indicates that the data is slightly negatively skewed, meaning there are a few lower values that pull the mean down, but the distribution is relatively symmetrical. Kurtosis is -0.27. This suggests that the distribution is slightly flatter than a normal distribution (platykurtic), indicating fewer extreme values (outliers) than expected in a normal distribution.

In summary of descriptive statistics, the rainfall data exhibits a significant range, varying from a minimum of 1641.56 to a maximum of 2355.71. While the median rainfall is 2056.59, the data is slightly skewed towards lower values, with most rainfall measurements falling between the 25th and 95th percentiles. This indicates that while there are occasional extreme high rainfall events, the majority of rainfall occurrences are clustered around the median. Understanding this variability is essential for informed decision-making in agriculture, water resource management, and environmental sustainability.

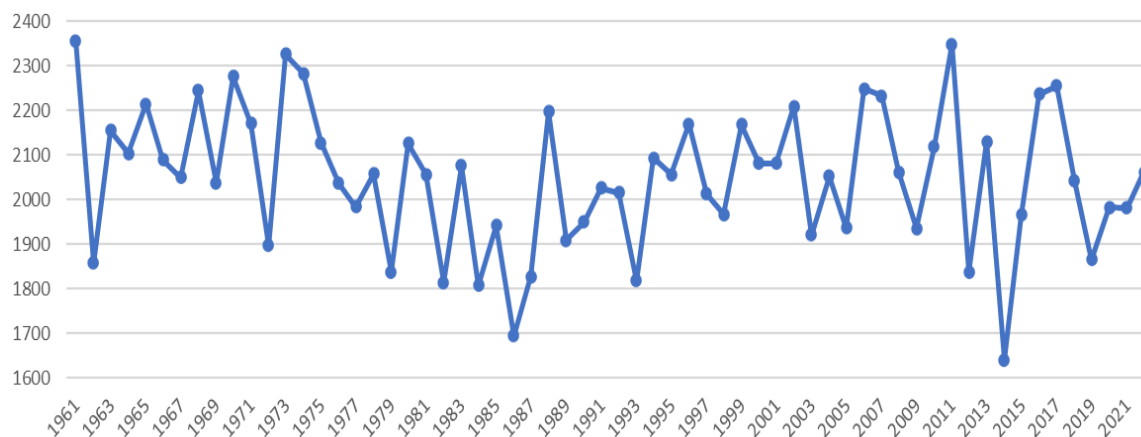


Figure (1): Annual Rainfall in Myanmar from 1961 to 2022

Source: Annual Rainfall in Myanmar (1961-2022)

According to Figure (1), it is presented an analysis of annual rainfall data in Myanmar over a comprehensive 62-year period, from 1961 to 2022. This visualization allows us to examine trends and patterns in rainfall across these years. The X-axis represents the range of years while the Y-axis quantifies the amount of rainfall, typically measured in millimeters or other relevant units. Notably, the year with the lowest recorded rainfall is 2014, highlighting a significant dry spell during this period, whereas the year with the highest rainfall is 1961, indicating an unusually wet year. This stark contrast underscores the variability in rainfall patterns and emphasizes the need for a deeper understanding of these fluctuations. By analyzing these data, valuable insights into the climatic trends affecting Myanmar can be gained, which are essential for effective water resource management, agricultural planning, and disaster preparedness strategies in response to potential droughts or flooding events. Such a long-term perspective is crucial for developing adaptive strategies that can mitigate the impacts of climate variability on local communities and ecosystems.

Probability Analysis of Annual Rainfall

Probability analysis can be used for prediction of occurrence of future events from available records of rainfall (Kumar and Kumar, 1989). Based on the theoretical probability distributions, it would be possible to forecast of various magnitudes with different return periods. Several distributions have been used for hydrological analysis (Mahale and Dhane, 2004).

In this study, the parameters of seven probability distributions (Normal, Log-Normal, Gumble, Generalized Extreme Value, Weibull, Log-Pearson Type-III, and Logistic (2-parameter)) were calculated using EasyFit Software and were organized in Table 2.

Table (2): Parameters of probability distributions at rainfall in Myanmar

Distribution	Parameters	Distribution	Parameters
Normal	$\mu = 2049.5568$	Log-Normal	$\mu = 2049.5568$
	$\sigma = 156.58515$		$\sigma = 156.58515$
Logistic	$\mu = 2049.5568$	Weibull	$\alpha = 14.691249$
	$\sigma = 86.32992$		$\beta = 2121.1226$
Gumble	$\mu = 1979.0852$		
	$\sigma = 122.08894$		

Distribution	Parameters	Distribution	Parameters
Generalized Extreme Value	$k = -0.36495998$	Log-Pearson Type III	$\alpha = 22.130618$
	$\mu = 2000.5156$		$\beta = -0.01649093$
	$\sigma = 162.32688$		$\gamma = 7.9873572$

Source: Own Computation

The seven probability distributions were subjected to the Goodness-of-fit tests (Chi-squared test, Kolmogorov-Smirnov test and Anderson Darling test) to determine the best-fit probability distribution of rainfall in Myanmar from 1961 to 2022. It was ranked from one to seven for all probability distributions shown in the following Table 3.

Table (3): The goodness-of-fit tests on rainfall in Myanmar

Distribution Models	<u>Kolmogorov Smirnov</u>		<u>Anderson Darling</u>		<u>Chi-Squared</u>		Total Scores
	Statistic	Rank	Statistic	Rank	Statistic	Rank	
Normal	0.0634	4	0.2128	3	1.6682	2	9
Log-Normal	0.0790	5	0.3062	4	2.7809	4	13
Gumbel	0.1320	7	1.8031	7	3.8004	7	21
Generalized Extreme Value	0.0540	2	0.1875	2	1.4797	1	5
Weibull	0.0834	6	0.3914	6	3.6776	6	18
Log-Pearson Type III	0.0509	1	0.1847	1	2.0980	3	5
Logistic	0.0589	3	0.3296	5	3.2326	5	13

Source: Own Computation

According to the Table (3), the best-fit probability distribution of rainfall in Myanmar is chosen by using the total scores of goodness-of-fit tests. The results of the total scores indicate that Gumbel distribution provides the best-fit annual rainfall at Myanmar in this study. The annual rainfall for Gumbel distribution has also been graphically presented in Figure (2).

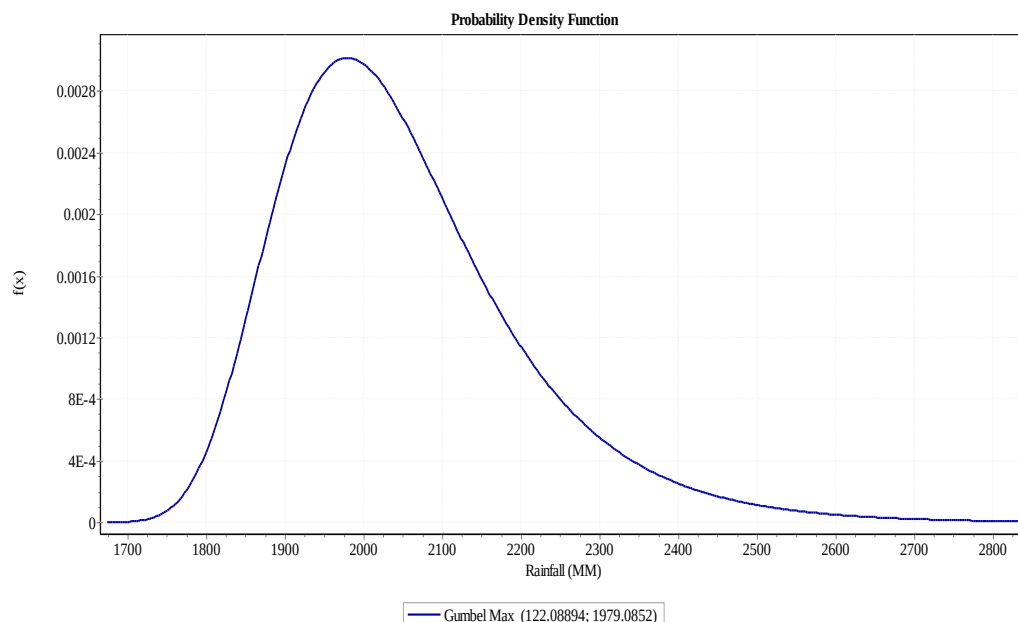


Figure (2): Probability Density Function of Rainfall for Gumbel distribution
Source: Annual Rainfall in Myanmar (1961-2022)

The rainfall data in Myanmar can be modeled using a mathematical expression to estimate rainfall amounts for different return periods:

$$x = \mu - \beta \ln(-\ln(p))$$

This expression involves parameters like location (μ) and scale (β), which are used to calculate the required rainfall (x) for a given return period (p). The return period of rainfall data represents the estimated time interval between events of a certain intensity or greater, commonly used in hydrology and meteorology to evaluate the likelihood of extreme rainfall occurrences. The return periods were calculated using the Weibull method, with the Gumbel distribution identified as the best-fit. Return periods analyzed included 6.3, 7, 7.875, 9, 10.5, 12.6, 15.75, 21, 31.5, and 63 years. Accordingly, rainfall estimates for 2, 5, 10, 25, 50, 100, and 200 years were also calculated using the best fit distribution, with the results presented in Table 4.

Table (4): Estimated rainfall in Myanmar using Gumbel distribution

Return Periods (Years)	Estimated Rainfall (mm)
2	2023.83
5	2162.21
10	2253.83
25	2369.59
50	2505.38
100	2540.71
200	2625.65

Source: Own Computation

According to the Table (4), the analysis shows a range of return periods for extreme rainfall events. This table shows estimated rainfall amounts in millimeters for various return periods, measured in years. A return period represents the average time interval between rainfall events of a certain magnitude. Higher return periods correspond to larger estimated rainfall amounts. The rainfall event of 2023.83 mm is expected to occur every 2 years, while a more extreme event of 2625.65 mm is estimated to happen once every 200 years. In other words, an extreme rainfall event to occur approximately once every 31 years on average can be expected. Therefore, engineers should use it to design drainage systems, dams, and other structures to withstand specific rainfall events, insurance companies should use this data to calculate risk, and planners should use this data to determine areas that are prone to flooding. And then the estimated rainfall amount can be calculated by using the return period with different probability levels. It is presented in the following Table (5).

Table (5): Estimated rainfall in Myanmar with different probability levels

Return Periods	Probability (%)	Estimated Rainfall (mm)
63	1.59	2483.94
31.5	3.17	2398.33
21	4.76	2347.82
15.75	6.35	2311.68
12.6	7.94	2283.41
10.5	9.52	2260.10
9	11.11	2240.22
7.875	12.70	2222.84
7	14.29	2207.37
6.3	15.87	2193.40

Source: Own Computation

According to Table (5), this table presents estimated rainfall amounts along with their corresponding return periods and probabilities. It shows that higher rainfall amounts are associated with longer return periods and lower probabilities, indicating less frequent occurrences. Conversely, lower rainfall amounts correspond to shorter return periods and higher probabilities, signifying more frequent events. The analysis indicates that a minimum rainfall of 2193.397 mm is expected to occur every 6.3 years, while a maximum of 2483.941 mm is projected to occur every 63 years. This information is crucial for engineers and planners to design infrastructure and systems that can withstand extreme weather events. It is generally recommended that 2 to 200 years is sufficient return period for soil and water conservation measures, construction of dams, irrigation and drainage works (Bhakar et al.,2006).

Conclusion

This study employed a statistical analysis of 62 years of rainfall data in Myanmar (1961-2022) to identify the most suitable probability distribution. Among seven distributions examined, the Gumbel distribution was found to provide the best-fit probability distribution for the rainfall data. By utilizing the estimated rainfall amounts derived from the Gumbel distribution, engineers

and policy makers can make informed decisions to design safe and efficient soil conservation and drainage structures. Therefore, it is important to focus on improving weather forecasting, strengthening infrastructure, and promoting effective planning. Investing in better climate data collection, such as enhanced weather stations and satellite monitoring, can provide more accurate predictions. Developing early warning systems for floods and storms can help communities prepare in advance. Additionally, updating building codes and urban planning to account for extreme weather events, such as floods, will reduce the impact on cities and rural areas. It is also essential to implement climate-smart agricultural practices, protect natural ecosystems, and ensure that both local governments and communities are well-prepared to respond to changing weather patterns.

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ANALYSIS OF AGRICULTURAL SUBSECTORS' CONTRIBUTION TO ECONOMIC GROWTH IN MYANMAR

Lwin Moe Thu¹, Wai Wai Htet ²

Abstract

This study examines the contributions of Myanmar's key agricultural subsectors—crop production, livestock, fishery, and forestry—to the growth of Gross Domestic Product per Capita based on purchasing power parity (GDPPPP) over a 20-year period. Recognizing agriculture as a cornerstone of the national economy and a primary source of income and employment, the research aims to identify which subsectors play the most significant roles in driving economic growth and how they interact with GDP in both the short and long run. Using a quantitative approach and secondary data from credible sources such as the Central Statistical Organization, the analysis applies econometric techniques including the Augmented Dickey-Fuller (ADF) test, Johansen cointegration, and Vector Autoregressive (VAR) and Vector Error Correction (VECM) models. The findings are expected to provide policymakers and stakeholders with valuable insights for designing targeted strategies, improving resource allocation, and fostering balanced, sustainable growth in Myanmar's agricultural sector.

Keywords: GDPPPP, Agricultural Sectors, ADF Test, Cointegration, Canonical Cointegration Regression

Introduction

Agriculture plays a crucial role in Myanmar's economy, serving as a primary source of income and employment for a significant portion of the population. The sector is composed of several subsectors, including crop production, livestock, fishery, and forestry, each of which contributes differently to the Gross Domestic Product per Capita (GDPPPP). Analyzing the contributions of these subsectors is essential to understanding their individual and collective impact on the growth rate of the GDPPPP. This study focuses on examining the growth rates of these subsectors and its contributions to the GDP per capita rate in Myanmar.

This study is motivated by the need to enhance the understanding of the factors driving growth in Myanmar's agricultural sector. Agriculture remains the backbone of the national economy, and its performance directly affects the livelihoods of many citizens. However, not all subsectors contribute equally to this growth. By identifying which subsectors are the most influential in driving the agricultural GDP, the study aims to provide valuable insights for policymakers and stakeholders. These insights will help formulate targeted policies and strategic investments that can stimulate balanced growth across the sector. Furthermore, understanding the strengths and weaknesses of each subsector will enable more effective planning and resource allocation, which is essential for improving productivity, sustainability, and long-term economic stability in Myanmar's agriculture.

The agricultural sector is a cornerstone of Myanmar's economy, contributing significantly to national income and providing employment for a large segment of the population. Despite its importance, the sector faces numerous challenges, including variability in productivity across different subsectors, environmental pressures, and fluctuating market conditions. Understanding the contributions of various agricultural subsectors—such as crop production, livestock, fishery, and

¹ Department of Statistics, Monywa University of Economics

² Department of Statistics, Monywa University of Economics

forestry—to the overall GDPPPP is critical for developing strategies that can enhance the sector's performance and resilience.

One key reason for focusing on the contributions of these subsectors is the need to identify which areas are driving growth and which may be lagging. Not all subsectors contribute equally to the GDPPPP, and some may have more potential for growth than others. By conducting a detailed analysis of these contributions, the study seeks to highlight the strengths and weaknesses within the agricultural sector. Another important aspect of this study is its potential to inform future economic planning and development initiatives. As Myanmar continues to integrate into the global economy, the agricultural sector must adapt to changing conditions and increasing competition. By identifying the subsectors that are most critical to GDPPPP, this study can guide efforts to enhance competitiveness and sustainability in the sector.

Objectives of the Study

The objective of this study is

- (1) to examine the contributions of key agricultural subsectors, including crop production, livestock, fishery, and forestry, to the overall growth of GDPPPP in Myanmar
- (2) to identify the long-run and short-run relationship between agricultural subsectors and GDP growth

Methods of the Study

This study uses a quantitative research approach to analyze the contribution of different agricultural subsectors to the growth of GDP based on purchasing power parity (GDPPPP) in Myanmar. It relies on secondary data obtained from credible sources, including the Central Statistical Organization (CSO) database. The analysis covers 20 years of time series data to identify trends, patterns, and changes in the agricultural subsectors and their effects on GDP growth. To achieve this, the study applies econometric techniques such as the Augmented Dickey-Fuller (ADF) test to check data stationarity, Johansen cointegration to examine long-term relationships, and both the Vector Autoregressive (VAR) and Vector Error Correction (VECM) models to analyze short-term and long-term dynamics between the variables.

Literature Review

The agricultural sector plays a pivotal role in the economies of many developing countries, including Myanmar. Numerous studies have explored the relationship between agricultural growth and overall economic development, emphasizing the importance of various subsectors such as crop production, livestock, fishery, and forestry. This literature review examines existing research on the contributions of these subsectors to GDPPPP, the factors influencing performance, and the implications for economic policy and sustainability.

Subsequent studies have supported this view, highlighting the role of agriculture in poverty reduction and employment generation. For instance, Timmer (1988) emphasizes that agricultural growth is crucial for creating employment opportunities, particularly in rural areas, where the majority of the population in developing countries resides. The link between agricultural growth and poverty

reduction is further explored by Nchuchuwe & Adejuwon (2012), who find that higher agricultural productivity leads to significant poverty alleviation in India.

The contributions of different agricultural subsectors to overall GDPPPP have been a focus of much research. Crop production, as the largest subsector in many developing countries, often receives the most attention. According to Giller et.al. (2021), crop production is typically the dominant contributor to GDPPPP due to its extensive land use and the large share of the rural labor force involved in farming. However, it is also noted that the growth potential of crop production is often constrained by factors such as land availability, soil fertility, and access to modern inputs.

Livestock, fisheries, and forestry are also significant contributors to agricultural GDP, though the roles vary depending on the country's economic structure and natural resource endowments. Herrero et al. (2013) argue that the livestock subsector has the potential to drive agricultural growth, particularly in regions where crop production is limited by environmental factors. The importance of livestock for income diversification and food security is highlighted, noting that it can provide a steady income stream and contribute to dietary diversity.

The fishery subsector is another important area, particularly in coastal and riverine regions. According to Allison (2011), fisheries contribute to many developing countries' food security, employment, and foreign exchange earnings. The emphasis is placed on the sustainable management of fishery resources, which is essential to maintaining its contribution to economic growth, as overfishing and environmental degradation pose significant threats to the sector.

Forestry, while often overlooked in discussions of agricultural growth, also plays a critical role in many countries. Awono et.al. (2016) note that forestry contributes to GDP through the provision of timber, non-timber forest products, and ecosystem services. It is argued that sustainable forestry practices can enhance the long-term productivity of forests and provide income for rural communities, thereby supporting overall agricultural growth.

Pervez et al. (2024) conducted a study titled *Agricultural Output and Economic Growth Nexus: A VECM Approach on Bangladesh* to investigate the relationship between agricultural output and GDP growth. Using the Vector Error Correction Model (VECM), Johansen cointegration, and impulse response functions, the study analyzed annual time-series data for Bangladesh. The findings revealed a stable long-run relationship between agricultural output and GDP, with an error correction term indicating that 66.4% of disequilibrium was corrected each year. The impulse response and variance decomposition results showed that agricultural output had a stronger positive effect on economic growth compared to industrial output. Based on these results, the authors emphasized that agriculture continues to be a vital driver of Bangladesh's economy and recommended that policymakers prioritize investment in the sector to sustain long-term growth.

Nyamekye et al. (2021) examined the contribution of agriculture to economic development in Ghana in their study *Analysis on the Contribution of the Agricultural Sector to the Economic Development of Ghana*. The study applied Johansen cointegration and VECM methods to annual time-series data from 1984 to 2018 to assess long-run and short-run dynamics between agricultural, industrial, and service sectors with GDP. The results indicated that agricultural output significantly and positively affected GDP growth, though the cointegration test did not confirm a stable equilibrium with GDP in the long run. The VECM analysis demonstrated that short-run changes in agriculture influenced economic output. The authors concluded that agriculture plays a crucial role in Ghana's

economy and recommended policies to increase value-added agricultural exports and improve productivity through government support and investment.

Ogbonna, Nkemdirim, Udentia, and Nkwagu (2024) explored the role of agricultural value chains in Nigeria's economic growth in their study *Agricultural Sector Value Chain Contributions and Nigeria's Economic Growth*. Using unit root and cointegration tests, VECM, and Granger causality analysis on time-series data from 1981 to 2019, the study evaluated the contributions of the crop, livestock, and fishery subsectors to GDP. The findings showed that all three subsectors had significant positive effects on GDP growth. The analysis also revealed both long-run and short-run relationships between agricultural value chains and the economy. The authors recommended the implementation of supportive policies to expand commercial agriculture, attract private sector participation, and improve the efficiency of agricultural production systems.

The reviewed studies collectively demonstrate that agricultural subsectors are key contributors to economic growth in developing countries. The use of VAR and VECM methods across different contexts, including Bangladesh, Ghana, and Nigeria, consistently revealed significant long-run relationships between agricultural production and GDP growth, as well as short-term dynamics that influence economic performance. In all cases, subsectors such as crops, livestock, and fisheries played essential roles in stabilizing and boosting economic output. These findings suggest that similar econometric modeling could be applied to analyze Myanmar's agricultural subsectors, enabling the identification of the most influential areas within agriculture. Such insights could guide policymakers in prioritizing investments and implementing targeted strategies to enhance the sector's contribution to national economic development.

Data and Methods

Data from the Central Statistical Organization and Government Website (MMSIS) of the data of Gross Domestic Product per Capita (GDPPPP), the export of Agricultural Products (in million kyats), Live Stocks and Fisheries (in million kyats), and Forestry Export (in million kyats). To test the stationarity of the above variable, an augmented Dickey-Fuller test is employed. To test the long-run equilibrium Johansen cointegration test is used, and to test the short-term relationship, the Vector Error Correction Model analysis is used.

Augmented Dickey-Fuller (ADF)

The Augmented Dickey-Fuller (ADF) test, developed by Dickey and Fuller (1979), is a widely used statistical method for determining whether a time series dataset is stationary or non-stationary. This test extends the basic Dickey-Fuller test by incorporating lagged values of the dependent variable to address autocorrelation issues, making it more robust for complex models. The fundamental concept behind the ADF test is to examine whether a unit root exists within a time series. The presence of a unit root indicates non-stationarity, while its absence confirms stationarity. However, caution should be exercised when using this test, as it has a relatively high probability of Type I error, which means it may sometimes incorrectly reject the null hypothesis.

The ADF test has three main variations, each designed to test for a unit root under different conditions. The first version tests for a unit root without additional components, expressed as:

$$\Delta y_t = \phi^* y_{t-1} + \sum_{i=1}^{p-1} \phi_i \Delta y_{t-i} + u_t \quad (1)$$

The second variation includes a drift term to account for potential trends in the data:

$$\Delta y_t = \beta_0 + \phi^* y_{t-1} + \sum_{i=1}^{p-1} \phi_i \Delta y_{t-i} + u_t \quad (2)$$

The third and most comprehensive version incorporates both a drift term and a deterministic time trend, which is suitable for data exhibiting an increasing or decreasing trend over time:

$$\Delta y_t = \beta_0 + \phi^* y_{t-1} + \sum_{i=1}^{p-1} \phi_i \Delta y_{t-i} + \beta_1 t + u_t \quad (3)$$

In these equations, $\Delta y_t = y_t - y_{t-1}$ represents the first difference of the variable, β_0 is the drift term, t is the linear time trend, and u_t is the error term. The null hypothesis ($H_0: \phi^* = 0$) suggests that the series contains a unit root and is non-stationary, while the alternative hypothesis ($H_1: \phi^* < 0$) indicates stationarity.

To determine the presence of a unit root, the test calculates the test statistic:

$$t = \frac{\phi^*}{\sqrt{\text{var}(\phi^*)}} \quad (4)$$

This test statistic is then compared to critical values at different significance levels. If the calculated value is smaller than the critical value, the null hypothesis is rejected, confirming that the series is stationary.

When conducting the ADF test, it is necessary to decide whether to include a constant, a trend, or neither in the regression model. A visual inspection of the data plot can assist in making this decision. If the data does not start from the origin, a constant should be included. If there is a noticeable upward or downward trend, a trend component should be added.

Additionally, selecting an appropriate lag length is crucial, as too few lags may result in over-rejecting the null hypothesis when it is true, while too many lags can weaken the test's power. Information criteria such as the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC) are commonly used to determine the optimal lag length. In this study, the AIC is preferred as it tends to provide a more reliable estimate for selecting the correct lag structure.

Determining the Optimal Lag Length of the Model

Selecting the optimal lag length is crucial for ensuring an accurate and reliable model. The lag length determines how many past observations are included in the model, which affects the overall efficiency of the estimation process. A properly specified model should include Gaussian error terms, which are standard normal error terms free from autocorrelation, non-normality, and heteroskedasticity (Asteriou & Hall, 2011). If the lag length is not correctly chosen, it can lead to omitted variable bias, where important variables affecting short-term behavior are excluded, causing them to become part of the error term.

Choosing too few lags in the Johansen cointegration procedure may result in model specification errors, while selecting too many lags can lead to a loss of statistical power (Maddala et al., 1998). To avoid such issues, it is often more effective to select a smaller lag length that provides a balance between accuracy and efficiency.

A common approach for determining the optimal lag length involves estimating a Vector Autoregressive (VAR) model. The process begins with estimating the model using a large number of lags, then gradually reducing the number by re-estimating the model with one fewer lag each time. This continues until the optimal number of lags is reached. For annual data, using 1 or 2 lags is typically recommended to preserve degrees of freedom.

To select the most suitable lag length, information criteria such as the Akaike Information Criterion (AIC) and the Schwarz Bayesian Criterion (SBC) are used. The optimal lag length is determined by choosing the model that minimizes these information criteria. Selecting the correct lag length is essential for producing reliable results and ensuring that the model accurately captures the underlying dynamics of the data.

Vector Autoregressive (VAR) Model

The Vector Autoregressive (VAR) model is widely used to analyze the dynamics and interdependencies of multiple time series variables. It extends the concept of univariate autoregressive models by incorporating multiple variables, making it a combination of simultaneous equation models and time series models. The simplest case of a VAR model is the bivariate VAR, which includes two variables, y_{1t} and y_{2t} . The current values of these variables depend on their past values and error terms, as shown in the following equation:

$$\begin{pmatrix} y_{1t} \\ y_{2t} \end{pmatrix} = \begin{pmatrix} \beta_{10} \\ \beta_{20} \end{pmatrix} + \begin{pmatrix} \beta_{11} & \alpha_{11} \\ \alpha_{21} & \beta_{21} \end{pmatrix} \begin{pmatrix} y_{1t-1} \\ y_{2t-1} \end{pmatrix} + \begin{pmatrix} u_{1t} \\ u_{2t} \end{pmatrix} \quad (5)$$

where u_{it} represents the white noise error term, with expectations $E(u_{it}) = 0$ and $E(u_{1t}, u_{2t}) = 0$. This system can be extended to include multiple variables $y_{1t}, y_{2t}, \dots, y_{gt}$, where each variable is influenced by the past values of all other variables in the system.

The VAR model is highly flexible and convenient for analyzing multiple time series because it does not require prior specification of endogenous and exogenous variables. However, there are certain limitations. First, it can be difficult to determine which variables significantly influence the dependent variables. Second, all variables in a VAR model must be stationary, but financial and economic time series often exhibit non-stationary behavior. To address this issue, the model can be transformed into a Vector Error Correction Model (VECM), which includes first-difference terms and cointegration relationships, eliminating the requirement for stationarity. Lastly, selecting the appropriate lag length is crucial for accurate model estimation, but this challenge can be managed using various statistical approaches, such as information criteria methods.

Johansen Cointegration Test

When dealing with non-stationary variables, it is essential to conduct a cointegration test to determine whether a long-term equilibrium relationship exists among them. Cointegration analysis helps in understanding the connection between causation and long-run equilibrium in time series data. Since non-stationary time series often exhibit changing means and variances over time, it is crucial to identify whether a set of variables moves together in the long run. Among various cointegration tests, the Johansen Cointegration Test is the most widely used method for detecting the presence of cointegration.

The Johansen test is specifically designed to identify cointegrating relationships between multiple non-stationary time series variables. If cointegration is found, it indicates that the variables share a long-run relationship despite being individually non-stationary. Unlike the Engle-Granger test, which can only detect a single cointegrating relationship, the Johansen test is more flexible as it allows for multiple cointegrating relationships. Additionally, it eliminates the problem of error propagation by testing all variables simultaneously within a system of equations. Another advantage is that it does not require any variables to be pre-normalized (Phillips, 1991).

The Johansen approach includes two main test statistics to determine the number of cointegrating relationships:

(i) Trace Test

The trace test examines the number of cointegrating equations in a dataset by evaluating whether the number of linear combinations among the variables is equal to or greater than a given value, K_0 . The hypotheses are formulated as follows:

Null Hypothesis (H_0): $K = K_0$ (There are at most K_0 cointegrating relationships)

Alternative Hypothesis (H_1): $K > K_0$ (There are more than K_0 cointegrating relationships)

To apply the trace test, K_0 is initially set to zero. If the null hypothesis is rejected, it implies that at least one cointegrating relationship exists among the variables. The test continues by incrementing K_0 until the null hypothesis is no longer rejected. The presence of a cointegrating relationship confirms that the variables have a stable long-run association.

(ii) Maximum Eigenvalue Test

The maximum eigenvalue test is another method to determine the number of cointegrating relationships. It focuses on the largest eigenvalue of the estimated cointegration matrix. An eigenvalue is a nonzero vector that, when subjected to a linear transformation, changes only by a scalar factor. The hypotheses for the maximum eigenvalue test are as follows:

Null Hypothesis (H_0): $K = K_0$ (There are at most K_0 cointegrating relationships)

Alternative Hypothesis (H_1): $K = K_0 + 1$ (There is one additional cointegrating relationship)

If the null hypothesis is rejected when $K = K_0$, it suggests that there is only one possible outcome for the variable to form a stationary process. However, if $K_0 = m - 1$ and the null hypothesis is rejected, which means that all variables in the time series are stationary, which is an uncommon scenario unless the dataset exhibits stationarity from the beginning.

Overall, the Johansen cointegration test provides a comprehensive framework for identifying and estimating long-term relationships between non-stationary variables. By using both the trace test and the maximum eigenvalue test, researchers can accurately determine the number of cointegrating relationships within a given dataset.

Vector Error Correction Model (VECM)

The Vector Error Correction Model (VECM) is an extension of the Vector Autoregression (VAR) model, specifically designed to handle non-stationary time series that are cointegrated. Unlike a standard VAR model, which does not account for long-run equilibrium relationships, the VECM incorporates cointegration constraints into its structure. This allows the model to capture both long-term equilibrium relationships and short-term dynamic adjustments.

The key feature of the VECM is the presence of an **error correction term**, which represents the deviation from the long-run equilibrium. This term ensures that any short-run fluctuations in the data are gradually corrected, guiding the variables back toward their equilibrium relationship. The inclusion of this term makes the VECM particularly useful for analyzing economic and financial time series, where variables often exhibit both short-run fluctuations and long-term dependencies.

Formulation of the VECM

If two or more variables are found to be cointegrated, an error correction model can be applied to analyze their relationship. The general form of the VECM for two cointegrated variables y_1 and y_2 can be expressed as:

$$\Delta y_{1,t} = \alpha_1(y_{2,t-1} - \beta y_{1,t-1}) + \varepsilon_{1,t} \quad (7)$$

$$\Delta y_{2,t} = \alpha_2(y_{2,t-1} - \beta y_{1,t-1}) + \varepsilon_{2,t} \quad (8)$$

Where:

$\Delta y_{1,t}$ and $\Delta y_{2,t}$ represent the short-run changes in the variables.

$(y_{2,t-1} - \beta y_{1,t-1})$ is the error correction term, which captures deviations from the long-run equilibrium.

α_1 and α_2 are the speed of adjustment coefficients, indicating how quickly each variable returns to equilibrium.

$\varepsilon_{1,t}$ and $\varepsilon_{2,t}$ are the error terms, representing unexplained variations.

Interpretation of the Error Correction Term

In the long-run equilibrium, the error correction term is equal to zero, meaning that the variables are perfectly aligned with their cointegrating relationship. However, if the variables deviate from this equilibrium, the error correction term becomes nonzero. This signals a temporary imbalance, prompting the variables to adjust in subsequent periods to restore equilibrium.

The magnitude of the speed of adjustment coefficients (α_1 and α_2) determines how quickly the system corrects itself. If these coefficients are large in absolute value, the adjustment process is rapid. Conversely, if they are small, the return to equilibrium is slow.

Significance of the VECM

Accounts for Long-Term Relationships: The VECM explicitly models the long-run equilibrium, ensuring that the variables do not drift apart indefinitely.

Captures Short-Term Dynamics: By incorporating lagged differences in the variables, the model allows for short-term fluctuations without losing sight of the long-run trends.

Corrects Deviations: The error correction mechanism ensures that temporary deviations from equilibrium are gradually corrected over time.

In summary, the VECM is a powerful tool for analyzing relationships between cointegrated time series variables. It balances short-run flexibility with long-run stability, making it particularly useful in economics, finance, and other fields where variables exhibit persistent trends and interdependencies.

The Wald test is commonly used to examine short-run causality between variables in econometric models. This test calculates a test statistic based on an unrestricted regression. The Wald

statistic assesses how closely the unrestricted estimates align with the restrictions imposed by the null hypothesis. If the restrictions are valid, the unrestricted estimates should closely satisfy those restrictions.

Results and Interpretations

The study uses several econometric methods to analyze the contributions of agricultural subsectors to GDPPPP growth in Myanmar. First, the Augmented Dickey-Fuller (ADF) test is applied to check the stationarity of the time series data for crop production, livestock, fishery, forestry, and GDPPPP. Then, a cointegration test assesses the long-term relationship between these subsectors and GDPPPP growth. Finally, Canonical Correlation Analysis (CCA) is employed to identify the main drivers of growth within the subsectors and evaluate their combined and individual impacts on GDPPPP.

Table (1) ADF Unit Root Test

Variables	Level		First Difference	
	t-value	p-value	t-value	p-value
Ln Agriculture	1.0686	0.9966	-4.9236	0.0002
Ln Forestry	0.9184	0.9948	-2.3019	0.0177
Ln Livestock	-1.5042	0.5215	-6.2014	0.0000
Ln GDPPPP	-2.0301	0.2733	-3.0205	0.0417

Source (Own Computation)

The results of the ADF Unit Root Test presented in Table (1) indicate that all the variables—Ln Agriculture, Ln Forestry, Ln Livestock, and Ln GDPPPP—are non-stationary at levels, as evidenced by high p-values, which are greater than the 5% significance level. However, after taking the first differences, the t-values for all variables become significantly negative, and the p-values fall below the 5% threshold. This suggests that the variables are stationary after differencing, implying that all the variables are integrated of order one, I(1). Therefore, these variables require differencing to achieve stationarity before proceeding with further analysis.

Table (2) Johansen Cointegration Test

Hypothesized No of CE	Eigen Value	Trace Statistic	Critical value	p-value
None*	0.6068	67.8518	47.8561	0.0002
At most 1*	0.3439	31.4440	29.7971	0.0320
At most 2*	0.2818	15.0065	15.4947	0.0591
At most 3*	0.0522	2.0921	3.8414	0.1481

Source (Own Computation)

The Johansen Cointegration Test results indicate that there is evidence of long-run equilibrium relationships among the variables in the model. At the “None” level, the trace statistic of 67.8518 exceeds the critical value of 47.8561, with a p-value of 0.0002, suggesting the presence of at least one cointegrating vector at the 5% significance level. Similarly, for “At most 1,” the trace statistic of

31.4440 is higher than the critical value of 29.7971, with a p-value of 0.0320, indicating a second cointegrating relationship. For “At most 2,” the trace statistic of 15.0065 is slightly below the critical value of 15.4947, with a p-value of 0.0591, which is marginally above the 5% threshold, implying weaker evidence for a third cointegrating vector. Finally, at “At most 3,” the trace statistic of 2.0921 is lower than the critical value of 3.8414, with a p-value of 0.1481, showing no evidence of further cointegration. Overall, the results confirm at least two cointegrating relationships among the variables, indicating that they move together in the long run despite short-term fluctuations. This supports the theoretical expectation of long-term linkages among the studied variables.

VAR Lag Length Selection

To apply the Cointegration test and Vector Error Correction model, the next important step after knowing that the data is stationary at the first difference is to determine the number of lags. The Vector Auto Regression (VAR) lag order selection method is used to choose the optimal lag length. There are five different criteria used to determine the lag lengths, such as the sequentially modified likelihood ratio (LR) test statistic, the final prediction error criterion (FPE), the Akaike information criterion (AIC), the Schwarz information criterion (SIC), and the Hannan-Quinn information criterion (HQ). These lag specification criteria results are shown in Table 3

Table (3) VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	86.8632	NA	0.0000	-4.3612	-4.1889	-4.2999
1	115.2346	49.2762*	0.0000	-5.0123	-4.1505	-4.7056
2	125.8919	16.2665	0.0000	-4.7314	-3.1797	-4.1792
3	133.6524	10.2119	0.0000	-4.2975	-2.0565	-3.5001

* indicates lag order selected by the criteria

Table (3) presents the results of the VAR Lag Order Selection Criteria, which include LogL, LR, FPE, AIC, SC, and HQ. Among the tested lag lengths, lag 1 is selected as the most appropriate based on the Likelihood Ratio (LR) and Akaike Information Criterion (AIC), both of which indicate the best model fit at this lag. The AIC value at lag 1 is the lowest (-5.0123), suggesting it provides the best balance between model complexity and goodness of fit. Although other criteria like SC and HQ suggest different lags, the AIC is widely used in academic research for selecting lag lengths. Therefore, the study uses lag 1 for the VAR model estimation, as it is expected to yield more accurate and reliable results for the analysis.

Specification and Estimation of the Vector Error Correction Model

If the variables are cointegrated, it is possible to continue by estimating the Vector Error Correction Model (VECM). Therefore, the long-run and short-run equilibrium can be found with VECM. These findings can determine which health variables have a long-run and short-run relationship with economic growth (GDP per capita). The lags for the VECM are selected based on the optimal lag length defined in Table 3. The results of VECM are shown in Tables (4) and (5).

Table (4) Long Run in the Cointegration Equation (VECM)

Variables	Coefficients	Std.Error	t-statistic
LNGDPPPP	1.0000		
Ln Agriculture	0.5579	0.7504	0.7435
Ln Forestry	-1.1253	0.8952	-1.2570
Ln Livestock	-0.8825	0.2045	-4.3162
Constant	0.0619		

According to Table 4, the long-run cointegration equation is:

$$\begin{array}{cccc}
 \text{GDP growth rate} = & \text{Lngdpppp} & + & 0.5579\text{Agriculture} - 1.125\text{Forestry} - 0.883\text{Livestock} + 0.0619 \\
 & \text{Std} & & (0.7504) \quad (0.8952) \quad (0.2045) \\
 & \text{t-stat} & & [0.7435] \quad [-1.2570] \quad [-4.3162]
 \end{array}$$

According to Table (4), the long-run cointegration equation in the VECM model examines the relationship between gross domestic product per capita (LNGDPPPP) and the three key sectors: agriculture, forestry, and livestock. The coefficient of agriculture (0.5579) is positive, indicating that in the long run, a rise in agricultural output is associated with an increase in GDP per capita. However, the t-statistic (0.7435) suggests that this relationship is not statistically significant. In contrast, the coefficients of forestry (-1.1253) and livestock (-0.8825) are both negative, implying that increases in these sectors are linked to a decrease in GDP per capita. Among them, the livestock sector shows a statistically significant long-run effect, as its t-statistic (-4.3162) exceeds the critical value, suggesting a strong negative relationship. The constant term is 0.0619. Overall, the results suggest that, in the long run, the livestock sector plays a more significant role in influencing economic output, while the impact of agriculture and forestry appears weaker or statistically insignificant.

Table (5) Short Run in the VECM

Error Correction	D(GDPgrowth)	Standard Error	p-value
ECT	-0.0135	0.0175	-0.07704
D(GDPPPP(-1))	0.0888	0.3339	0.2661
D(Agriculture(-1))	0.0565	0.0311	1.8116
D(Forestry(-1))	0.0008	0.0285	0.0278
D(Livestock(-1))	-0.0118	0.0116	-1.0153
C	-0.0022		

The short-run estimation results from the Vector Error Correction Model (VECM) in Table (5) indicate the immediate effects of changes in the agricultural subsectors on GDP growth. The error correction term (ECT) has a negative sign (-0.0135), suggesting that deviations from the long-run equilibrium are corrected over time; however, the magnitude is very small, implying slow adjustment toward equilibrium in the short run. The coefficient for GDP per capita purchasing power parity in the previous period [D(GDPPPP(-1))] is positive (0.0888), but its p-value (0.2661) indicates that the

effect is not statistically significant. Agriculture in the previous period [$D(\text{Agriculture}(-1))$] shows a positive coefficient (0.0565), suggesting that growth in this subsector may contribute to GDP growth in the short run.

Vector Error Correction Model Diagnostic Tests

To ensure the validity of the Vector Error Correction Model, the Residual Autocorrelation test, Jarque-Bera normality test, and White's heteroskedasticity test are performed. Those diagnostic tests check the model for residual autocorrelation, normality, and heteroskedasticity, respectively. The results of those tests are presented in Table 6.

Table (6) Diagnosis Tests of VECM

Diagnosis	Statistics	p-value
Residual Normality Test	JB = 97.4872	0.0000
Residual Portmanteau Tests for Autocorrelation	Q = 71.9572	0.0023
Residual Heteroskedasticity	365.4466	0.0871

The diagnostic tests for the Vector Error Correction Model (VECM) presented in Table 8 assess the validity and reliability of the model. The residual normality test, measured by the Jarque-Bera (JB) statistic, has a value of 97.4872 with a p-value of 0.0000, indicating that the residuals do not follow a normal distribution. The residual Portmanteau test for autocorrelation produces a Q statistic of 71.9572 with a p-value of 0.0023, suggesting the presence of autocorrelation in the residuals, which may affect the model's efficiency. The residual heteroskedasticity test, with a test statistic of 365.4466 and a p-value of 0.0871, fails to provide strong evidence against the null hypothesis of homoskedasticity, implying that the variance of the residuals is relatively stable.

Conclusion

The findings from the analysis highlight several key points regarding the relationship between agricultural subsectors and GDP growth in Myanmar. First, the model selection process identified lag 1 as the most appropriate for the VAR model, as it provides the best trade-off between model accuracy and complexity based on widely accepted statistical criteria. This choice ensures that the estimation captures short-term dynamics without overfitting the data.

In the long run, agriculture shows a positive but statistically weak association with GDP per capita, indicating that while the sector may contribute to economic growth, its influence is not strong enough to be significant in the model. Forestry and livestock, on the other hand, show negative long-run relationships with GDP per capita, with livestock having a significant impact. This suggests that expansion in livestock production, under current conditions, may be linked to inefficiencies or structural constraints that limit overall economic benefits.

In the short run, the results show that adjustments toward the long-run equilibrium occur slowly, as indicated by the small and negative error correction term. Agricultural output from the previous period appears to have a positive influence on GDP growth, although not strongly

significant. This implies that short-term gains from agricultural activity may contribute to economic performance, but the effect is relatively modest.

The diagnostic tests reveal certain limitations in the model's statistical assumptions. The residuals do not follow a normal distribution, and autocorrelation is present, which could reduce the efficiency of the estimates. However, the absence of strong evidence of heteroskedasticity suggests that the residual variance is relatively stable.

Suggestion

Based on these findings, it is suggested that policymakers place greater emphasis on improving the productivity and efficiency of the livestock and forestry sectors, as their current structure may be constraining long-term economic growth. Efforts to enhance agricultural sector performance in the short term should also be supported through better infrastructure, technology adoption, and market access. Furthermore, improving data quality and addressing statistical issues in future research could strengthen the reliability of economic modeling for policymaking.

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PPENDIX (A)

Null Hypothesis: LNAGRI has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	1.068646	0.9966
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LNAGRI) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.923664	0.0002
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LNFORESTRY has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.918432	0.9948
Test critical values: 1% level	-3.600987	
5% level	-2.935001	
10% level	-2.605836	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LNFORESTRY) has a unit root

Exogenous: Constant

Lag Length: 9 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.301911	0.0177
Test critical values: 1% level	-3.661661	
5% level	-2.960411	
10% level	-2.619160	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LNLIVESTOCK has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	<u>-1.504186</u>	<u>0.5215</u>
Test critical values: 1% level	-3.600987	
5% level	-2.935001	
10% level	-2.605836	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LNLIVESTOCK) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	<u>-6.201431</u>	<u>0.0000</u>
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LNGDPPPP has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	<u>-2.030124</u>	<u>0.2733</u>
Test critical values: 1% level	-3.605593	
5% level	-2.936942	
10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LNGDPPPP,2) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
<u>Augmented Dickey-Fuller test statistic</u>	<u>-3.020508</u>	<u>0.0417</u>
Test critical values: 1% level	-3.610453	
5% level	-2.938987	
10% level	-2.607932	

*MacKinnon (1996) one-sided p-values.

Date: 08/02/25 Time: 12:33
 Sample (adjusted): 1983 2021
 Included observations: 39 after adjustments
 Trend assumption: Linear deterministic trend
 Series: LNGDPPPP LMAGRI_DIF LNFORESTORY_DIF LNLIVESTOCK_DIF
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.606839	67.85184	47.85613	0.0002
At most 1 *	0.343922	31.44398	29.79707	0.0320
At most 2	0.281894	15.00645	15.49471	0.0591
At most 3	0.052229	2.092070	3.841465	0.1481

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**Mackinnon-Haug-Michelis (1999) p-values

VAR Lag Order Selection Criteria

Endogenous variables: LNGDPPPP_DIF LMAGRI_DIF LNFORESTORY_DIF LNL...

Exogenous variables: C

Date: 08/02/25 Time: 12:38

Sample: 1980 2021

Included observations: 38

Lag	LogL	LR	FPE	AIC	SC	HQ
0	86.86342	NA	1.50e-07	-4.361233	-4.188855*	-4.299902
1	115.2346	49.27623*	7.87e-08*	-5.012347*	-4.150459	-4.705694*
2	125.8919	16.26648	1.07e-07	-4.731154	-3.179757	-4.179179
3	133.6524	10.21119	1.79e-07	-4.297497	-2.056590	-3.500199

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Vector Error Correction Estimates

Date: 08/02/25 Time: 12:40

Sample (adjusted): 1984 2021

Included observations: 38 after adjustments

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1
LNGDPPPP_DIF(-1)	1.000000
LMAGRI_DIF(-1)	0.557911 (0.75039) [0.74350]
LNFORESTORY_DIF(-1)	-1.125262 (0.89520) [-1.25700]
LNLIVESTOCK_DIF(-1)	-0.882470 (0.20445) [-4.31622]
C	0.061922

Error Correction:	D(LNGDPP...	D(LMAGRI...	D(LNFORE...	D(LNLIVES...
CointEq1	-0.013507 (0.01753) [-0.77043]	0.231833 (0.26706) [0.86809]	0.015019 (0.18854) [0.07966]	1.294817 (0.35400) [3.65772]
D(LNGDPPPP_DIF(-1))	0.088835 (0.33391) [0.26605]	-0.789703 (5.08647) [-0.15526]	-1.183900 (3.59098) [-0.32969]	-13.45093 (6.74226) [-1.99502]
D(LNGDPPPP_DIF(-2))	-0.037287 (0.32766) [-0.11380]	0.937279 (4.99126) [0.18778]	-0.425537 (3.52376) [-0.12076]	2.194769 (6.61605) [0.33173]
D(LMAGRI_DIF(-1))	0.056464 (0.03117) [1.81163]	-1.652618 (0.47478) [-3.48083]	-0.557625 (0.33519) [-1.66363]	-0.215660 (0.62933) [-0.34268]
D(LMAGRI_DIF(-2))	0.028719 (0.03190) [0.90025]	-0.878734 (0.48595) [-1.80827]	-0.038606 (0.34308) [-0.11253]	0.513105 (0.64414) [0.79657]
D(LNFORESTORY_DI...	0.000791 (0.02847) [0.02779]	0.085815 (0.43368) [0.19787]	-0.620669 (0.30618) [-2.02717]	1.619466 (0.57486) [2.81715]
D(LNFORESTORY_DI...	0.000427 (0.02802) [0.01526]	-0.116191 (0.42677) [-0.27226]	-0.690172 (0.30129) [-2.29072]	0.019372 (0.56569) [0.03424]
D(LNLIVESTOCK_DIF(...	-0.011808 (0.01163) [-1.01534]	0.115895 (0.17715) [0.65421]	0.044467 (0.12507) [0.35554]	0.206520 (0.23482) [0.87949]
D(LNLIVESTOCK_DIF(...	-0.008092 (0.00791) [-1.02273]	-0.021818 (0.12052) [-0.18103]	-0.022147 (0.08509) [-0.26029]	0.166083 (0.15975) [1.03962]
C	-0.002280 (0.00340) [-0.67062]	0.035247 (0.05180) [0.68045]	0.018141 (0.03657) [0.49606]	0.005942 (0.06866) [0.08653]
R-squared	0.173511	0.366797	0.361234	0.672633
Adj. R-squared	-0.092147	0.163268	0.155916	0.567408
Sum sq. resids	0.012234	2.838957	1.414983	4.988107
S.E. equation	0.020903	0.318420	0.224800	0.422074
F-statistic	0.653137	1.802184	1.759387	6.392327
Log likelihood	98.86104	-4.630826	8.599241	-15.33960
Akaike AIC	-4.676897	0.770043	0.073724	1.333663
Schwarz SC	-4.245953	1.200987	0.504668	1.764607
Mean dependent	-0.002669	0.046618	0.027613	-0.000666
S.D. dependent	0.020002	0.348103	0.244683	0.641726
Determinant resid covariance (dof adj.)	6.69E-08			
Determinant resid covariance	1.97E-08			
Log likelihood	121.4074			
Akaike information criterion	-4.074073			
Schwarz criterion	-2.177920			
Number of coefficients	44			

IMPACT OF LIFE EXPECTANCY AND LABOR FORCE PARTICIPATION ON ECONOMIC GROWTH IN MYANMAR

Wai Wai Htet¹, Lwin Moe Thu²

Abstract

This study investigates the relationship between life expectancy at birth (LE), labor force participation rate (LFP), and economic growth (GDP growth rate) in Myanmar, a developing Southeast Asian country undergoing significant economic and structural changes. Recognizing that population health and labor force size are critical drivers of economic performance, the research aims to explore both the short-run and long-run dynamics between these factors. Using time series data from 1980 to 2023 obtained from the World Bank, the analysis applies the Augmented Dickey-Fuller (ADF) test to assess data stationarity, the Johansen cointegration test to identify long-term relationships, and both Vector Autoregressive (VAR) and Vector Error Correction Model (VECM) techniques to examine causal interactions. The findings reveal that while increases in labor force participation and life expectancy have the potential to boost economic growth, structural inefficiencies such as underemployment, low productivity, and limited access to quality healthcare can weaken their impact. The study suggests that policymakers should combine initiatives to enhance workforce productivity—through skills training, high-value job creation, and labor market reforms—with policies that promote healthy aging and extend economically active years. By aligning health improvements with productive employment opportunities, Myanmar can better leverage its demographic advantages to achieve sustainable economic growth.

Keywords: labor force participation rate, life expectancy at birth, GDP growth rate, VECM, ADF

Introduction

Myanmar is a developing country in Southeast Asia that has gone through many economic changes in recent years. Myanmar's economy has faced many challenges, including political instability, limited resources, and changes in global markets. These factors have made it difficult for the country to maintain steady economic growth. However, the health and productivity of the population can play a key role in overcoming these challenges. A healthier population can work longer and contribute more to the economy, while a larger labor force means more workers to help the country develop.

Economic growth in the country depends on several important factors, such as the health of the population and the number of people who can work. Life expectancy, which means how long people are expected to live on average, shows the general health and quality of life of the population. When people live longer, it often means that healthcare and living conditions are better, which can lead to higher productivity and growth in the economy.

The labor force, which includes all people who are of working age it plays a key role in a country's economic development. A larger and more active labor force can increase the production of goods and services, which leads to economic growth. In Myanmar, recent economic reforms and changes have had an impact on job opportunities and the overall productivity of workers. These changes make the labor force even more important for driving economic growth. As the country continues to develop, understanding the link between the size and strength of the labor force and economic growth is crucial for future planning.

¹ Department of Statistics, Monywa University of Economics

² Department of Statistics, Monywa University of Economics

Understanding the impact of changes in life expectancy and labor force participation on economic growth can guide policymakers in making informed investment decisions. This study aims to clarify the relationship between life expectancy at birth (LE), labor force participation rate (LFP), and economic growth (GDP growth rate) in Myanmar. By analyzing these factors, the research provides insights into how improvements in health and increased labor force engagement can strengthen Myanmar's economy. The study demonstrates how enhancing healthcare and expanding work opportunities contribute to economic growth, offering valuable information for shaping future development strategies.

Objective of the Study

The objectives of the study are

- (1) to explore the long-term relationship between life expectancy at birth, labor force participation rate, and GDP growth rate in Myanmar, and
- (2) to examine the short-run relationship between life expectancy at birth, labor force participation rate, on Economic growth (GDP growth rate) in Myanmar.

Methods of the Study

The data used in this study are time series data for the time period of 1980 to 2023. The data collected from the World Data Bank was published by the World Bank. This study used the Economic Growth (GDP growth rate) as the Dependent Variable, Life Expectancy at birth (LE), and Labor Force Participation rate (LFP) as explanatory variables. Firstly, the Augmented Dickey-Fuller (ADF) test is employed to assess the stationarity of the data. If the variables are found to be stationary, the Johansen cointegration test is conducted to identify any long-term relationships among them. And then, Vector Autoregressive (VAR) and Vector Error Correction Model (VECM) were applied to analyze the short-run and long-run relationship between the GDP growth rate and other variables.

Literature Reviews

The relationship between labor force participation and economic growth has been extensively studied in economic literature, with various researchers examining how changes in labor market dynamics influence the growth trajectories of different countries. Many studies suggest that higher labor force participation rates contribute positively to economic growth by increasing the available labor supply, enhancing productivity, and fostering innovation. For instance, the work of Mankiw, Romer, and Weil (1992) investigated the importance of human capital, including labor force participation, in driving economic growth, suggesting that economies with higher levels of labor force engagement tend to experience faster growth.

Oyedele and Tella (2023) analyzed the relationship between labor force participation, life expectancy, economic growth, and carbon dioxide emissions in Sub-Saharan Africa using panel data from 1990 to 2018. The authors applied a panel Vector Autoregressive (VAR) model to understand the dynamic interactions among the variables. The cointegration test showed no long-run cointegrating relationship, so the VAR model was used instead of a VECM. The findings revealed that there is a two-way causal relationship between life expectancy and labor force participation, meaning that each variable influences the other. The study also found dynamic

feedback effects among the variables, showing how health, labor, and environmental factors interact with economic performance over time.

Several studies have also explored the relationship between labor force participation and economic growth in the context of specific countries or regions. For example, in their analysis of Southeast Asian economies, Qinfen (2017) found that labor force participation, particularly among women, has been a significant driver of economic growth in the region. Ogungbenle, Olawumi, and Obasuyi (2013) explored that there is no bidirectional causality between life expectancy and public health spending in Nigeria. Similarly, it revealed no bidirectional causality between life expectancy and economic growth in Nigeria over the years.

Mandiefe and Tieguhong (2017) examined the link between public health spending and economic growth in Cameroon by using the Vector Error Correction Model (VECM) with annual data covering the period from 1988 to 2013. The authors aimed to see whether health investment, which is closely connected to life expectancy, plays a role in supporting economic performance. The results showed that there was no meaningful short-run relationship between public health spending and economic growth. However, in the long run, health investments were found to make a strong and positive contribution to the country's economic growth. The study suggested that health improvements, such as longer life expectancy and better health services, support growth over time through gradual and long-term effects.

Opeloyeru and Lawal (2015) found that life expectancy for both men and women is below 55 years. Analysis shows that in the long run, higher life expectancy leads to higher output per capita in Nigeria. This means that longer life directly boosts individual productivity, while indirectly, population growth negatively affects output per capita. These findings suggest that an economy aiming for rapid and sustainable growth should invest in the health sector to improve health outcomes. Research by Barro (2002) analyzed the view that labor force participation is a key determinant of economic growth, particularly in developing countries where labor markets are often characterized by underemployment and informality.

Overall, the existing literature generally indicates that higher labor force participation and improved life expectancy have a positive effect on economic growth. The research emphasized the importance of greater labor force engagement, especially among women and younger individuals, in enhancing productivity and innovation. While longer life expectancy is associated with increased individual productivity, population growth can diminish output per capita. However, a strong relationship between life expectancy, public health expenditure, and economic growth has not been consistently observed, suggesting the need for more focused policy interventions. For Myanmar's sustainable growth, prioritizing investments in health and labor force participation is essential, alongside efforts to mitigate the effects of population growth.

Data and Methods

The studies used the annual data spanning from the period of 1980 to 2023 for Myanmar, focusing on GDP growth rate, life expectancy at birth, and labor force participation rate. The data is received from the World Bank. Firstly, the Augmented Dickey-Fuller (ADF) test is applied to check if the data is stationary, meaning the statistical properties of the variables do not change over time. If the variables are stationary, the Johansen cointegration test is used to identify any long-term relationships between GDP growth rate, labor force participation rate, and life expectancy at

birth. This test helps determine whether these variables move together in the long run despite short-term changes.

This study applies the Vector Autoregression (VAR) and Vector Error Correction Model (VECM) to examine the dynamic relationship between GDP growth (GDPGR), life expectancy (LE), and labor force participation rate (LFPR) in both the short run and long run. The VAR model is initially employed to determine the optimal lag structure and assess the interdependence among the variables without assuming any long-run equilibrium. Following the identification of a cointegrating relationship among the variables, the VECM is applied to capture both short-term adjustments and long-term equilibrium dynamics. The VECM enables the analysis to account for deviations from the long-run path and how such deviations are corrected over time. By using these models, the study investigates how changes in LE and LFPR influence GDPGR, offering insights into the extent to which demographic and labor factors drive economic performance in both the immediate and sustained periods.

Augmented Dickey-Fuller (ADF) Test

The ADF test is used to check if the data is stationary. It involves testing whether the time series has a unit root, which means it changes over time and is not stable. The null hypothesis is that the data is non-stationary, while the alternative hypothesis is that it is stationary. The test helps ensure that the data is suitable for further analysis. The ADF test checks for stationarity in time series data. The equation for the ADF test is:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^p \delta_i \Delta y_{t-i} + \epsilon_t \quad (1)$$

Where:

- Δy_t is the first difference of the series.
- α is a constant.
- βt is a time trend.
- y_{t-1} is the lagged level of the series.
- δ_i are the coefficients of the lagged differences.
- ϵ_t is the error term.
- The null hypothesis $H_0: \gamma = 0$ (series has a unit root, i.e., it is non-stationary).

Johansen Cointegration Test

When dealing with non-stationary variables, it is essential to conduct a cointegration test to determine whether a long-term equilibrium relationship exists among them. Cointegration analysis helps in understanding the connection between causation and long-run equilibrium in time series data. Since non-stationary time series often exhibit changing means and variances over time, it is crucial to identify whether a set of variables moves together in the long run. Among various cointegration tests, the Johansen Cointegration Test is the most widely used method for detecting the presence of cointegration.

The Johansen test is specifically designed to identify cointegrating relationships between multiple non-stationary time series variables. If cointegration is found, it indicates that the variables share a long-run relationship despite being individually non-stationary. Unlike the Engle-Granger test, which can only detect a single cointegrating relationship, the Johansen test is more flexible as

it allows for multiple cointegrating relationships. Additionally, it eliminates the problem of error propagation by testing all variables simultaneously within a system of equations. Another advantage is that it does not require any variables to be pre-normalized (Phillips, 1991).

The Johansen approach includes two main test statistics to determine the number of cointegrating relationships:

(i) Trace Test

The trace test examines the number of cointegrating equations in a dataset by evaluating whether the number of linear combinations among the variables is equal to or greater than a given value. K_0 . The hypotheses are formulated as follows:

Null Hypothesis (H_0): $K = K_0$ (There are at most K_0 cointegrating relationships)

Alternative Hypothesis (H_1): $K > K_0$ (There are more than K_0 cointegrating relationships)

To apply the trace test, K_0 is initially set to zero. If the null hypothesis is rejected, it implies that at least one cointegrating relationship exists among the variables. The test continues by incrementing K_0 until the null hypothesis is no longer rejected. The presence of a cointegrating relationship confirms that the variables have a stable long-run association.

(ii) Maximum Eigenvalue Test

The maximum eigenvalue test is another method to determine the number of cointegrating relationships. It focuses on the largest eigenvalue of the estimated cointegration matrix. An eigenvalue is a nonzero vector that, when subjected to a linear transformation, changes only by a scalar factor. The hypotheses for the maximum eigenvalue test are as follows:

Null Hypothesis (H_0): $K = K_0$ (There are at most K_0 cointegrating relationships)

Alternative Hypothesis (H_1): $K = K_0 + 1$ (There is one additional cointegrating relationship)

If the null hypothesis is rejected when $K = K_0$, it suggests that there is only one possible outcome for the variable to form a stationary process. However, if $K_0 = m - 1$ and the null hypothesis is rejected, which means that all variables in the time series are stationary, which is an uncommon scenario unless the dataset exhibits stationarity from the beginning.

Overall, the Johansen cointegration test provides a comprehensive framework for identifying and estimating long-term relationships between non-stationary variables. By using both the trace test and the maximum eigenvalue test, researchers can accurately determine the number of cointegrating relationships within a given dataset.

Vector Error Correction Model (VECM)

The Vector Error Correction Model (VECM) is an extension of the Vector Autoregression (VAR) model, specifically designed to handle non-stationary time series that are cointegrated. Unlike a standard VAR model, which does not account for long-run equilibrium relationships, the VECM incorporates cointegration constraints into its structure. This allows the model to capture both long-term equilibrium relationships and short-term dynamic adjustments.

The key feature of the VECM is the presence of an **error correction term**, which represents the deviation from the long-run equilibrium. This term ensures that any short-run fluctuations in the data are gradually corrected, guiding the variables back toward their equilibrium relationship. The inclusion of this term makes the VECM particularly useful for analyzing

economic and financial time series, where variables often exhibit both short-run fluctuations and long-term dependencies.

Formulation of the VECM

If two or more variables are found to be cointegrated, an error correction model can be applied to analyze their relationship. The general form of the VECM for two cointegrated variables y_1 and y_2 can be expressed as:

$$\Delta y_{1,t} = \alpha_1(y_{2,t-1} - \beta y_{1,t-1}) + \varepsilon_{1,t} \quad (2)$$

$$\Delta y_{2,t} = \alpha_2(y_{2,t-1} - \beta y_{1,t-1}) + \varepsilon_{2,t} \quad (3)$$

Where:

$\Delta y_{1,t}$ and $\Delta y_{2,t}$ represent the short-run changes in the variables.

$(y_{2,t-1} - \beta y_{1,t-1})$ is the error correction term, which captures deviations from the long-run equilibrium.

α_1 and α_2 are the speed of adjustment coefficients, indicating how quickly each variable returns to equilibrium.

$\varepsilon_{1,t}$ and $\varepsilon_{2,t}$ are the error terms, representing unexplained variations.

Interpretation of the Error Correction Term

In the long-run equilibrium, the error correction term is equal to zero, meaning that the variables are perfectly aligned with their cointegrating relationship. However, if the variables deviate from this equilibrium, the error correction term becomes nonzero. This signals a temporary imbalance, prompting the variables to adjust in subsequent periods to restore equilibrium.

The magnitude of the speed of adjustment coefficients (α_1 and α_2) determines how quickly the system corrects itself. If these coefficients are large in absolute value, the adjustment process is rapid. Conversely, if they are small, the return to equilibrium is slow.

Significance of the VECM

Accounts for Long-Term Relationships: The VECM explicitly models the long-run equilibrium, ensuring that the variables do not drift apart indefinitely.

Captures Short-Term Dynamics: By incorporating lagged differences in the variables, the model allows for short-term fluctuations without losing sight of the long-run trends.

Corrects Deviations: The error correction mechanism ensures that temporary deviations from equilibrium are gradually corrected over time.

In summary, the VECM is a powerful tool for analyzing relationships between cointegrated time series variables. It balances short-run flexibility with long-run stability, making it particularly useful in economics, finance, and other fields where variables exhibit persistent trends and interdependencies.

The Wald test is commonly used to examine short-run causality between variables in econometric models. This test calculates a test statistic based on an unrestricted regression. The Wald statistic assesses how closely the unrestricted estimates align with the restrictions imposed by the null hypothesis. If the restrictions are valid, the unrestricted estimates should closely satisfy those restrictions.

Results and Interpretation

In this study, the data analysis involved a multi-step econometric approach to examine the impact of life expectancy at birth and labor force participation rate on economic growth in Myanmar. Initially, the Augmented Dickey-Fuller (ADF) Unit Root Test is applied to confirm the stationarity of the time series data, ensuring that the variables become stable after first differencing. Subsequently, the Johansen Cointegration Test is used to detect any long-term equilibrium relationships among the variables, establishing the presence of cointegrating vectors that indicate persistent interconnections over time.

Table (1) ADF Unit Root Test

Variables	Level		First Difference	
	t-value	p-value	t-value	p-value
LFP	-1.6031	0.7745	-6.1109	0.0000
Life Expectancy at birth	0.5749	0.8366	-9.1740	0.0000
GDP growth rate	-0.4380	0.8932	-5.8387	0.0267

Source; Own Computation

Table 1 shows the results of the Augmented Dickey-Fuller (ADF) unit root test for the study variables. The findings reveal that Labor Force Participation, Life Expectancy at Birth, and GDP Growth Rate are not stationary at their level forms because their p-values are greater than 0.05. However, after taking the first difference, all three variables become stationary, as their p-values fall below the 5% significance level. Stationarity in the data is crucial for conducting further time series analysis, as it ensures that the statistical properties of the variables are stable over time and meet the conditions required for advanced econometric modeling.

Table (2) Johansen Cointegration Test

Hypothesized No of CE	Eigen Value	Trace Statistic	Critical value	p-value
None*	0.3506	39.3322	35.0109	0.0215
At most 1*	0.2000	24.5987	18.3977	0.0489
At most 2*	0.0426	1.8284	3.8415	0.1763

Source: Own Computation

Table 2 presents the results of the Johansen Cointegration Test, which examines the long-run relationship among the study variables. The trace statistic shows that the null hypothesis of no cointegration is rejected at the 5% level, since the trace value of 39.3322 is higher than the critical value of 35.0109 with a p-value of 0.0215. This indicates that there is at least one cointegration equation among the variables. Similarly, the test for “at most one” cointegration relationship is also significant, with a trace statistic of 24.5987 compared to the critical value of 18.3977 and a p-value of 0.0489, suggesting the existence of a second cointegration equation. However, the result for “at most two” cointegration equations is not significant, as the trace statistic of 1.8284 is lower than the critical value of 3.8415, and the p-value of 0.1763 exceeds the 5% level. Taken together, the findings suggest that there are two cointegration equations among the variables, confirming that they move together in the long run despite possible short-term fluctuations. This implies that variables such as labor force participation, life expectancy, and GDP growth rate share a stable and

long-term equilibrium relationship, which is important for further modeling and policy implications.

VAR Lag Length Selection

To apply the Cointegration test and Vector Error Correction model, the next important step after knowing that the data is stationary at the first difference is to determine the number of lags. The Vector Auto Regression (VAR) lag order selection method is used to choose the optimal lag length. There are five different criteria used to determine the lag lengths, such as the sequentially modified likelihood ratio (LR) test statistic, the final prediction error criterion (FPE), the Akaike information criterion (AIC), the Schwarz information criterion (SIC), and the Hannan-Quinn information criterion (HQ). These lag specification criteria results are shown in Table 2

Table (3) VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-336.473	NA	3121.527	16.5598	16.6851	16.6053
1	-291.237	81.6460	533.9451*	14.7921*	15.2936*	14.9747*
2	-287.962	5.4321	711.812	15.0713	15.949	15.3901
3	-275.786	18.4123*	621.952	14.9164	16.1702	15.3730

* indicates lag order selected by the criteria

Source: Own Computation

Table 3 shows the results of the VAR Lag Order Selection Criteria, which are used to determine the appropriate lag length for the Vector Autoregression (VAR) model. The table presents the values of different statistical criteria, including the Likelihood Ratio (LR), Final Prediction Error (FPE), Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan–Quinn Criterion (HQ) for different lag lengths. The results indicate that most of the criteria suggest lag order 1 as the most suitable for the model. Specifically, the FPE, AIC, and SC values are minimized at lag 1, and the LR statistic is also significant, which collectively highlight that lag 1 provides the best fit compared to the other lag structures. Although the LR test shows some improvement at lag 3, other criteria, such as FPE and AIC, do not consistently support this, and the values are less efficient compared to lag 1. Therefore, lag order 1 is selected as the optimal lag length, ensuring that the model captures the dynamic relationships among the variables without overfitting. This choice is important because using the correct lag length improves the reliability of the results and ensures that the VAR model properly reflects both the short-term dynamics and the long-term relationships among the variables.

Specification and Estimation of the Vector Error Correction Model

If the variables are cointegrated, it is possible to continue by estimating the Vector Error Correction Model (VECM). Therefore, the long-run and short-run equilibrium can be found with VECM. These findings can determine which health variables have a long-run and short-run relationship with economic growth (GDP per capita). The lags for the VECM are selected based on the optimal lag length defined in Table 3. The results of VECM are shown in Tables 4 and 5.

Table (4) Long Run in the Cointegration Equation (VECM)

Variables	Coefficients	Std.Error	t-statistic
GDP Growth	1.0000		
LFPR	1.6748	0.9344	1.7923
LE	2.0297	0.3056	6.6358
Constant	226.5705		

Source: Own Computation

According to Table 4, the long-run cointegration equation is:

$$\begin{array}{rcl}
 \text{GDP growth rate} & = & \text{Constant} + 1.6748 \text{ Labor Force Participation Rate} + 2.0297 \text{ Life Expectancy} \\
 & & \text{Std} \qquad \qquad \qquad (0.9344) \quad (0.3056) \\
 & & \text{t-stat} \qquad \qquad \qquad [1.7923] \quad [6.6358]
 \end{array}$$

Table 4 presents the results of the long-run cointegration equation estimated under the Vector Error Correction Model (VECM). In this model, GDP growth is treated as the normalized dependent variable with its coefficient restricted to 1.0000, while the labor force participation rate (LFPR), life expectancy (LE), and the constant term are included as explanatory variables. The coefficient of LFPR is 1.6748 with a standard error of 0.9344 and a t-statistic of 1.7923. Although this coefficient is positive, the t-statistic shows that the impact of LFPR on GDP growth is only weakly significant in the long run, suggesting that higher labor force participation tends to contribute to economic growth, but the strength of the relationship may not be very strong. In contrast, life expectancy (LE) has a coefficient of 2.0297 with a standard error of 0.3056 and a t-statistic of 6.6358, which is highly significant at conventional levels. This indicates that improvements in life expectancy exert a strong and statistically significant positive influence on GDP growth in the long run. The constant term is 226.5705, representing the intercept of the equation, which reflects other long-run structural factors affecting GDP growth that are not directly captured by LFPR and LE.

Table (5) Short Run in the VECM

Error Correction	D(GDPgrowth)	Standard Error	p-value
ECT	0.2156	0.1794	1.2023
D(GDPGR(-1))	0.4362	0.2478	1.7601
D(Life Expectancy(-1))	9.9466	0.5897	16.8678
D(Labor Force Participation))	0.2221	0.5861	0.3791
C	0.1819	0.9351	0.1945

Source: Own Computation

Table 5 shows the short-run estimation results from the Vector Error Correction Model (VECM), where changes in GDP growth are explained by the error correction term (ECT), past values of GDP growth, life expectancy, labor force participation, and a constant. The coefficient of the error correction term (ECT) is 0.2156 with a standard error of 0.1794 and a t-statistic of 1.2023. Since this value is not statistically significant, it suggests that deviations from the long-run

equilibrium are corrected slowly, and the system does not exhibit a strong tendency to return to equilibrium in the short run. The first lag of GDP growth [$D(\text{GDPGR}(-1))$] has a positive coefficient of 0.4362 with a t-statistic of 1.7601, which indicates a weak but positive short-run effect of past GDP growth on current GDP growth, implying some persistence in economic performance. Life expectancy at its first lag [$D(\text{Life Expectancy}(-1))$] shows a very strong and significant positive coefficient of 9.9466 with a t-statistic of 16.8678, which highlights that improvements in health and longevity have a substantial immediate effect on boosting GDP growth in the short run. On the other hand, the coefficient of labor force participation [$D(\text{LFPR})$] is 0.2221 with a low t-statistic of 0.3791, suggesting that short-run changes in labor force participation do not significantly influence GDP growth. The constant term (C) is 0.1819 with a very low t-statistic of 0.1945, which shows that unexplained short-run variations in GDP growth are minimal.

Vector Error Correction Model Diagnostic Tests

To ensure the validity of the Vector Error Correction Model, the Residual Autocorrelation test, Jarque-Bera normality test, and White's heteroskedasticity test are performed. Those diagnostic tests check the model for residual autocorrelation, normality, and heteroskedasticity, respectively. The results of those tests are presented in Table 6.

Table (6) Diagnosis Tests of VECM

Diagnosis	Statistics	p-value
Residual Normality Test	JB = 69.854	0.0000
Residual Portmanteau Tests for Autocorrelation	Q = 89.584	0.0046
Residual Heteroskedasticity	254.869	0.0958

Source: Own Computation

Table 6 presents the diagnostic tests used to check the reliability and validity of the VECM results. The residual normality test shows a Jarque-Bera (JB) statistic of 69.854 with a p-value of 0.0000, which is highly significant. This result indicates that the residuals are not normally distributed, meaning the model does not fully meet the assumption of normality. However, in large samples, normality is often less critical due to the central limit theorem, and the results can still be interpreted as reliable. The residual Portmanteau test for autocorrelation reports a Q-statistic of 89.584 with a p-value of 0.0046. Since this p-value is below the 5% significance level, it suggests that autocorrelation exists in the residuals, meaning there is some correlation between error terms across periods. This implies that the model may not have captured all the dynamic relationships in the data, and this limitation should be acknowledged. On the other hand, the residual heteroskedasticity test shows a statistic of 254.869 with a p-value of 0.0958, which is above the 5% significance level. This means that the null hypothesis of homoskedasticity cannot be rejected, and the residuals do not show significant heteroskedasticity.

Conclusions

The findings of the analysis show that the study variables are not stable in their original form but become stable after taking differences, making them suitable for further time series analysis. The results also confirm the existence of long-run relationships among labor force participation, life expectancy, and GDP growth, meaning that these variables move together over time despite short-term changes. The lag order selection suggests that using one lag is the most appropriate for the model, as it captures the dynamic behavior of the variables without overfitting. In the long run, life expectancy shows a strong positive influence on economic growth, while labor force participation also contributes positively but less strongly. In the short run, improvements in life expectancy are found to have an immediate effect on growth, whereas labor force participation has little impact. Finally, diagnostic tests indicate that while the model is generally reliable, some issues, such as non-normality and autocorrelation, remain, which should be considered when interpreting the results.

The study recommends that schools, community organizations, and families should work together to improve awareness of healthy lifestyles, nutrition, and daily habits that can influence overall well-being. Emphasis should be placed on educational programs that help individuals understand the importance of maintaining good health and staying active in the workforce. Furthermore, regular monitoring of these initiatives can help identify areas that need improvement and ensure that interventions are effective in promoting long-term benefits. By fostering a supportive environment and providing guidance on health, nutrition, and labor participation, the community can help strengthen economic growth and enhance the quality of life for individuals.

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Null Hypothesis: GDPGR has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 2 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-1.603072	0.7745
Test critical values: 1% level	-4.198503	
5% level	-3.523623	
10% level	-3.192902	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(GDPGR) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-6.110987	0.0000
Test critical values: 1% level	-3.600987	
5% level	-2.935001	
10% level	-2.605836	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LE has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	0.574883	0.8366
Test critical values: 1% level	-2.619851	
5% level	-1.948686	
10% level	-1.612036	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LE) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-9.173950	0.0000
Test critical values: 1% level	-3.596616	
5% level	-2.933158	
10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LFPR has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.437991	0.8932
Test critical values: 1% level	-3.592462	
5% level	-2.931404	
10% level	-2.603944	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LFPR) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-5.838623	0.0000
Test critical values: 1% level	-3.596616	
5% level	-2.933158	
10% level	-2.604867	

*MacKinnon (1996) one-sided p-values.

Date: 08/19/25 Time: 06:34
 Sample (adjusted): 1982 2023
 Included observations: 42 after adjustments

Series: GDPGR LE LFPR
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.350593	39.33215	35.01090	0.0215
At most 1	0.200009	24.59871	18.39771	0.0489
At most 2	0.042600	1.828449	3.841465	0.1763

Trace test indicates at least one cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

VAR Lag Order Selection Criteria

Endogenous variables: GDPGR LE LFPR

Exogenous variables: C

Date: 08/19/25 Time: 06:38

Sample: 1980 2023

Included observations: 41

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-336.4734	NA	3121.527	16.55968	16.68506	16.60534
1	-291.2372	81.64597	533.9451*	14.79206*	15.29359*	14.97469*
2	-287.9619	5.432071	711.8120	15.07131	15.94900	15.39092
3	-275.7861	18.41230*	621.9518	14.91639	16.17023	15.37297

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Vector Error Correction Estimates

Date: 08/19/25 Time: 06:39

Sample (adjusted): 1983 2023

Included observations: 41 after adjustments

Standard errors in () & t-statistics in []

Cointegrating Eq:	CointEq1		
GDPGR(-1)	1.000000		
LE(-1)	2.029724 (0.30564) [6.63579]		
LFPR(-1)	1.674728 (0.93440) [1.79230]		
C	226.5705		
Error Correction:	D(GDPGR)	D(LE)	D(LFPR)
CointEq1	0.21567 (0.17939) [1.20232]	0.103988 (0.06827) [1.52323]	0.20256 (0.05755) [3.53622]
D(GDPGR(-1))	0.43615 (0.24780) [1.76010]	0.17616 (0.09430) [1.86811]	0.328957 (0.07950) [4.13761]
D(GDPGR(-2))	0.47330 (0.37320) [1.26823]	-0.289006 (0.14203) [-2.03486]	0.480322 (0.11974) [4.01140]
D(LE(-1))	9.94664 (0.58974) [16.8678]	-0.660574 (0.22443) [-2.94330]	0.329738 (0.18921) [1.74268]
D(LE(-2))	-0.196015 (0.44442) [-0.44106]	-0.143242 (0.16913) [-0.84694]	0.083889 (0.14259) [0.58833]
D(LFPR(-1))	0.222157 (0.58605) [0.37908]	-0.297913 (0.22303) [-1.33577]	0.022951 (0.18803) [0.12206]
D(LFPR(-2))	0.141366 (0.52832) [0.26758]	-0.015241 (0.20106) [-0.07580]	0.006520 (0.16951) [0.03846]
C	0.181888 (0.93509) [0.19451]	-0.022853 (0.35586) [-0.06422]	-0.099234 (0.30001) [-0.33076]
R-squared	0.875411	0.276403	0.381844
Adj. R-squared	0.745211	0.122913	0.250720
Sum sq. resids	1120.521	162.2821	115.3450
S.E. equation	5.827107	2.217575	1.869573
F-statistic	2.414732	1.800788	2.912087
Log likelihood	-125.9900	-86.37965	-79.38077
Akaike AIC	6.536098	4.603885	4.262477
Schwarz SC	6.870453	4.938241	4.596832
Mean dependent	0.205136	0.090439	-0.262463
S.D. dependent	6.508590	2.367866	2.159835

DYNAMIC RELATIONSHIP BETWEEN CHINA AND MYANMAR GDP GROWTH RATES: A VAR AND IMPULSE RESPONSE ANALYSIS

Hnin Hnin Aung¹

Abstract

This study examines the influence of China's GDP growth rate on Myanmar's GDP growth rate by using time-series data from 1961 to 2023. Unit root tests, cointegration analysis, and Vector Autoregressive (VAR) models are employed to assess the impact of China's GDP on Myanmar's economic growth in both the short and long term. The findings indicate that China's GDP growth rate and Myanmar's GDP growth rate are stationary at the 1%, 5%, and 10% significance levels, with an optimal lag length of 1 (2). The VAR results highlight that Myanmar's GDP growth is primarily driven by its own past values, while China's growth is influenced by both its own past performance and Myanmar's recent economic activity. This suggests an asymmetric relationship between the two economies, with Myanmar having a short-term impact on China's growth, but China's influence on Myanmar being less immediate in the short term.

Keywords: GDP growth rate, Vector Autoregressive, Variance Decomposition.

Introduction

The global economy is characterized by complex interdependencies, where economic shocks and growth trends in one country can significantly affect others, particularly within the same region. In Southeast Asia, China has become a leading economic power, and its interactions with neighboring Myanmar are of particular interest. Given Myanmar's transitioning economy, it is crucial to understand how significant economic changes in China may influence Myanmar's growth, as this knowledge is vital for policymakers and economists seeking to leverage these interdependencies for sustainable development. It is necessary to understand how shocks in China's GDP growth affect Myanmar's economic growth and vice versa.

The Vector Autoregression (VAR) model is a widely used method for analyzing economic relationships, enabling the investigation of interdependencies among multiple time series variables without requiring strong assumptions about causality (Sims, 1980). When combined with impulse response analysis, the VAR model offers a framework to examine how shocks in one country's economic variables, such as GDP growth, may affect the economic outcomes of another.

Therefore, this study aims to enhance the understanding of regional economic integration by exploring the impact of China's economic performance on Myanmar's GDP growth through the application of a VAR model and impulse response functions. The findings provide valuable insights into the level of economic integration between China and Myanmar, highlighting the extent to which Myanmar's growth is influenced by fluctuations in China's economy.

Literature Review

GDP represents the sum of gross value-added by all resident producers in the economy, along with any product taxes, minus any subsidies not accounted for in the value of the products. The GDP growth rate is the percentage change in a country's Gross Domestic Product (GDP) over a specific period, typically a year or a quarter. It indicates the rate at which the economy is

¹ Department of Statistics, Yangon University of Economics

expanding or contracting. Essentially, it reflects the increase or decrease in the total value of goods and services produced within a country's borders. Several studies have explored the relationship between the GDP growth rates of countries using annual data and Vector Autoregression (VAR) models to estimate the interactions among relevant variables.

Lynn (2014) investigated the relationship between foreign trade and economic growth in Myanmar from 1990 to 2014, using annual data on GDP, exports, and imports spanning the period 1980 to 2014. The study employed the Augmented Dickey-Fuller (ADF) unit root test and Granger causality test within a Vector Autoregressive (VAR) framework, a novel approach for Myanmar. The results indicated that foreign trade had no significant effect on Myanmar's economic growth, with import growth being negatively influenced by economic growth. In contrast, exports were driven by GDP growth, suggesting a growth-driven export strategy during this period. Furthermore, the study identified a unidirectional causal relationship from export growth to import growth.

Lin and Li (2017) examined the spillover effects of China's economic growth on its neighbors, utilizing annual GDP data from the World Bank for the period 1985 to 2015, covering China, Myanmar, Vietnam, and Laos. Their multivariate time series analysis revealed significant GDP spillovers from China, with Myanmar displaying moderate sensitivity to Chinese economic shocks. The findings suggested that China's rapid economic expansion accelerated growth in neighboring countries, although the extent varied by nation.

Zhang and Zhao (2018) investigated economic growth interactions in East Asia using GDP data from the World Bank for ten economies, including China, Japan, South Korea, and ASEAN countries, from 1980 to 2016. Their VAR analysis identified substantial spillover effects from China's growth to ASEAN economies, highlighting China's dominant influence on regional growth. While Japan and South Korea also affected regional dynamics, their impact was comparatively lesser.

Park (2020) analyzed the effects of China's economic growth on Southeast Asia through a VAR approach, focusing on GDP and trade flows between China and Southeast Asian nations, including Myanmar, from 1995 to 2018, utilizing data from the IMF and World Bank. The study found that China's economic growth positively impacted Myanmar's GDP growth, with trade linkages serving as a key transmission channel for Chinese economic shocks. The relationship intensified after China joined the World Trade Organization (WTO) in 2001.

Data and Methods

Data

In this study, the secondary data such as annual percentage growth rate of China's GDP and Myanmar's GDP from 1961 to 2023 are utilized. The annual percentage growth rate of GDP at market prices is calculated based on constant local currency. Aggregates are expressed in constant 2015 prices, measured in U.S. dollars. The dataset is obtained from the World Development Indicators (WDI), which is the principal dataset on development indicators compiled by the World Bank from official international sources. It provides accessible and reliable data on global development trends.

Methods

Modern econometric models are commonly employed to analyze the impact of China's GDP growth on the Myanmar economy. In this study, the Vector Autoregression (VAR) model was chosen for several reasons. First, as the variables are time series data and exhibit autocorrelation, the VAR model is particularly well-suited for addressing such issues. Second, the VAR model captures dynamic and causal relationships among economic variables, a significant advantage over traditional regression models, making it ideal for both policy analysis and macroeconomic planning.

To conduct this analysis, the study employs the following econometric model. First, a unit root test is performed to determine whether the variables are stationary and to identify any lag or trend. Subsequently, the cointegration model is tested to examine the long-term relationship between the two economies, with the unit root test results forming the basis of this analysis. The unit root test is a widely used method for determining whether a time series is stationary. Specifically, following the model proposed by Dickey and Fuller (1981), the ADF extended unit root test is applied. In this context, Myanmar's GDP growth rate is considered as the dependent variable, while China's GDP growth rate serves as the independent variable, expressed in the following form:

$$\Delta_{GDP_t} = \alpha_0 + \beta GDP_{t-i} + \sum_{j=1}^n \gamma_j \Delta_{GDP_{t-i}} + \varepsilon_t \quad (1)$$

$$\text{and } \Delta_{GDP_t} = \alpha_0 + \delta_t + \beta GDP_{t-i} + \sum_{j=1}^n \gamma_j \Delta_{GDP_{t-i}} + \varepsilon_t \quad (2)$$

In which: $\Delta_{GDP_t} = GDP_t - GDP_{t-1}$; GDP_t : time-series data over time; n : stationary time series; ε_t : white noise.

Equation (2) differs from Equation (1) by including an additional trend variable over time, denoted as t . This trend variable takes values from 1 to n , representing the time points in the series. The term "white noise" refers to the random errors in the model, which are assumed to have a mean of zero, constant variance, and no autocorrelation.

The results of the ADF test are highly sensitive to the choice of the lag length n , which affects the stationarity of the series. To determine the optimal lag length k for the ADF model, the Akaike Information Criterion (AIC), proposed by Akaike (1973), is employed. Specifically, the value of n is selected to minimize the AIC, ensuring the best fit for the model.

Testing hypothesis:

$H_0: \beta = 0$ (GDP_t is the non-stationary data time-series)

$H_1: \beta < 0$ (GDP_t is the stationary data time-series).

To test the null hypothesis (H_0), the calculated t-statistic is compared to the critical value. If the calculated t-value exceeds the critical value, the null hypothesis (H_0) is rejected, indicating that the data series is stationary. Conversely, if the calculated value is less than the critical value, the null hypothesis is accepted, implying that the data series is non-stationary.

When using ordinary least squares (OLS) to analyze time series, it is assumed that the variance and mean of the series are constant and independent of time, which characterizes stationarity. Non-stationary time series (or unit root variables) violate this assumption, leading to biased or misleading results in hypothesis testing. Therefore, non-stationary series must be

analyzed using alternative methods, such as cointegration analysis. Cointegration occurs when two integrated I(1) time series, X_t and Y_t , can be expressed through a stationary process (Dinh, 2020b).

The OLS equation is expressed as: $\varepsilon_t = \text{Myanmar GDP}_t - \beta_2 \text{China GDP}_t$ where β_2 represents a stationary process. Myanmar GDP and China GDP are considered cointegrated if there exists a vector such that the two variables are in equilibrium over time. Conducting unit root and cointegration tests is essential to avoid the problem of spurious regression.

Tests for cointegration aim to identify stable, long-term relationships between variables. However, as noted by Rao (2007), the failure to find such a relationship does not conclusively prove its absence; it merely suggests that one may not exist. Among the most widely used cointegration tests are the Engle-Granger test, the Phillips-Ouliaris test, and the Johansen test. In this study, the Johansen test is applied, as it offers improvements over the Engle-Granger test. Specifically, it avoids the need to choose a dependent variable and mitigates issues caused by error propagation across steps. Additionally, the Johansen test is capable of detecting multiple cointegrating vectors (Dinh, 2019a).

The Vector Autoregression (VAR) model describes the evolution of a set of k endogenous variables over a given sample period ($t = 1, \dots, T$), where each variable is modeled as a linear function of its own past values. The variables are represented in a k -vector ($(k \times 1)$ -matrix) Y_t , with $Y_{i,t}$ denoting the observation of the i -th variable at time t . For example, if the i -th variable represents GDP, then $Y_{i,t}$ refers to the GDP value at time t . The VAR model is formulated as follows:

$$M \text{ GDP}_{1t} = \alpha_0 + \sum_{i=1}^n \alpha_i M \text{ GDP}_{t-i} + \sum_{j=1}^n \beta_j C \text{ GDP}_{t-j} + U_{1t} \quad (3)$$

$$C \text{ GDP}_{2t} = \beta_0 + \sum_{j=1}^n \beta_j M \text{ GDP}_{t-i} + \sum_{i=1}^n \alpha_i M \text{ GDP}_{t-j} + U_{2t} \quad (4)$$

In this model: U_{1t} and U_{2t} represent white noise error terms. As previously stated, the primary objective of this paper is to analyze and evaluate the VAR model in relation to the GDP growth rates of China and Myanmar, focusing on the optimal lag selection, impulse response functions, and the model's goodness of fit. To examine the VAR Granger causality based on equations (3) and (4), the hypotheses are formulated as follows:

The hypothesis $H_1: \sum \alpha_i = 0; \sum \beta_i \neq 0$; the Myanmar economic growth rate causes the China economic growth rate ($M \text{ GDP} \rightarrow C \text{ GDP}$), one-way Granger.

The hypothesis $H_2: \sum \alpha_i \neq 0; \sum \beta_i = 0$; the China economic growth rate causes the Myanmar economic growth rate ($C \text{ GDP} \rightarrow M \text{ GDP}$), one-way Granger.

The hypothesis $H_3: \sum \alpha_i \neq 0; \sum \beta_i \neq 0$; both China and Myanmar economic growth rates cause interactions ($C \text{ GDP} \leftrightarrow M \text{ GDP}$), two-way Grange, where the arrow indicates causality.

As discussed, in a VAR model, each variable is expressed as a linear function of its own lagged values as well as the lagged values of other variables in the system. The general form of the VAR model is presented as follows:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_n Y_{t-n} + S_t + U_t \quad (5)$$

$$\text{In which : } Y_t = \begin{bmatrix} Y_{1t} \\ Y_{2t} \\ \vdots \\ Y_{mt} \end{bmatrix}; U_t = \begin{bmatrix} U_{1t} \\ U_{2t} \\ \vdots \\ U_{mt} \end{bmatrix}$$

In this model, Y_t includes in the lag of random walk variables; where u denotes the white noise error term. S_t comprises elements that may include constants, linear trends, or polynomial terms. A is a square matrix of size $(m \times m)$, $i = 1, 2, \dots, n$; $S_t = (S_{1t}, S_{2t}, \dots, S_{mt})$.

The results presented below indicate the influence of the government's trade policy on GDP growth, which is further detailed in the subsequent section.

An impulse response function (IRF) describes how a system reacts to a brief, sharp input signal (an impulse). It's a way to characterize the dynamic behavior of a system by analyzing its output in response to this specific input. IRFs are used in various fields like signal processing, control theory, and economics to understand how systems respond to changes or "shocks".

Results and Discussion

The study aims to analyze the impact of China's GDP growth on Myanmar's GDP growth using a collected sample. As detailed in the methods several individual null hypotheses were tested, including stationary time series, optimal lag selection, and vector autoregression estimates. Additionally, tests for model fit and statistical significance included the Granger causality test, cointegration test, VAR residual serial correlation, impulse response analysis, and stability condition assessments. The sample was examined to determine whether the time series is stationary or non-stationary. Non-stationarity indicates that the mean or variance of the series changes over time. The results of the unit root test are presented in Table 1.

Table 1: Unit root at Lag Length: (0) of the GDP Growth for Myanmar and China

Model: Myanmar GDP of a unit root - Lag Length: 0 (Automatic - based on SIC, maxlag=10)		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.934063	0.0001
Test critical values:	1% level	-3.540198	
	5% level	-2.909206	
	10% level	-2.592215	
Model: China GDP of a unit root - Lag Length: 0 (Automatic - based on SIC, maxlag=10)		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.715378	0.0000
Test critical values:	1% level	-3.540198	
	5% level	-2.909206	
	10% level	-2.592215	

Source: Own Calculation

The results show that all tests have critical values greater than the test statistics and 0.0000 of Prob* is less than $t_\alpha = 0.01$, that is, the China GDP growth rate variable is stationary time series. And the test statistic is greater than all test critical values and $t_\alpha = 0.05$ is greater than the 0.0001 of Prob* i.e., the Myanmar GDP growth rate variable is stationary time series. These variables are tested at lag (0) with 1%, 5% and 10% levels.

The unit root test results show that both Myanmar's and China's GDP growth variables are the stationary time series at lag (0) with 1%, 5% and 10%, after comparing statistic and test critical values, which are the value of the test critical values is less than the value of the statistic test.

These results are utilized to establish the criteria for optimal lag selection in the VAR model. When constructing a VAR model, it is essential to determine the optimal lag length. The optimal lag is selected based on the Akaike Information Criterion (AIC), the Schwarz Criterion (SC), and the Hannan-Quinn Criterion (HQ). The lag length that minimizes these statistics is regarded as the optimal lag for the model. In this study, the AIC criterion was employed for lag selection and the results are shown in Table 2).

Table 2: Optimum lag selection criteria of VAR Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-359.0730	NA	709.1121	12.23976	12.31019	12.26725
1	-343.3878	29.77513	477.2675	11.84366	12.05493	11.92613
2	-335.1495	15.08032*	413.6601*	11.69998*	12.05211*	11.83744*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						

In the VAR model, the AIC standard suggests an optimum lag of 2, considering macroeconomics, lag 2 is very suitable. So, the test shows that at lag 2, the VAR model has no statistical error. Thus, the statistical tests of the VAR model are reliable. The results of VAR model that is the goodness-fit model as shown in Table 3.

Table 3: VAR model at the Selected Optimum lag (2) – Vector Autoregression Estimates

Model	M GDP (-1)	M GDP (-2)	C GDP (-1)	C GDP (-2)	C
1. MYANMAR_GDP	0.310427 (0.12842) [2.41725]	0.303888 (0.13720) [2.21492]	-0.155686 (0.16953) [-0.91832]	-0.061847 (0.11726) [-0.52741]	3.881619 (1.50186) [2.58455]
2. CHINA_GDP	0.249250 (0.08819) [2.82619]	-0.017135 (0.09422) [-0.18186]	0.509859 (0.11643) [4.37921]	-0.338368 (0.08053) [-4.20171]	5.855608 (1.03140) [5.67735]
Note: Standard errors in () & t-statistics in []					

In Model (1), Myanmar's GDP growth is influenced by its own past values and China's lagged GDP growth. The positive coefficients for Myanmar's first and second lagged GDP (0.310427 and 0.303888) suggest that past growth reinforces current growth. However, China's lagged GDP values negatively impact Myanmar's growth, with coefficients of -0.155686 and -0.061847 for the first and second lags, respectively. This indicates that China's past growth, particularly from the previous period, exerts a dampening effect on Myanmar's economy, potentially due to competitive pressures or trade imbalances.

In Model (2), China's GDP growth is influenced by both its own past values and Myanmar's lagged GDP growth. The positive coefficient for Myanmar's first lag indicates that Myanmar's previous growth positively impacts China's current growth, likely due to trade or investment links. A small negative coefficient for Myanmar's second lag shows a minimal negative effect. China's

own first lagged GDP growth has a strong positive effect (0.509859), highlighting the persistence of its economic momentum, while the negative second lag (-0.338368) suggests a slight dampening effect, possibly reflecting cyclical economic adjustments.

In Table 4, a cointegration test is employed to determine whether a long-term relationship exists between the time series. These tests identify instances in which two or more non-stationary time series are integrated in such a manner that they do not deviate from equilibrium over the long term. The tests also assess the degree of sensitivity between the two variables.

Table 4: VAR Unrestricted Cointegration Rank Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.418439	36.29901	15.49471	0.0000
At most 1	0.061003	3.776602	3.841466	0.0520
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.418439	32.52241	14.26460	0.0000
At most 1	0.061003	3.776602	3.841466	0.0520
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

According to the Table 4, both the Trace and Maximum Eigenvalue tests indicate the presence of one cointegrating equation. For the "None" hypothesis, the trace statistic (36.29901) and maximum eigenvalue statistic (32.52241) exceed their respective critical values, both with p-values of 0.0000, leading to the rejection of the null hypothesis at the 5% significance level. This confirms the existence of at least one cointegrating equation. For "At most 1," both tests yield p-values slightly above the 5% threshold (0.0520), indicating that there is no evidence to suggest more than one cointegrating equation between Myanmar's and China's GDP growth.

Then, residual analysis is employed to assess the model's goodness of fit, ensuring that the underlying assumptions are met, as most linear regression estimators require a correctly specified regression function and independent, identically distributed errors for consistency. To detect serial correlation in the residuals of the Vector Autoregressive (VAR) model, the VAR Residual Serial Correlation LM Test is applied. The null hypothesis assumes no serial correlation at the specified lags, and if the p-value exceeds the threshold (usually 0.05), the null hypothesis is not rejected, indicating no serial correlation in the residuals.

Table 5: VAR Residual Serial Correlation LM Tests

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	4.168050	4	0.3837	1.052643	(4, 106.0)	0.3838
2	2.033464	4	0.7296	0.508431	(4, 106.0)	0.7296
Null hypothesis: No serial correlation at lags 1 to h						
Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	4.168050	4	0.3837	1.052643	(4, 106.0)	0.3838
2	6.642151	8	0.5757	0.832604	(8, 102.0)	0.5760

*Edgeworth expansion corrected likelihood ratio statistic.

Table 5 presents a p-value of 0.3837 for lag 1, which exceeds the 0.05 significance level, indicating that the null hypothesis of no serial correlation cannot be rejected, and thus, the residuals show no evidence of serial correlation at lag 1. The Rao F-statistic p-value of 0.3838 further corroborates this result. Additionally, the combined lags test provides a p-value of 0.5757, suggesting no significant serial correlation across lags 1 and 2, a finding supported by the Rao F-statistic p-value of 0.5760.

Variance decomposition involves the analysis of forecast error variance over a specific time horizon, providing insights into the short-term and long-term effects of various variables on the GDP of Myanmar and China. This method allows for the assessment of the proportion of fluctuations in a time series that can be attributed to specific variables at designated time intervals, as illustrated in Table 6.

Table 6: Variance Decomposition

Variance Decomposition of MYANMAR_GDP:				Variance Decomposition of CHINA_GDP:			
Period	S.E.	MYANMAR_GDP	CHINA_GDP	Period	S.E.	MYANMAR_GDP	CHINA_GDP
1	5.378132	100.0000	0.000000	1	3.693423	0.526661	99.47334
2	5.672880	98.97798	1.022016	2	4.314869	8.169868	91.83013
3	6.053763	97.77215	2.227852	3	4.459121	13.07750	86.92250
4	6.136541	97.31780	2.682200	4	4.612183	13.86138	86.13862
5	6.182009	97.28734	2.712656	5	4.638352	13.79692	86.20308
6	6.198033	97.29538	2.704619	6	4.639062	13.79955	86.20045
7	6.207787	97.29827	2.701726	7	4.643352	13.79676	86.20324
8	6.212299	97.29208	2.707922	8	4.644842	13.83521	86.16479
9	6.214486	97.28630	2.713698	9	4.645752	13.85859	86.14141
10	6.215360	97.28437	2.715630	10	4.646281	13.86317	86.13683

Cholesky Ordering: MYANMAR_GDP CHINA_GDP

Table 6 reveals that 100% of the forecast error variance in Myanmar's GDP is initially explained by its own shocks, indicating that Myanmar's GDP is fully driven by its past values in the short term. Over time, China's GDP begins to influence Myanmar's GDP, with 1.02% of the variance explained by China's GDP by Period 2, gradually rising to 2.71% by Period 10. This

suggests that while Myanmar's GDP remains largely self-determined (97.28% by Period 10), China's impact increases slightly over time. Similarly, 99.47% of China's GDP variance is initially driven by its own shocks, with only 0.53% explained by Myanmar. However, Myanmar's influence grows over time, rising from 8.17% in Period 2 to 13.86% by Period 10, indicating a gradual but increasing impact of Myanmar's GDP on China's economic performance.

Impulse response analysis is a crucial component of econometric analysis utilizing vector autoregressive models. Its primary objective is to illustrate the dynamics of the GDP growth variables for both Myanmar and China in response to a shock affecting these variables are shown in Figure 1.

Response of CHINA_GDP_GROWTH to MYANMAR_GDP_GROWTH Innovation using Cholesky (d.f. adjusted) Factors

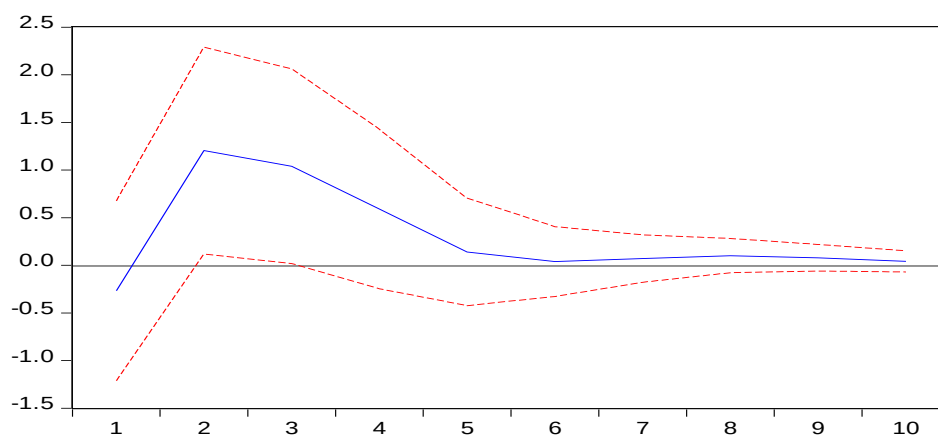


Figure 1: Impulse Response

According to Figure 1, in the first period, there is a positive response from China's GDP growth to a shock in Myanmar's GDP growth. This indicates that initially, a shock in Myanmar's GDP growth leads to a noticeable increase in China's GDP growth. The positive impact reaches its peak around Period 2, with China's GDP growth showing a substantial positive response to the shock in Myanmar's GDP growth. After Period 3, the response starts to decline, though it remains positive in the short term. After the peak, the response starts to gradually decline toward zero. By around Period 5, the response becomes nearly negligible and levels off, indicating that the effect of the shock fades away over time. By Period 10, the response of China's GDP growth to the shock in Myanmar's GDP growth becomes statistically insignificant as it stabilizes around zero.

The dynamically stable model is evaluated after fitting the VAR, using the roots of the characteristic polynomial to assess the condition for dynamical stability. The VAR model is considered stable if all eigenvalues lie within the unit circle, indicating that the modulus of each eigenvalue is strictly less than 1. Furthermore, by selecting the graphing option, a plot of the eigenvalues is produced, with the real components represented on the x-axis and the imaginary components on the y-axis. The graph below visually demonstrates that these eigenvalues are well within the unit circle. These findings serve as a basis for analyzing the impact of China's GDP growth on Myanmar's GDP growth from 1961 to 2023, along with various indicators of Myanmar's economic growth, as depicted in Figure 2.

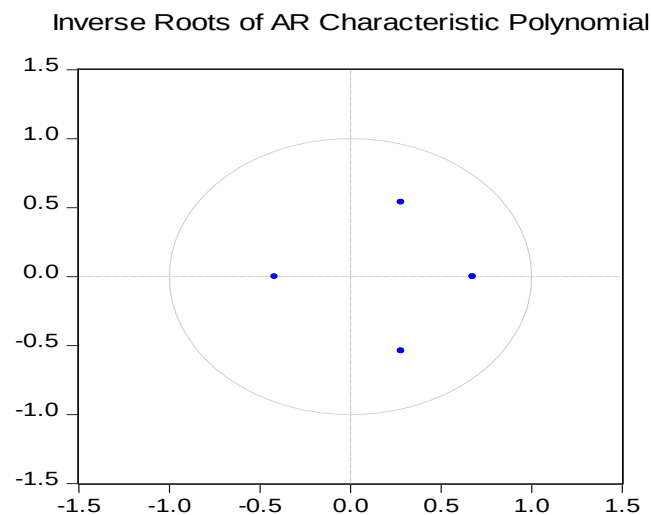


Figure 2: Dynamically stable test

As previously indicated, a Vector Autoregression (VAR) model is deemed dynamically stable if the residuals exhibit stationarity and all coefficients of the characteristic polynomial lie within the unit circle, or if the estimated modulus is less than one. Consequently, following the estimation of the VAR model, it is essential to assess the stability of the resulting modes. The analysis of the residuals can serve as a unit root test, demonstrating that the selected sample exhibits stability, aligns well with the model, and possesses statistical significance.

Conclusion

This study conducts a comprehensive analysis of the dynamic interactions between the GDP growth rates of China and Myanmar using a Vector Autoregression (VAR) model. The results reveal a significant relationship between the two economies, with China's GDP growth notably influencing Myanmar's economic performance. This relationship is substantiated by Granger causality and cointegration tests, which indicate a long-term association between the two-time series. Both China's and Myanmar's GDP growth rates are confirmed to be stationary time series, as evidenced by unit root tests that demonstrate stable statistical properties over time, thereby validating the use of VAR modeling. The optimal lag length for the VAR model, determined by the Akaike Information Criterion (AIC), is two, which allows the model to effectively capture the temporal dynamics of GDP growth.

The VAR results show a bidirectional relationship between Myanmar's and China's GDP, where Myanmar's GDP has a short-term positive influence on China's growth. Conversely, China's GDP growth does not significantly affect Myanmar's GDP in the short term. However, China's GDP is more dependent on its own past values, while Myanmar's GDP shows a more modest internal influence. Impulse response analysis indicates that a shock in Myanmar's GDP growth initially results in a positive response in China's GDP growth, suggesting that fluctuations in Myanmar's economic performance can influence China's growth trajectory. Additionally, variance decomposition results show that while Myanmar's GDP growth is mainly driven by its own historical values, the influence of China's GDP on Myanmar's growth gradually increases over time.

The residuals from the VAR model exhibit no signs of serial correlation, indicating that the model is appropriately specified and reliable for economic forecasting. These findings highlight

the interconnectedness of the Chinese and Myanmar economies, emphasizing the role of China's economic policies and performance in shaping Myanmar's economic landscape. While Myanmar's GDP shows little immediate influence on China's growth, the positive significant relationship at lag one suggests potential for mutual benefits. Policymakers should consider strengthening bilateral trade agreements and economic partnerships to enhance these short-term interdependencies for mutual economic growth.

Since Myanmar's past GDP growth has a significant positive effect on its future growth, it is crucial for Myanmar to focus on sustaining its economic stability. Early-warning indicators and economic stabilization policies should be implemented to minimize volatility. Both countries can benefit from deeper regional integration initiatives, particularly infrastructure development and investment. This will foster stronger long-term economic linkages, allowing Myanmar to better position itself as an economic bridge between China and Southeast Asia.

Future studies should expand the scope by including additional economic variables such as trade, foreign direct investment, and regional factors to gain deeper insights into the broader economic relationship between Myanmar and China. Regional integration initiatives, including infrastructure investments and strengthened trade relationships with neighboring countries, could position Myanmar as a crucial bridge between China and Southeast Asia, thereby contributing to regional stability.

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DYNAMIC RELATIONSHIP BETWEEN CHINA AND MYANMAR GDP GROWTH RATES: A VAR AND IMPULSE RESPONSE ANALYSIS

Hnin Hnin Aung¹

Abstract

This study examines the influence of China's GDP growth rate on Myanmar's GDP growth rate by using time-series data from 1961 to 2023. Unit root tests, cointegration analysis, and Vector Autoregressive (VAR) models are employed to assess the impact of China's GDP on Myanmar's economic growth in both the short and long term. The findings indicate that China's GDP growth rate and Myanmar's GDP growth rate are stationary at the 1%, 5%, and 10% significance levels, with an optimal lag length of 1 (2). The VAR results highlight that Myanmar's GDP growth is primarily driven by its own past values, while China's growth is influenced by both its own past performance and Myanmar's recent economic activity. This suggests an asymmetric relationship between the two economies, with Myanmar having a short-term impact on China's growth, but China's influence on Myanmar being less immediate in the short term.

Keywords: GDP growth rate, Vector Autoregressive, Variance Decomposition.

Introduction

The global economy is characterized by complex interdependencies, where economic shocks and growth trends in one country can significantly affect others, particularly within the same region. In Southeast Asia, China has become a leading economic power, and its interactions with neighboring Myanmar are of particular interest. Given Myanmar's transitioning economy, it is crucial to understand how significant economic changes in China may influence Myanmar's growth, as this knowledge is vital for policymakers and economists seeking to leverage these interdependencies for sustainable development. It is necessary to understand how shocks in China's GDP growth affect Myanmar's economic growth and vice versa.

The Vector Autoregression (VAR) model is a widely used method for analyzing economic relationships, enabling the investigation of interdependencies among multiple time series variables without requiring strong assumptions about causality (Sims, 1980). When combined with impulse response analysis, the VAR model offers a framework to examine how shocks in one country's economic variables, such as GDP growth, may affect the economic outcomes of another.

Therefore, this study aims to enhance the understanding of regional economic integration by exploring the impact of China's economic performance on Myanmar's GDP growth through the application of a VAR model and impulse response functions. The findings provide valuable insights into the level of economic integration between China and Myanmar, highlighting the extent to which Myanmar's growth is influenced by fluctuations in China's economy.

Literature Review

GDP represents the sum of gross value-added by all resident producers in the economy, along with any product taxes, minus any subsidies not accounted for in the value of the products. The GDP growth rate is the percentage change in a country's Gross Domestic Product (GDP) over a specific period, typically a year or a quarter. It indicates the rate at which the economy is

¹ Department of Statistics, Yangon University of Economics

expanding or contracting. Essentially, it reflects the increase or decrease in the total value of goods and services produced within a country's borders. Several studies have explored the relationship between the GDP growth rates of countries using annual data and Vector Autoregression (VAR) models to estimate the interactions among relevant variables.

Lynn (2014) investigated the relationship between foreign trade and economic growth in Myanmar from 1990 to 2014, using annual data on GDP, exports, and imports spanning the period 1980 to 2014. The study employed the Augmented Dickey-Fuller (ADF) unit root test and Granger causality test within a Vector Autoregressive (VAR) framework, a novel approach for Myanmar. The results indicated that foreign trade had no significant effect on Myanmar's economic growth, with import growth being negatively influenced by economic growth. In contrast, exports were driven by GDP growth, suggesting a growth-driven export strategy during this period. Furthermore, the study identified a unidirectional causal relationship from export growth to import growth.

Lin and Li (2017) examined the spillover effects of China's economic growth on its neighbors, utilizing annual GDP data from the World Bank for the period 1985 to 2015, covering China, Myanmar, Vietnam, and Laos. Their multivariate time series analysis revealed significant GDP spillovers from China, with Myanmar displaying moderate sensitivity to Chinese economic shocks. The findings suggested that China's rapid economic expansion accelerated growth in neighboring countries, although the extent varied by nation.

Zhang and Zhao (2018) investigated economic growth interactions in East Asia using GDP data from the World Bank for ten economies, including China, Japan, South Korea, and ASEAN countries, from 1980 to 2016. Their VAR analysis identified substantial spillover effects from China's growth to ASEAN economies, highlighting China's dominant influence on regional growth. While Japan and South Korea also affected regional dynamics, their impact was comparatively lesser.

Park (2020) analyzed the effects of China's economic growth on Southeast Asia through a VAR approach, focusing on GDP and trade flows between China and Southeast Asian nations, including Myanmar, from 1995 to 2018, utilizing data from the IMF and World Bank. The study found that China's economic growth positively impacted Myanmar's GDP growth, with trade linkages serving as a key transmission channel for Chinese economic shocks. The relationship intensified after China joined the World Trade Organization (WTO) in 2001.

Data and Methods

Data

In this study, the secondary data such as annual percentage growth rate of China's GDP and Myanmar's GDP from 1961 to 2023 are utilized. The annual percentage growth rate of GDP at market prices is calculated based on constant local currency. Aggregates are expressed in constant 2015 prices, measured in U.S. dollars. The dataset is obtained from the World Development Indicators (WDI), which is the principal dataset on development indicators compiled by the World Bank from official international sources. It provides accessible and reliable data on global development trends.

Methods

Modern econometric models are commonly employed to analyze the impact of China's GDP growth on the Myanmar economy. In this study, the Vector Autoregression (VAR) model was chosen for several reasons. First, as the variables are time series data and exhibit autocorrelation, the VAR model is particularly well-suited for addressing such issues. Second, the VAR model captures dynamic and causal relationships among economic variables, a significant advantage over traditional regression models, making it ideal for both policy analysis and macroeconomic planning.

To conduct this analysis, the study employs the following econometric model. First, a unit root test is performed to determine whether the variables are stationary and to identify any lag or trend. Subsequently, the cointegration model is tested to examine the long-term relationship between the two economies, with the unit root test results forming the basis of this analysis. The unit root test is a widely used method for determining whether a time series is stationary. Specifically, following the model proposed by Dickey and Fuller (1981), the ADF extended unit root test is applied. In this context, Myanmar's GDP growth rate is considered as the dependent variable, while China's GDP growth rate serves as the independent variable, expressed in the following form:

$$\Delta_{GDP_t} = \alpha_0 + \beta GDP_{t-1} + \sum_{j=1}^n \gamma_j \Delta_{GDP_{t-j}} + \varepsilon_t \quad (1)$$

$$\text{and } \Delta_{GDP_t} = \alpha_0 + \delta_t + \beta GDP_{t-1} + \sum_{j=1}^n \gamma_j \Delta_{GDP_{t-j}} + \varepsilon_t \quad (2)$$

In which: $\Delta_{GDP_t} = GDP_t - GDP_{t-1}$; GDP_t : time-series data over time; n : stationary time series; ε_t : white noise.

Equation (2) differs from Equation (1) by including an additional trend variable over time, denoted as t . This trend variable takes values from 1 to n , representing the time points in the series. The term "white noise" refers to the random errors in the model, which are assumed to have a mean of zero, constant variance, and no autocorrelation.

The results of the ADF test are highly sensitive to the choice of the lag length n , which affects the stationarity of the series. To determine the optimal lag length k for the ADF model, the Akaike Information Criterion (AIC), proposed by Akaike (1973), is employed. Specifically, the value of n is selected to minimize the AIC, ensuring the best fit for the model.

Testing hypothesis:

$H_0: \beta = 0$ (GDP_t is the non-stationary data time-series)

$H_1: \beta < 0$ (GDP_t is the stationary data time-series).

To test the null hypothesis (H_0), the calculated t-statistic is compared to the critical value. If the calculated t-value exceeds the critical value, the null hypothesis (H_0) is rejected, indicating that the data series is stationary. Conversely, if the calculated value is less than the critical value, the null hypothesis is accepted, implying that the data series is non-stationary.

When using ordinary least squares (OLS) to analyze time series, it is assumed that the variance and mean of the series are constant and independent of time, which characterizes stationarity. Non-stationary time series (or unit root variables) violate this assumption, leading to biased or misleading results in hypothesis testing. Therefore, non-stationary series must be

analyzed using alternative methods, such as cointegration analysis. Cointegration occurs when two integrated I(1) time series, X_t and Y_t , can be expressed through a stationary process (Dinh, 2020b).

The OLS equation is expressed as: $\varepsilon_t = \text{Myanmar GDP}_t - \beta_2 \text{China GDP}_t$ where β_2 represents a stationary process. Myanmar GDP and China GDP are considered cointegrated if there exists a vector such that the two variables are in equilibrium over time. Conducting unit root and cointegration tests is essential to avoid the problem of spurious regression.

Tests for cointegration aim to identify stable, long-term relationships between variables. However, as noted by Rao (2007), the failure to find such a relationship does not conclusively prove its absence; it merely suggests that one may not exist. Among the most widely used cointegration tests are the Engle-Granger test, the Phillips-Ouliaris test, and the Johansen test. In this study, the Johansen test is applied, as it offers improvements over the Engle-Granger test. Specifically, it avoids the need to choose a dependent variable and mitigates issues caused by error propagation across steps. Additionally, the Johansen test is capable of detecting multiple cointegrating vectors (Dinh, 2019a).

The Vector Autoregression (VAR) model describes the evolution of a set of k endogenous variables over a given sample period ($t = 1, \dots, T$), where each variable is modeled as a linear function of its own past values. The variables are represented in a k -vector ($(k \times 1)$ -matrix) Y_t , with $Y_{i,t}$ denoting the observation of the i -th variable at time t . For example, if the i -th variable represents GDP, then $Y_{i,t}$ refers to the GDP value at time t . The VAR model is formulated as follows:

$$M \text{ GDP}_{1t} = \alpha_0 + \sum_{i=1}^n \alpha_i M \text{ GDP}_{t-i} + \sum_{j=1}^n \beta_j C \text{ GDP}_{t-j} + U_{1t} \quad (3)$$

$$C \text{ GDP}_{2t} = \beta_0 + \sum_{j=1}^n \beta_j M \text{ GDP}_{t-i} + \sum_{j=1}^n \alpha_i M \text{ GDP}_{t-j} + U_{2t} \quad (4)$$

In this model: U_{1t} and U_{2t} represent white noise error terms. As previously stated, the primary objective of this paper is to analyze and evaluate the VAR model in relation to the GDP growth rates of China and Myanmar, focusing on the optimal lag selection, impulse response functions, and the model's goodness of fit. To examine the VAR Granger causality based on equations (3) and (4), the hypotheses are formulated as follows:

The hypothesis $H_1: \sum \alpha_i = 0; \sum \beta_i \neq 0$; the Myanmar economic growth rate causes the China economic growth rate ($M \text{ GDP} \rightarrow C \text{ GDP}$), one-way Granger.

The hypothesis $H_2: \sum \alpha_i \neq 0; \sum \beta_i = 0$; the China economic growth rate causes the Myanmar economic growth rate ($C \text{ GDP} \rightarrow M \text{ GDP}$), one-way Granger.

The hypothesis $H_3: \sum \alpha_i \neq 0; \sum \beta_i \neq 0$; both China and Myanmar economic growth rates cause interactions ($C \text{ GDP} \leftrightarrow M \text{ GDP}$), two-way Grange, where the arrow indicates causality.

As discussed, in a VAR model, each variable is expressed as a linear function of its own lagged values as well as the lagged values of other variables in the system. The general form of the VAR model is presented as follows:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_n Y_{t-n} + S_t + U_t \quad (5)$$

$$\text{In which : } Y_t = \begin{bmatrix} Y_{1t} \\ Y_{2t} \\ \vdots \\ Y_{mt} \end{bmatrix}; U_t = \begin{bmatrix} U_{1t} \\ U_{2t} \\ \vdots \\ U_{mt} \end{bmatrix}$$

In this model, Y_t includes m the lag of random walk variables; where u denotes the white noise error term. S_t comprises elements that may include constants, linear trends, or polynomial terms. A is a square matrix of size $(m \times m)$, $i = 1, 2, \dots, n$; $S_t = (S_{1t}, S_{2t}, \dots, S_{mt})$.

The results presented below indicate the influence of the government's trade policy on GDP growth, which is further detailed in the subsequent section.

An impulse response function (IRF) describes how a system reacts to a brief, sharp input signal (an impulse). It's a way to characterize the dynamic behavior of a system by analyzing its output in response to this specific input. IRFs are used in various fields like signal processing, control theory, and economics to understand how systems respond to changes or "shocks".

Results and Discussion

The study aims to analyze the impact of China's GDP growth on Myanmar's GDP growth using a collected sample. As detailed in the methods several individual null hypotheses were tested, including stationary time series, optimal lag selection, and vector autoregression estimates. Additionally, tests for model fit and statistical significance included the Granger causality test, cointegration test, VAR residual serial correlation, impulse response analysis, and stability condition assessments. The sample was examined to determine whether the time series is stationary or non-stationary. Non-stationarity indicates that the mean or variance of the series changes over time. The results of the unit root test are presented in Table 1.

Table 1: Unit root at Lag Length: (0) of the GDP Growth for Myanmar and China

Model: Myanmar GDP of a unit root - Lag Length: 0 (Automatic - based on SIC, maxlag=10)		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.934063	0.0001
Test critical values:	1% level	-3.540198	
	5% level	-2.909206	
	10% level	-2.592215	
Model: China GDP of a unit root - Lag Length: 0 (Automatic - based on SIC, maxlag=10)		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.715378	0.0000
Test critical values:	1% level	-3.540198	
	5% level	-2.909206	
	10% level	-2.592215	

Source: Own Calculation

The results show that all tests have critical values greater than the test statistics and 0.0000 of Prob* is less than $t_\alpha = 0.01$, that is, the China GDP growth rate variable is stationary time series. And the test statistic is greater than all test critical values and $t_\alpha = 0.05$ is greater than the 0.0001 of Prob* i.e., the Myanmar GDP growth rate variable is stationary time series. These variables are tested at lag (0) with 1%, 5% and 10% levels.

The unit root test results show that both Myanmar's and China's GDP growth variables are the stationary time series at lag (0) with 1%, 5% and 10%, after comparing statistic and test critical values, which are the value of the test critical values is less than the value of the statistic test.

These results are utilized to establish the criteria for optimal lag selection in the VAR model. When constructing a VAR model, it is essential to determine the optimal lag length. The optimal lag is selected based on the Akaike Information Criterion (AIC), the Schwarz Criterion (SC), and the Hannan-Quinn Criterion (HQ). The lag length that minimizes these statistics is regarded as the optimal lag for the model. In this study, the AIC criterion was employed for lag selection and the results are shown in Table 2).

Table 2: Optimum lag selection criteria of VAR Model

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-359.0730	NA	709.1121	12.23976	12.31019	12.26725
1	-343.3878	29.77513	477.2675	11.84366	12.05493	11.92613
2	-335.1495	15.08032*	413.6601*	11.69998*	12.05211*	11.83744*
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						

In the VAR model, the AIC standard suggests an optimum lag of 2, considering macroeconomics, lag 2 is very suitable. So, the test shows that at lag 2, the VAR model has no statistical error. Thus, the statistical tests of the VAR model are reliable. The results of VAR model that is the goodness-fit model as shown in Table 3.

Table 3: VAR model at the Selected Optimum lag (2) – Vector Autoregression Estimates

Model	M GDP (-1)	M GDP (-2)	C GDP (-1)	C GDP (-2)	C
1. MYANMAR_GDP	0.310427 (0.12842) [2.41725]	0.303888 (0.13720) [2.21492]	-0.155686 (0.16953) [-0.91832]	-0.061847 (0.11726) [-0.52741]	3.881619 (1.50186) [2.58455]
2. CHINA_GDP	0.249250 (0.08819) [2.82619]	-0.017135 (0.09422) [-0.18186]	0.509859 (0.11643) [4.37921]	-0.338368 (0.08053) [-4.20171]	5.855608 (1.03140) [5.67735]
Note: Standard errors in () & t-statistics in []					

In Model (1), Myanmar's GDP growth is influenced by its own past values and China's lagged GDP growth. The positive coefficients for Myanmar's first and second lagged GDP (0.310427 and 0.303888) suggest that past growth reinforces current growth. However, China's lagged GDP values negatively impact Myanmar's growth, with coefficients of -0.155686 and -0.061847 for the first and second lags, respectively. This indicates that China's past growth, particularly from the previous period, exerts a dampening effect on Myanmar's economy, potentially due to competitive pressures or trade imbalances.

In Model (2), China's GDP growth is influenced by both its own past values and Myanmar's lagged GDP growth. The positive coefficient for Myanmar's first lag indicates that Myanmar's previous growth positively impacts China's current growth, likely due to trade or investment links. A small negative coefficient for Myanmar's second lag shows a minimal negative effect. China's

own first lagged GDP growth has a strong positive effect (0.509859), highlighting the persistence of its economic momentum, while the negative second lag (-0.338368) suggests a slight dampening effect, possibly reflecting cyclical economic adjustments.

In Table 4, a cointegration test is employed to determine whether a long-term relationship exists between the time series. These tests identify instances in which two or more non-stationary time series are integrated in such a manner that they do not deviate from equilibrium over the long term. The tests also assess the degree of sensitivity between the two variables.

Table 4: VAR Unrestricted Cointegration Rank Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.418439	36.29901	15.49471	0.0000
At most 1	0.061003	3.776602	3.841466	0.0520
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.418439	32.52241	14.26460	0.0000
At most 1	0.061003	3.776602	3.841466	0.0520
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				

According to the Table 4, both the Trace and Maximum Eigenvalue tests indicate the presence of one cointegrating equation. For the "None" hypothesis, the trace statistic (36.29901) and maximum eigenvalue statistic (32.52241) exceed their respective critical values, both with p-values of 0.0000, leading to the rejection of the null hypothesis at the 5% significance level. This confirms the existence of at least one cointegrating equation. For "At most 1," both tests yield p-values slightly above the 5% threshold (0.0520), indicating that there is no evidence to suggest more than one cointegrating equation between Myanmar's and China's GDP growth.

Then, residual analysis is employed to assess the model's goodness of fit, ensuring that the underlying assumptions are met, as most linear regression estimators require a correctly specified regression function and independent, identically distributed errors for consistency. To detect serial correlation in the residuals of the Vector Autoregressive (VAR) model, the VAR Residual Serial Correlation LM Test is applied. The null hypothesis assumes no serial correlation at the specified lags, and if the p-value exceeds the threshold (usually 0.05), the null hypothesis is not rejected, indicating no serial correlation in the residuals.

Table 5: VAR Residual Serial Correlation LM Tests

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	4.168050	4	0.3837	1.052643	(4, 106.0)	0.3838
2	2.033464	4	0.7296	0.508431	(4, 106.0)	0.7296
Null hypothesis: No serial correlation at lags 1 to h						
Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	4.168050	4	0.3837	1.052643	(4, 106.0)	0.3838
2	6.642151	8	0.5757	0.832604	(8, 102.0)	0.5760

*Edgeworth expansion corrected likelihood ratio statistic.

Table 5 presents a p-value of 0.3837 for lag 1, which exceeds the 0.05 significance level, indicating that the null hypothesis of no serial correlation cannot be rejected, and thus, the residuals show no evidence of serial correlation at lag 1. The Rao F-statistic p-value of 0.3838 further corroborates this result. Additionally, the combined lags test provides a p-value of 0.5757, suggesting no significant serial correlation across lags 1 and 2, a finding supported by the Rao F-statistic p-value of 0.5760.

Variance decomposition involves the analysis of forecast error variance over a specific time horizon, providing insights into the short-term and long-term effects of various variables on the GDP of Myanmar and China. This method allows for the assessment of the proportion of fluctuations in a time series that can be attributed to specific variables at designated time intervals, as illustrated in Table 6.

Table 6: Variance Decomposition

Variance Decomposition of MYANMAR_GDP:				Variance Decomposition of CHINA_GDP:			
Period	S.E.	MYANMAR_GDP	CHINA_GDP	Period	S.E.	MYANMAR_GDP	CHINA_GDP
1	5.378132	100.0000	0.000000	1	3.693423	0.526661	99.47334
2	5.672880	98.97798	1.022016	2	4.314869	8.169868	91.83013
3	6.053763	97.77215	2.227852	3	4.459121	13.07750	86.92250
4	6.136541	97.31780	2.682200	4	4.612183	13.86138	86.13862
5	6.182009	97.28734	2.712656	5	4.638352	13.79692	86.20308
6	6.198033	97.29538	2.704619	6	4.639062	13.79955	86.20045
7	6.207787	97.29827	2.701726	7	4.643352	13.79676	86.20324
8	6.212299	97.29208	2.707922	8	4.644842	13.83521	86.16479
9	6.214486	97.28630	2.713698	9	4.645752	13.85859	86.14141
10	6.215360	97.28437	2.715630	10	4.646281	13.86317	86.13683

Cholesky Ordering: MYANMAR_GDP CHINA_GDP

Table 6 reveals that 100% of the forecast error variance in Myanmar's GDP is initially explained by its own shocks, indicating that Myanmar's GDP is fully driven by its past values in the short term. Over time, China's GDP begins to influence Myanmar's GDP, with 1.02% of the variance explained by China's GDP by Period 2, gradually rising to 2.71% by Period 10. This

suggests that while Myanmar's GDP remains largely self-determined (97.28% by Period 10), China's impact increases slightly over time. Similarly, 99.47% of China's GDP variance is initially driven by its own shocks, with only 0.53% explained by Myanmar. However, Myanmar's influence grows over time, rising from 8.17% in Period 2 to 13.86% by Period 10, indicating a gradual but increasing impact of Myanmar's GDP on China's economic performance.

Impulse response analysis is a crucial component of econometric analysis utilizing vector autoregressive models. Its primary objective is to illustrate the dynamics of the GDP growth variables for both Myanmar and China in response to a shock affecting these variables are shown in Figure 1.

Response of CHINA_GDP_GROWTH to MYANMAR_GDP_GROWTH Innovation using Cholesky (d.f. adjusted) Factors

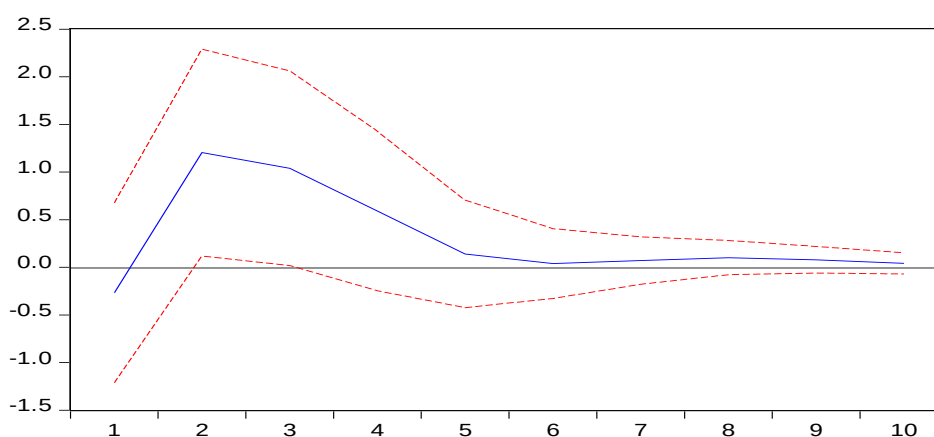


Figure 1: Impulse Response

According to Figure 1, in the first period, there is a positive response from China's GDP growth to a shock in Myanmar's GDP growth. This indicates that initially, a shock in Myanmar's GDP growth leads to a noticeable increase in China's GDP growth. The positive impact reaches its peak around Period 2, with China's GDP growth showing a substantial positive response to the shock in Myanmar's GDP growth. After Period 3, the response starts to decline, though it remains positive in the short term. After the peak, the response starts to gradually decline toward zero. By around Period 5, the response becomes nearly negligible and levels off, indicating that the effect of the shock fades away over time. By Period 10, the response of China's GDP growth to the shock in Myanmar's GDP growth becomes statistically insignificant as it stabilizes around zero.

The dynamically stable model is evaluated after fitting the VAR, using the roots of the characteristic polynomial to assess the condition for dynamical stability. The VAR model is considered stable if all eigenvalues lie within the unit circle, indicating that the modulus of each eigenvalue is strictly less than 1. Furthermore, by selecting the graphing option, a plot of the eigenvalues is produced, with the real components represented on the x-axis and the imaginary components on the y-axis. The graph below visually demonstrates that these eigenvalues are well within the unit circle. These findings serve as a basis for analyzing the impact of China's GDP growth on Myanmar's GDP growth from 1961 to 2023, along with various indicators of Myanmar's economic growth, as depicted in Figure 2.

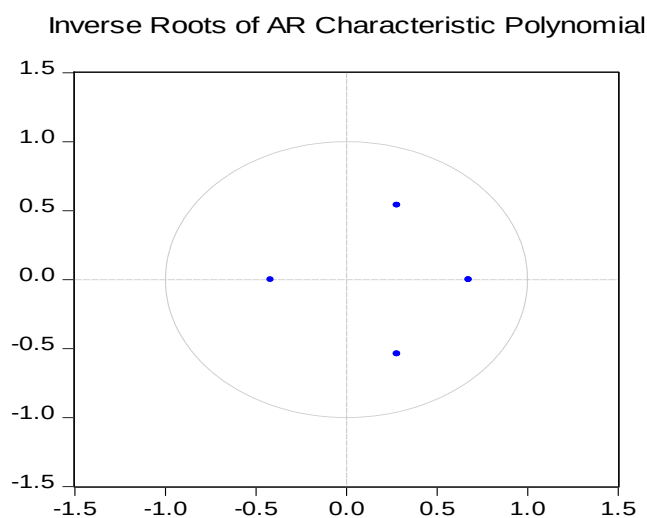


Figure 2: Dynamically stable test

As previously indicated, a Vector Autoregression (VAR) model is deemed dynamically stable if the residuals exhibit stationarity and all coefficients of the characteristic polynomial lie within the unit circle, or if the estimated modulus is less than one. Consequently, following the estimation of the VAR model, it is essential to assess the stability of the resulting modes. The analysis of the residuals can serve as a unit root test, demonstrating that the selected sample exhibits stability, aligns well with the model, and possesses statistical significance.

Conclusion

This study conducts a comprehensive analysis of the dynamic interactions between the GDP growth rates of China and Myanmar using a Vector Autoregression (VAR) model. The results reveal a significant relationship between the two economies, with China's GDP growth notably influencing Myanmar's economic performance. This relationship is substantiated by Granger causality and cointegration tests, which indicate a long-term association between the two-time series. Both China's and Myanmar's GDP growth rates are confirmed to be stationary time series, as evidenced by unit root tests that demonstrate stable statistical properties over time, thereby validating the use of VAR modeling. The optimal lag length for the VAR model, determined by the Akaike Information Criterion (AIC), is two, which allows the model to effectively capture the temporal dynamics of GDP growth.

The VAR results show a bidirectional relationship between Myanmar's and China's GDP, where Myanmar's GDP has a short-term positive influence on China's growth. Conversely, China's GDP growth does not significantly affect Myanmar's GDP in the short term. However, China's GDP is more dependent on its own past values, while Myanmar's GDP shows a more modest internal influence. Impulse response analysis indicates that a shock in Myanmar's GDP growth initially results in a positive response in China's GDP growth, suggesting that fluctuations in Myanmar's economic performance can influence China's growth trajectory. Additionally, variance decomposition results show that while Myanmar's GDP growth is mainly driven by its own historical values, the influence of China's GDP on Myanmar's growth gradually increases over time.

The residuals from the VAR model exhibit no signs of serial correlation, indicating that the model is appropriately specified and reliable for economic forecasting. These findings highlight

the interconnectedness of the Chinese and Myanmar economies, emphasizing the role of China's economic policies and performance in shaping Myanmar's economic landscape. While Myanmar's GDP shows little immediate influence on China's growth, the positive significant relationship at lag one suggests potential for mutual benefits. Policymakers should consider strengthening bilateral trade agreements and economic partnerships to enhance these short-term interdependencies for mutual economic growth.

Since Myanmar's past GDP growth has a significant positive effect on its future growth, it is crucial for Myanmar to focus on sustaining its economic stability. Early-warning indicators and economic stabilization policies should be implemented to minimize volatility. Both countries can benefit from deeper regional integration initiatives, particularly infrastructure development and investment. This will foster stronger long-term economic linkages, allowing Myanmar to better position itself as an economic bridge between China and Southeast Asia.

Future studies should expand the scope by including additional economic variables such as trade, foreign direct investment, and regional factors to gain deeper insights into the broader economic relationship between Myanmar and China. Regional integration initiatives, including infrastructure investments and strengthened trade relationships with neighboring countries, could position Myanmar as a crucial bridge between China and Southeast Asia, thereby contributing to regional stability.

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EFFECTS OF SOCIAL MEDIA USAGE ON ACADEMIC PERFORMANCE OF STUDENTS IN UNIVERSITY OF CO-OPERATIVE AND MANAGEMENT, SAGAING

Ei Thaw Tar Mon¹

Abstract

Social media has become one of the most popular among students around the world, and students' academic performance is vital for assessing a student's standing at university. The objectives of the study are to describe the demographic characteristics and the social media usage of students, and academic performance of students and to analyze the effects of social media usage on students' academic performance of second year students at the University of Co-operative and Management, Sagaing. A stratified random sampling method was applied to select 226 students from 522 second year students. The analysis of the study was based on descriptive analysis, correlation analysis and multiple regression analysis with primary data. Descriptive analysis was used to describe the demographic characteristics, social media usage, and academic performance of students and correlation analysis was used to determine the strength of the variables. Multiple regression analysis was used to analyze the effects of social media usage on students' academic performance. Based on the results of the multiple regression analysis, an adjusted R^2 of 0.646 indicates that the effects of social media usage could explain 64.6% of the variation in academic performance. Based on the results, the gender of students has a significantly positive effect on academic performance. Moreover, daily average time spent on social media, belongingness to social media, and monthly expenses for social media usage have a significantly negative effect on academic performance. The results show that gender differences exist in social media usage among students. Male students' use of social media has a negative effect on students' academic performance compared to female students. This study has been found that excessive use of social media leads to decrease academic performance and reduce time spent studying.

Keywords: social media, academic performance, multiple regression analysis

Introduction

Social media is becoming more and more popular with the advancement of technology and the Internet. Technology reveals to humanity a better way of doing things. The Internet is a global network of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information and communicate with anyone else in the world. So, social media has become popular with the help of digital technologies and the internet. Social networking has taken the world towards a high-communication society. Social networks enable millions of people to connect with their friends, share experiences, information, activities, and photographs, and exchange personal content. (Kim et al., 2010)

People have a social media account based on different reasons, and it offers a way to keep in touch with new and old friends, network, follow brands and companies, and offer a mini-biography of each user's life. Social media is used by people of all age groups, but the predominant social media users are young adults. The popularity of some social media platforms is attracting more and more adult users. YouTube, Instagram, and Snapchat are the most popular social media sites among teens. Fully 95% of teens have access to a smartphone, and 45% are online almost constantly, providing electronic communication across the world (Anderson and Jiang, 2018).

¹ Department of Statistics, University of Co-operative and Management, Sagaing

Nowadays, using social media has become a habit in students' daily lives, and most of the students are becoming more frequent users of social media platforms. Almost all students have some social media accounts at present. Parents and instructors monitor the social media use of undergraduates to prevent social media addiction associated with excessive use. Students use social media to connect course content with out-of-class peer interactions, ultimately supporting their learning within the classroom. And then, the use of social media by students influences on academic performance.

Rationale of the Study

The world is a global village at present. Technological advancements, marked by the emergence of the internet and social media, have made communication easier and transformed the world into a global village. Everyone can connect with anyone, anywhere in the world, at any time. With technology becoming more advanced and social media becoming more popular, the global village is going to continue to grow. Nowadays, people can communicate quickly and across the world without physical borders because social media and technologies have accelerated. (Miller et al., 2016)

The evolution of social media has been driven by people's impulse to communicate and by advances in digital technology. Among all people, young people are more likely to use social media than older people. In fact, in almost all countries where access to the internet is nearly universal, the vast majority of young adults use it. The use of social media, which has increased over the last decade, has come with a large increase in the amount of time people spend online. Adults spend more than six hours daily on digital media accessed through mobile phones, tablets, computers, and other devices in the United States. Facebook was the most popular social media site in 2019, with 2.3 billion users. Today, YouTube is more popular than Facebook (Ortiz-Ospina and Roser, 2023).

Social media is also used for a variety of purposes, including studying, keeping in touch with friends and family, sharing news and information, and for businesses, organizations, and academic fields. Social media has become very common among students all over the world. Social media is continually developing new educational possibilities for students. Social media has become a vital part of a student's daily life. Simultaneously, there are many positive and negative effects of social media on education. According to these situations, effects of social media usage on academic performance of students have been studied and analyzed with the statistical techniques in this study. This study investigated the relationship between social media usage and the academic performance of students. Social media usage is represented by the daily average time spent on social media, belongingness to social media, monthly expenses for social media usage, and students' academic performance in this study.

Objectives of the Study

The objectives of the study are as follows:

- (i) to describe the demographic characteristics and social media usage of students in University of Co-operative and Management, Sagaing
- (ii) to analyze the effects of social media usage and academic performance of students in University of Co-operative and Management, Sagaing.

Methods of Study

Primary data were randomly collected from the students using structured questionnaires. Out of the total number of 522 second year students who participated in the 2023-2024 academic year, 226 students were selected for the study. Therefore, the survey was based on the proportional allocation method of stratified random sampling with five strata: the second year students of Accounting and Finance as stratum one, the second year students of Applied Statistics are stratum as two; the second year students of Marketing Management are stratum as three; the second year students of Regional Development are stratum as four; and the second year students of Social Enterprise Management are stratum as five who were studying at the University of Co-operative and Management, Sagaing in the 2023-2024 academic year. Test scores data were gathered from the results of a test in the business statistics subject. Descriptive analysis was used to describe the demographic characteristics and the characteristics of social media usage. The strength of the association between the variables was determined using correlation analysis. Multiple regression analysis was used to analyze the effects of social media usage on students' academic performance.

Scope and Limitations of the Study

The study area focuses on second year students who use social media at the University of Co-operative and Management, Sagaing, in January 2024. Business statistics subject is learnt by second year students in all five majors. Therefore, second year students in five majors were collected to get the test scores from the business statistics subject. In the study, only 226 second year students were selected as a sample due to the time limit and the test score available from the business statistics subject. First year, second year, third year, fourth year, and master's students are not included in this study. The primary data were mainly derived from the total number of 522 second year students who participated in the 2023-2024 academic year. The effect of social media usage on academic performance was examined by analyzing data from personal interviews with structured questionnaire. Among the various statistical tools, such as descriptive analysis, correlation analysis and multiple regression analysis only were used. The logistics regression analysis and other methods were not used in the study. Moreover, a business statistics subject was only considered to measure academic performance, while other subjects were not contained in this study.

Literature Review

Al-Menayes (2015) observed "Social media use, engagement, and addiction as predictors of academic performance." This survey was collected from college students enrolled in mass communication courses at a large state university. Descriptive statistics and regression analysis were used in this study. This study investigated the effect of social media usage and addiction on academic performance. Time spent using social media and academic performance ($\beta = -0.085$, $P < 0.01$) and social media addition at the 1% level of significance. Time spent using social media was a negative predictor of academic performance, and heavy usage of social media showed the same negative effects on academic performance.

Mensah and Nizam (2016) examined "The Impact of Social Media on Academic Performance: A Case Study of Malaysian Tertiary Institutions." The study was to examine the impact of social media usage on students' academic performance. The study used time

appropriateness, time duration, friend-people connection, nature of usage, health addiction, and security/privacy issues as its variables. This research adopted descriptive and regression analyses. A sample of 102 students from the collage was selected. It also employed a cross-sectional survey method using survey questionnaires. Time-appropriate activities have negative significance, and friend-people connection, natural usage, health addition, and social privacy problems have positive significance and affect students' academic performance. It can be concluded that social media platforms have a negative impact on students' academic performance.

Novaria (2018) studied "The Effects of the Use of Social Media on Academic Performance: A Case of Undergraduate Students at the Faculty of Economics, Universities Atma Jaya Yogyakarta). The study was to determine the effect of social media usage on academic performance among students. A series of multiple regression analyses were conducted to examine the relationships among the variables in the study. Time spent, experience and satisfaction are independent variables, and academic performance is a dependent variable in the study. Time spent with social media was found to have no negative influence on students' academic performance, but other dimensions, such as experience with social media and satisfaction with social media, were found to negatively influence students' academic performance.

Alaslani and Alandejani (2020) examined "Identifying factors that influence students' performance through social networking sites: An exploratory case study." The study was to determine which factors affect students' academic performance while using SNSs among undergraduate and graduate students. In this study, quantitative research and a survey were conducted to analyze the factors associated with students' performance among undergraduate and graduate students during the 2016-2017 academic session. The sample of 364 students was collected from 6898 population students by using a random sampling method. The survey data were analyzed using descriptive statistics and regression analysis. Social networking sites have a significant positive effect on students' academic performance was found in the study.

Mumgambo (2022) explored "The role of social media in improving academic performance of students." A descriptive research design was employed in the study, and both qualitative and quantitative methods were used. Secondary school students comprise the study's population. In this investigation, simple random sampling was used. Additionally, primary and secondary data were used in the study. Descriptive statistics and regression analysis were used in this study. Findings indicated that social media platforms have a positive and significant relationship with academic performance, while time spent has a negative relationship with academic performance. Also, the nature of academic use of social media was found to have a positive relationship with academic performance.

Materials and Methods

A survey was conducted in University of Co-operative and Management, Sagaing to obtain the required data with proportional allocation of stratified random sampling method. There are five different groups of second year students of five specialized subjects such as accounting and finance, applied statistics, marketing management, regional development, and social enterprise management. There are 522 students in total. These studies focus on 226 students who were randomly selected based on a stratified random sample. The size of the sample in each stratum is chosen by using the proportional allocation method of stratified random sampling. Data were

obtained by face-to-face interviews through field investigation using a self-administered questionnaire that was hand-delivered in January 2024. The questionnaire was described in Appendix A. Descriptive analysis, correlation analysis and multiple regression analysis were used in the study.

Correlation Analysis

Correlation analysis is applied in quantifying the association between two variables, for example, a dependent and independent variable or among two independent variables. The correlation analysis refers the degree of relationship between variables. Study of correlation between two variables is called simple and between more than two variables may be partial or multiple. In statistical terms, correlation is measured by a statistic called the correlation coefficient which represents the strength of the putative linear association between the variables in equation. It is a dimensionless quantity that takes a value in the range -1 to +1. A correlation coefficient of zero indicates that no linear relationship exists between two continuous variables, and a correlation coefficient of -1 or +1 indicates a perfect linear relationship. The strength of relationship can be anywhere between -1 and +1. The stronger the correlation, the closer the correlation coefficient comes to ± 1 . If the coefficient is a positive number, the variables are directly related (i.e., as the value of one variable goes up, the value of the other also tends to do so). If, on the other hand, the coefficient is a negative number, the variables are inversely related (i.e., as the value of one variable goes up, the value of the other tends to go down).

Multiple Regression Analysis

The multiple linear regression models are an extension of a simple linear regression model to incorporate two or more independent variables in a prediction equation for a response variable. The use of two or more independent variables regression analysis is an extension of the basic principle used in two-variable regression analysis. It is necessary to determine the equation for the average relationship between the variables.

The multiple regression model with k independent variable is

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \beta_3 X_{i3} + \dots + \beta_k X_{ij} + \varepsilon_i$$

where, Y_i = Dependent variable

β_0 = Constant (coefficient of intercept)

X_{ij} = Independent variables, $i = 1, 2, \dots, n$, $j = 1, 2, \dots, k$

$\beta_1, \dots, \beta_k$ = Regression coefficients of independent variables

ε_i = Residual term

In all the linear regression models considered so far, the dependent variable Y and the explanatory variables, the X's, have been numerical or quantitative. But this may not always be the case; there are occasions when the explanatory variable(s) can be qualitative in nature. These qualitative variables, often known as dummy variables, have some alternative names used in the literature, such as indicator variables, binary variables, categorical variables, and dichotomous variables.

In regression analysis the dependent variables, or regressand, is frequently influenced not only by ratio scale variables (e.g., income, output, costs, prices, weight, temperature) but also by variables that are essentially qualitative, or nominal scale, in nature (e.g., gender, race, color,

religion, nationality, strikes, marital status). Variables that assume values such as 0 and 1 are called dummy variables. Such variables are thus essentially a device to classify data into mutually exclusive categories such as male or female. Dummy variables can be used in regression analysis just as readily as quantitative variables. As a matter of fact, a regression model may contain only dummy explanatory variables. Regression models that contain only dummy explanatory variables are called analysis-of-variance (ANOVA) models.

A multiple regression correlation can also be computed to determine if a significant relationship exists between the independent variables and dependent variable. In the multiple regression analysis, the strength of the relationship between the independent variables and dependent variable is measured by a correlation coefficient. This multiple correlation coefficient is symbolized by R . Then R^2 is the coefficient of multiple determination, and it is the amount of variation explained by the regression model. The expression $1 - R^2$ represents the amount of unexplained variation. Since the values of R^2 is dependent on n and k , statisticians also calculate what is called an adjusted R^2 . This is based on the number of degrees of freedom. Both R^2 and adjusted R^2 are usually reported in a multiple regression analysis.

Data Analysis

Demographic characteristics of students, characteristics of social media usage, and academic performance of students in University of Co-operative and Management, Sagaing and correlation analysis for social media usage and academic performance of students, and effects of social media usage on academic performance of students in University of Co-operative and Management, Sagaing are included in the study.

Demographic Characteristics of Students

Demographic characteristics of students in University of Co-operative and Management, Sagaing are described in Appendix Table (1). According to the results, 28.32 % of students are males and the remaining 71.68 % are females. The numbers of female are more than that of male in the survey. Two hundred and twenty-six students are divided into according to their ages 18-20 age group and 20-23 age group. 86.73% of the students are 18-20 years age group and 13.27% of the students are 20-23 years age group respectively. Most of the second-year students are 19 years old. Among the 226 students in the survey, various ethnic groups such as Burmese, Chin, Kayin, YaKhaine, and Shan can be found. 93.81% of the students are Burmese, 1.33% of the students are Chin, 0.44% of the students are Kayin, 0.88% of the students are YaKhine, and 3.54% of the students are Shan. The majority of students are 93.81% Burmese students. The minority of students includes 0.44% (Kayin). Hostels are divided into living on campus as a university hostel and living off campus as a private hostel and family house. 36.28% of the 226 students stay on campus, and 63.72% stay off campus.

Characteristics of Social Media Usage

Characteristics of students in University of Co-operative and Management, Sagaing are described in Appendix Table (2). Social media usage includes most use social media platform of the students, monthly expenses for social media usage, belongingness to social media, daily average time spent on social media, main reasons for using social media, opinions towards using social media, willingness to use social media for academic purposes, and accessing social media.

The majority of students use Facebook (57.52%), followed by TikTok (25.66%), YouTube (7.52%), Telegram (6.64%), and other platforms (2.64%). Students' monthly expenses for social media use were 5000-10000 kyats are 29.65%, 10000–15000 kyats are approximately 26.55%, 15000–20000 kyats are approximately 23.89%, and more than 20000 kyats are 19.91%.

About 28.32% of students use social media for one to two years, followed by 26.28% for two to three years and 35.40% for three to four years. 16.37% of students reported using social media for one to two hours per day, 33.63% reported using it for two to three hours on average per day, and 50% reported using it for more than three hours. Students about 52.65% stated that their main reason to use social media was as entertainment; 8.85% of students stated that their main reason to use social media also included staying up to date with news; 20.80% of students stated that main reason to use social media was to engage in social media to reach out to teachers and study; and 17.70% of students stated that main reason to use social media was to connect with families and new friends. Regarding the use of social media, most of the students had a positive opinion and willingness to use social media for academic purposes.

Academic Performance of the Students

The students' academic performances are measured using test scores. Students who are learning at university in the second year of the 2023–2024 academic year have received test scores from business statistics subjects and used the test scores to measure academic performance of students. Appendix Table (3) shows the test scores of the Business Statistics subjects of the students. It was found that there are no students who got 34 points or less. There are 67 students who scored between 35 and 49 points, with a percentage of 29.64%. There are 117 students who scored between 50 and 64 points, with a percentage of 51.77%. There are 35 students who scored between 65 and 74 points, with a percentage of 15.49%, and then 7 students who scored between 75 points and over, with a percentage of 3.10%. Most students scored between 50 and 64 points and it was found that It was found that there are no students who got 34 points or less.

Correlation for Social Media Usage and Academic Performance of Students

The strength of relationship between variables is shown in Appendix Table (4). The correlation between test scores and gender of students is 0.224. It can be concluded that there is a weak positive linear relationship between gender and academic performance of students. The correlation between test scores and daily average time spent on social media is -0.728. It can be concluded that there is strong negative linear relationship between time spent on social media and academic performance of students. The correlation between test scores and belongingness to social media is -0.579. It can be concluded that there is fairly negative relationship between two variables. The correlation between test scores and monthly expenses for social media usage is -0.588, there is negative relationship between monthly expenses for social media usage and academic performance of students.

The Pearson correlation between place of residence and test score of students is 0.134. It can be concluded that there is weak positive linear relationship between two variables. The correlation between place of residence and gender of students is 0.138. It can be concluded that there is weak positive linear relationship between two variables. The Pearson correlation between gender and time spent on social media usage of students is - 0.1. It can be concluded that there is

weak negative relationship between gender and time spent on social media usage. The correlation between gender and monthly expenses for social media usage of students is -0.017. It can be concluded that there is weak negative relationship between two variables.

The Pearson correlation between time spent on social media usage of students and belongingness to social media is 0.469, there is fairly positive relationship between two variables. The correlation between time spent on social media usage and monthly expenses for social media usage of students is 0.546, there is positive relationship between two variables. The Pearson correlation between belongingness and monthly expense for social media usage is 0.360. It can be concluded that there is positive relationship between belonging to social media usage and monthly expenses for social media usage.

Effects of Social Media Usage on Academic Performance of Students

Multiple regression analysis was conducted to analyze the effects of Social Media Usage such as daily average time spent on social media, belongingness with social media and monthly expenses of social media usage and academic performance of students in University of Co-operative and Management, Sagaing. The results of multiple regression analysis the effects of social media usage on academic performance of students are shown in Table (1).

Table (1) Effects of Social Media Usage on Academic Performance of Students

Independent Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	VIF
	B	Std. error				
(Constant)	85.0483	1.901		44.742	0.000	
Gender	2.5492***	0.866	0.118	2.944	0.004	1.030
Time spent	-4.7338***	0.505	-0.473	-9.377	0.000	1.621
Belongingness	-3.2989***	0.553	-0.271	-5.965	0.000	1.308
Monthly expenses	-0.0003***	0.000	-0.213	-4.408	0.000	1.480
R						0.808
R ²						0.653
Adjusted R ²						0.646
F-statistic					103.812***	
P-value of F					0.000	

Source: SPSS Output

Note: Statistical significance indicates *** at 1%level, ** at 5%level and

* at 10%level

According to multiple regression analysis results, the value of F is 103.812, and the p-value = 0.000 was less than $\alpha = 0.01$, the null hypothesis was rejected. It is concluded that the multiple regression model was highly significant at 1% level. The adjusted R² results showed how measurable dependent variable can explain the independent variable. An adjusted R² of 0.646 indicates that the effects of social media usage could explain 64.6% of the variation in academic

performance and the remaining percentage of 35.4 due to other factors that were not included in the model.

According to Table (1), the results of multiple regression analysis provided that gender of students has positive significant effect on students' academic performance ($b = 2.5492$, $t = 2.944$, $P < 0.01$). Daily average time spent on social media, belongingness to social media, and monthly expenses for social media usage have negative significant effect on academic performance of students ($b = -4.7338$, $t = -0.9377$, $P < 0.01$), ($b = -3.2989$, $t = -5.965$, $P < 0.01$) and ($b = -0.0003$, $t = -4.408$, $P < 0.01$). The above Table (1) shows that the values for the variance inflation factor (VIF) of the variables organized in Table (1) were smaller than 10. It shows that there was no multicollinearity among four independent variables.

Among the four significant variables, the daily average time spent on social media had the most significant effect on academic performance, followed by the belonging to social media, gender of the student, and monthly expenses for social media usage. Therefore, students should better manage study time and prevent distractions that can be provided by social media. Students should utilize social media for educational purposes rather than for negative purposes. Students who spend less time on social media daily will perform better academically.

Conclusion and Discussion

The study aims to study the effects of social media usage on academic performance of students in University of Co-operative and Management, Sagaing. This study was limited to all the 226 second year students of five major specialization of University of Co-operative and Management, Sagaing. Descriptive analysis, correlation analysis and multiple regression analysis were used in the study. According to the descriptive analysis, it can be found that the numbers of female are more than that of male in survey. Most of the second-year students are between 18 and 20 years old. Among the 226 students in the survey, various ethnic groups such as Burmese, Chin, Kayin, YaKhaine, and most of the students are Burmese. Hostels are divided into living on campus as a university hostel and living off campus as a private hostel and family house. Most of students stay off campus.

The majority of students use Facebook (57.52%), followed by TikTok (25.66%), YouTube (7.52%), Telegram (6.64%), and other platforms (2.64%). Most students' monthly expenses for social media use were 5000-10000 kyats. About 28.32% of students use social media for one to two years, followed by 26.28% for two to three years and 35.40% for three to four years. About 16.37% of students reported using social media for one to two hours per day, 33.63% reported using it for two to three hours on average per day, and 50% reported using it for more than three hours. Most of the students stated that their main reason to use social media was as entertainment.

The students' academic performances are measured using test scores. Students who are learning at university in the second year of the 2023–2024 academic year have received test scores from business statistics subjects and used the test scores to measure academic performance of students. Most students scored between 50 and 64 points and it was found that there are no students who got 34 points or less.

The result of multiple regression analysis, the value of F is 103.812, and the p-value = 0.000 is less than $\alpha = 0.01$, the null hypothesis was rejected. It is concluded that the multiple regression model is highly significant at 1% level. The adjusted R^2 results shows how measurable dependent

variable can explain the independent variable. An adjusted R^2 of 0.646 indicates that the effects of social media usage could explain 64.6% of the variation in academic performance and the remaining percentage of 35.4 due to other factors that are not included in the model. The results of multiple regression analysis provided that gender of students has positive significant effect on students' academic performance. Daily average time spent on social media, belonging to social media, and monthly expenses for social media usage have negative significant effect on academic performance of students.

Among the four significant variables, the daily average time spent on social media had the most significant effect on academic performance, followed by the belongingness to social media, gender of the student, and monthly expenses for social media usage. Therefore, students should better manage study time and prevent distractions that can be provided by social media. Students should utilize social media for educational purposes rather than for negative purposes. Students who spend less time on social media daily will perform better academically.

Suggestions

The study described that most students at the University of Co-operative and Management, Sagaing, use social media (such as Facebook, YouTube, Telegram, TikTok, and Instagram). Students are using social media, which is leading to a massive loss in their connection and time spent on studies. The use of technology has direct implications for education, whether positive or negative. However, if a student chats for long hours, it will definitely have a negative effect. The cost of using social media is high, especially because students mostly do not earn a living. This cost is a constant burden, especially for students who depend on a stipend from their parents. Excessive use of social media will certainly affect students' education, communication, social life, and health. This study found that the use of social media is uncontrollable among students, which is the leading cause of poor education, communication, social, and health outcomes among students. Students should better manage their study time and prevent distractions that can be provided by social media. The use of social media networks by students should focus on the academic relevance of those sites instead of using them for negative purposes.

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Appendix Table (1)

No.	Demographic Characteristics	No. of Respondents	Percentage
1	Gender		
	Male	64	28.32
	Female	162	71.68
2	Age (Year)		
	18-20	196	86.73
	21-23	30	13.27
3	Ethnic group		
	Burma	212	93.81
	Chin	3	1.33
	Kayin	1	0.44
	Yakhaine	2	0.88
	Shan	8	3.54
4	Place of residence		
	On campus	82	36.28
	Off campus	144	63.72

Source: Survey Data (2024)

Appendix Table (2)

No.	Characteristics of Social Media Usage	No. of Respondents	Percentage
1	Most Use Social Media Platforms		
	Facebook	130	57.52
	TikTok	58	25.66
	YouTube	17	7.52
	Telegram	15	6.64
	Others	6	2.65

No.	Characteristics of Social Media Usage	No. of Respondents	Percentage
2	Monthly Expense for social media usage (Kyats)		
	5000 - 10000	67	29.65
	10000 - 15000	60	26.55
	15000 - 20000	54	23.89
	Over 20000	45	19.91
3	Belongingness to Social Media (Years)		
	1-2	64	28.32
	2-3	82	36.28
	3-4	80	35.40
4	Daily average time spent on social media (hrs.)		
	1-2	37	16.37
	2-3	76	33.63
	3≤	113	50.00
5	Main Reasons of Social Media Usage		
	Entertainments	119	52.65
	News	20	8.85
	Collaborate with families and friends	40	17.70
	Engage in social media to reach out to teachers and Study	47	20.80
6	Opinions towards using Social Media of the Students		
	Positive Opinion	158	69.91
	Negative Opinion	9	3.98
	No comment	59	26.11
7	Willingness to use social media for academic purposes of the students		
	Yes	212	93.81
	No	14	6.19

Source: Survey Data (2021)

Appendix Table (3)

Test Score	No. of Students	Percentage
34 and below	0	0
35-49	67	29.64
50-64	117	51.77
65-74	35	15.49
75 and above	7	3.10
Total	226	100.00

Source: Survey Data (2021)

Appendix Table (4)

		Test Scores	Gender	Place of residence	Time spent	Belonging -ness	Monthly Expenses
Test Scores	Pearson Correlation	1	0.224**	0.134*	- 0.728* *	-0.579**	-0.588**
	Sig.(2-tailed)		0.000	0.044	0.000	0.000	0.000
Gender	Pearson Correlation	0.224**	1	0.138*	-0.100	-0.080	-0.170**
	Sig.(2-tailed)	0.000		0.038	0.134	0.232	0.010
Residence	Pearson Correlation	0.134*	0.138*	1	-0.110	-0.025	-0.032
	Sig.(2-tailed)	0.044	0.038		0.100	0.704	0.628
Time Spent (hrs.)	Pearson Correlation	-0.728**	-0.100	-0.110	1	0.469**	0.546**
	Sig.(2-tailed)	0.000	0.134	0.100		0.000	0.000
Belonging -ness (years)	Pearson Correlation	-0.579**	-0.080	-0.025	0.469* *	1	0.360**
	Sig.(2-tailed)	0.000	0.232	0.704	0.000		0.000

		Test Scores	Gender	Place of residence	Time spent	Belonging -ness	Monthly Expenses
Monthly Expenses (Kyats)	Pearson Correlation	-0.588**	-	-0.032	0	0.360**	1
	Sig. (2-tailed)	0.000	0.010*	0.628	.546* *	0.000	

Source: SPSS Output

APPENDIX (A)

Roll no.: -----

Date: -----/Jan/2024

Questionnaire no. -----

QUESTIONNAIRE**SOCIAL MEDIA USAGE AND STUDENTS' ACADEMIC PERFORMANCE**

I am Ei Thaw Tar Mon, a Master of Applied Statistics (MAS) student. I'd like to request that you complete the following questionnaires: The questionnaires are purely for academic purposes. The questionnaires are a requirement for the MAS program. All information will be kept confidential and used for research purposes only. Names and other relevant information will be retained and will not be used for any other purposes. Thank you for your participation.

Section (I)

1. Gender ☐ Male ☐ Female

2. Age -----

3. Religious -----

4. Major specialization

- ☐ Social Enterprise Management
☐ Accounting and Finance
☐ Regional Development
☐ Applied Statistics
☐ Marketing Management

5. Where do you live? (Now) ☐ Living on Campus
☐ Living off Campus

Section (II)

6. Monthly Expense for social media usage ----- MMK

7. Most use of social media platform (Only one choose)

- ☐ Facebook
 ☐ TikTok
 ☐ YouTube
☐ Telegram
 ☐ Others (Pls. Specify)

8. Belongingness with social media

----- Years -----Months

9. Daily average time spent in social media

----- Hours -----Minutes

10. Opinions of social Media usage

- ☐ Positive
 ☐ Negative
 ☐ No Comment

11. Willingness to use social media for academic purposes ☐ Yes ☐ No

12. Main Reasons behind using social media

- ☐ Entertainments
☐ News
☐ Collaborate with families and friends
☐ Engage in social media to reach out to my teachers
☐ Others (Pls. Specify)

13. Do you have any comments for social media usage and academic performance

.....

Thank you for your participation.

RELATIONSHIP BETWEEN EDUCATION EXPENDITURE AND ECONOMIC GROWTH IN MYANMAR

Ei Thae Maung Maung¹, Phyu Phyu Khaing²

Abstract

The main purpose of this paper is to explore the impact of education expenditure on economic growth (GDP) in Myanmar. Using annual data for the period 1980 -2022, the analysis is done using time series econometrics methods such as Unit root (ADF) test, co-integration (Engle and Granger), Error Correction Model (ECM) and Granger causality test. The results of Augmented Dickey-Fuller test (ADF) indicates that all the variables are stationary at first difference, I(1). The study finds that cointegration tests confirm a stable, long-term relationship between the variables, indicating that changes in education spending are significantly associated with economic growth over time. The ECM results further demonstrate a significant positive impact of education expenditure on economic growth in both the short and long run. Granger causality tests reveal a bidirectional causal relationship, suggesting that not only does education expenditure influence economic growth, but economic growth also predicts education spending. These results can also underscore the critical role of educational investment in fostering economic growth and suggest that policies aimed at enhancing education funding could have substantial long-term benefits for Myanmar's economic development.

Keywords: Augmented Dickey-Fuller (ADF), Cointegration, Error Correction Model (ECM)

Introduction

Education expenditure refers to financial resources allocated by governments, institutions, and households towards educational activities and institutions. This includes spending on salaries for teachers and administrative staff, infrastructure development, educational materials, and other related expenses. The level and efficiency of education expenditure can significantly impact the quality and accessibility of education.

The allocation and utilization of education expenditure play a pivotal role in shaping the quality and accessibility of education in any country. In Myanmar, understanding the dynamics of education expenditure is particularly crucial due to the nation's ongoing efforts to reform and enhance its educational system amidst broader socio-economic transitions.

Education holds significant importance for Myanmar's economic growth and development. By investing in education and allocating resources towards enhancing the quality and accessibility of education, Myanmar can unlock its human potential and drive economic progress. A well-educated population fosters innovation, entrepreneurship, and productivity, which are crucial for sustaining long-term economic growth. Education equips individuals with the skills and knowledge necessary to adapt to changing economic landscapes, contribute to technological advancements, and participate effectively in the global economy.

Moreover, the correlation between education expenditure and economic growth in Myanmar needs to be interpreted in light of worldwide economic patterns and technological breakthroughs. Higher educated and skilled countries are better equipped to innovate and compete on the world stage in today's knowledge-based economy. People who have received a better education can able to think critically and solve problems, which is what propels technological

¹ Department of Statistics, Meiktila University of Economics

² Department of Statistics, Meiktila University of Economics

innovation and increases productivity. Myanmar needs a workforce that is not just literate but also skilled in science, technology, engineering, and mathematics (STEM) in order to integrate into the global economy and make the move from an agrarian to a service-driven economy. Developing a curriculum that prioritizes these areas and gives pupils the necessary abilities for the job market of the future would need increasing education spending. Additionally, collaborations between academic institutions and business sectors can guarantee that the educational system continues to adapt to the changing demands of the labor market, improving economic productivity and employability.

The dynamics of Myanmar's labor market and the country's demographic changes are also significantly affected by education expenditure. The need for education and job possibilities will rise as the country's demographics changes, with a greater proportion of young people living there. This change in the population brings opportunities as well as challenges. This youthful population has the potential to be a major driver of economic growth if they receive the proper education and are incorporated into the economy. On the other hand, poor employment and educational possibilities may result in high unemployment rates, social unrest, and the squandering of potential. Therefore, making strategic investments in education is essential to maximizing the demographic dividend and guaranteeing that the younger generation can make a significant economic contribution. Furthermore, by increasing public understanding of environmental challenges and encouraging responsible resource management, education is essential in advancing sustainable development. Well informed public is more likely to adopt eco-friendly behaviors and promote long-term economic viability. Therefore, spending on education not only promotes rapid economic growth but also builds resilience to upcoming environmental and economic shocks and promotes sustainable development.

Finally, education and education expenditure are crucial drivers of economic growth and development in Myanmar. By investing in education, Myanmar can unlock its human capital potential, promote inclusive growth, and build a competitive economy that thrives in the global arena. Therefore, this study attempted to explore the impact of education expenditure on economic growth in Myanmar.

Literature Review

Previous studies provide a foundation of existing knowledge, theories, and methodologies. Thus, the following related studies were searched for this current study.

Houcine et al. (2021) investigated the relationship between education outputs, Education expenditure, and economic growth in Saudi Arabia for the time period of 1986–2016. The study used the Autoregressive Distributed Lag (ARDL) model to figure out a long-term relationship between the studied variables. Their findings indicated a positive and significant relationship between education expenditure and economic growth in the long term by providing a 1% increase in public expenditure in education contributes 18% increase in GDP per capita in the long run. But there is a non-significant positive relationship appeared in the short-term.

Dhar (2022) conducted a thorough investigation for the public expenditure for education and economic growth in Bangladesh, spanning the years from 1980 to 2019. The study used time series econometrics analysis such as the Johansen co-integration test, Granger causality test, impulse responsive function, variance decomposition, and different empirical tools based on the

vector autoregressive model to explore the short-run and long-run relationship between educational expenditure and economic growth. According to the Johansen's test results showed that there are two co-integration equations, which indicate that there is a long-run relationship between the variables.

Ziberi et al. (2022) conducted in North Macedonia employs an Instrumental Variable Two-Stage Least Square (IV-2SLS) econometric model to investigate the impact of public expenditure on education on economic growth. The study utilized secondary data from the World Bank Indicators spanning the period from 1917 to 2020 to analyze the relationship between public expenditures on education and key macroeconomic indicators. The findings of the study reveal significant insights into the effects of education expenditure on economic growth in North Macedonia. The results indicated that an increase in public expenditures on education positively influences economic growth in the country. Moreover, the study highlighted unexpected outcomes, such as the positive impact of unemployment and the negative impact of employment on economic growth, underscoring the complexities of the labor market dynamics in North Macedonia.

Wang and Zhang (2024) studied to examine the effectiveness of education investment in driving economic growth. A regression model is established using the panel Ordinary Least Square (OLS) model using data sets for Asian least developed, developed, and developing countries from 1995 to 2015, along with a case study focusing on China and Malaysia. According to the regression model, countries with stable and comparatively more developed economies see higher economic development as a result of public spending on education. This study examined the connections between six variables pertaining to public education expenditure and discovered that funding secondary education is strongly correlated with significant economic rewards.

Materials and Methods

This study employs a quantitative research design and involves secondary data collection. Data on Myanmar's education expenditure, and economic growth rate from 1980 to 2022 were obtained from the Ministry of Education, the Central Statistical Organization and the Statistical Yearbook of Myanmar. However, education expenditures from other ministries, such as the Ministry of Science and Technology, Ministry of Natural Resources and Environmental Conservation, the Ministry of Health and Ministry of Cooperation did not contain in this study. Despite these limitations, the study aims to provide valuable insights into the impact of education expenditure on economic growth in Myanmar. The descriptive analysis was used to explore education expenditure in Myanmar from 1980 to 2022. Moreover, the Vector Error Correction Model (VECM) was used to analyze the impact of education expenditure on the economic growth rate in Myanmar.

Tests of Stationarity

The Augment Dickey -Fuller test is unit root test for stationary. This test conducted by “augmenting” the preceding three equations of DF test by adding the lagged values of the dependent variable, Δy_t . The ADF test here consists of estimating the following regression:

$$\Delta y_t = \alpha + \gamma y_{t-1} + \lambda t + \sum_{i=1}^m \beta_i \Delta y_{t-i} + u_t$$

where, u_t is a pure white noise error term and where $\Delta y_{t-1} = (y_{t-1} - y_{t-2})$, $\Delta y_{t-2} = (y_{t-2} - y_{t-3})$, etc. The number of difference terms to include is often determined empirically, the idea being to include enough terms so that the error term in eq (1) is serially uncorrelated, so that it can obtain an unbiased estimate of λ , the coefficient of lagged y_{t-1} . In ADF test whether $\gamma = 0$ and ADF test follows the same asymptotic distribution as the DF statistic, so the same critical values can be used.

Testing for Cointegration

For single equation, the simplest tests of cointegration are DF and ADF unit root tests on the residuals estimated from the cointegration regression. These modified tests by the Engle Granger (EG) and Augmented Engle Granger (AEG) tests. Cointegration deals with the relationship among a group of variables. Test for cointegration involve the following steps:

Step 1: Test the variables for the variable's order of integration

The first step is to test each variable to determine its order of integration. The Dickey Fuller and the Augmented Dickey-Fuller tests can be applied in order the number of unit roots in each of the variables. Here might face three cases:

- (1) If both variables are stationary (I (0)), it is not necessary to proceed since standard time series methods apply to stationary variables.
- (2) If the variables are integrated of different orders, it is possible to conclude that they are not cointegrated.
- (3) If both variables are integrated of the same order, proceed with step two.

Step 2: Estimate the long-run relationship.

If the result of step 1 indicate that both X_t and Y_t are integrated of the same order (usually I (1)) in economics, the next step is to estimate the long-run equilibrium relationship of the form:

$$Y_t = \hat{\alpha} + \hat{\beta}X_t + \hat{u}_t$$

and obtain the residuals of this equation.

If there is no cointegration, the results obtained will be spurious. However, if the variables are cointegrated, OLS regression yields consistent estimators for the cointegration parameter $\hat{\beta}$.

Step 3: Check for (cointegration) the order of integration of the residuals.

In order to determine of the variables are actually cointegrated, denote the estimated residual sequence from the equation by $\hat{u}_t$. Thus, $\hat{u}_t$ is the series of the estimated residuals of the long-run relationship. If these deviations from long-run equilibrium are found to be stationary, X_t and Y_t are cointegrated.

Step 4: Estimate the error correction model.

If the variables are cointegrated, the residuals from the equilibrium regression can be used to estimate the error correlation model and to analyze the long-run and short-run effects of the variables as well as to see the adjustment coefficient, which is the coefficient of the lagged residual terms of the long-run relationship identified in step 2.

Equilibrium Correction or Error Correction Model

The Error Correction Model is a mean of reconciling the short-run behavior of an economic variable with its long-run behavior. Granger representation theorem, states that if two variables Y and X are cointegrated, the relationship between the two can be expressed as ECM. Now consider the following model

$$\Delta y_t = \beta_1 \Delta x_t + \beta_2 (y_{t-1} - \gamma x_{t-1}) + u_t$$

This model is known as an error correction model or an equilibrium correction model, and $y_{t-1} - \gamma x_{t-1}$ is known as the error correction term. The error correction term should be negative signed, indicating a move back towards equilibrium; a positive sign indicates movement away from equilibrium. Provided that y_t and x_t are cointegrated with cointegrating coefficient γ , then $(y_{t-1} - \gamma x_{t-1})$ will be $I(0)$ even though the constituents are $I(1)$. It is thus valid to use OLS and standard procedures for statistical inference on (3). If is of course possible to have an intercept in either the cointegration term (e.g. $y_{t-1} - \alpha - \gamma x_{t-1}$) or in the model for Δy_t ($\Delta y_t = \beta_0 + \beta_1 \Delta x_t + \beta_2 (y_{t-1} - \gamma x_{t-1}) + u_t$) or both.

Granger-Causality Test

The Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. Granger causality is a way to investigate causality is that a variable X Granger-causes variable Y if variable Y can be better predicted using the histories of both X and Y than it can be predicted using the history of Y alone. The test involves estimating the following pair of regressions:

$$y_t = \sum_{i=1}^n \alpha_i x_{t-i} + \sum_{j=1}^n \beta_j y_{t-j} + u_{1t}, \quad x_t = \sum_{i=1}^n \lambda_i x_{t-i} + \sum_{j=1}^n \delta_j y_{t-j} + u_{2t}$$

where, it is assumed that the disturbances u_{1t} and u_{2t} are uncorrelated.

Causality can be distinguished into four cases by the following.

1. Unidirectional causality from X and Y is indicated if the estimated coefficients on the lagged X are statistically different from zero as a group and the set of estimated coefficients on the lagged Y is not statistically different from zero.
2. Conversely, unidirectional causality from Y to X exists if the set of estimated coefficients is not statistically different from zero.
3. Bilateral causality is suggested when the sets of X and Y coefficients are statistically different from zero in both regressions.
4. Finally, independence is suggested when the sets of X and Y coefficients are not statistically significant in either of the regressions.

Results And Discussion

To determine whether there is cointegration education expenditure and economic growth rate in Myanmar, firstly, it is need to find the order of integration of the variables. Testing for unit root and determine the order of integration for two variables by employing tests devised by Augmented Disckey-Fuller (ADF). The test results are shown in the following tables.

ADF Test Results for Education Expenditure in Myanmar

Test		t- statistics	Prob
ADF	level	-0.6880	0.8497
	1 st difference	-7.770	0.0000
Critical value	1%	-3.641	
	5%	-2.955	
	10%	-2.611	

According to the above table, the ADF (level) test statistic is -0.6880 with associated significance of 0.8497 which is greater than 0.05. Thus, the null hypothesis is failed to reject and

conclude that the non-difference data is not stationary. After the first difference, the test statistic is -7.770 with the probability 0.0000 which is less than 0.05. So, the null hypothesis is rejected and concluded that the first difference data is stationary. It can also be conclude that education expenditure is stationary at the order of integration 1, I(1). Similarly, the economic growth of Myanmar was checked to be stationary or not. The tests results are described in the following table.

ADF Test Results for Economic Growth of Myanmar

Test		t-statistic	Prob
ADF	level	-2.799	0.0584
	1 st difference	-6.585	0.0000
Critical value	1%	-3.641	
	5%	-2.955	
	10%	-2.611	

According to the above table, the ADF (level) test statistic is -2.799 with associated significance of 0.0584 which is greater than 0.05. Thus, the null hypothesis is failed to reject and concluded that the non-difference data is not stationary. After the first difference, the test statistic is -6.585 with the probability 0.0000 which is smaller than 0.05. So, the null hypothesis is rejected and concluded that the economic growth is stationary by taking first differencing.

After determining the order of integration for two variables, the next step is test of Cointegration and Lag Length Selection between Education Expenditure and Economic Growth in Myanmar. The test results are given in the following table.

Lag-order Selection Cointegration between Education Expenditure and Economic Growth in Myanmar

Sample: 1984 to 2022

Number of Observations = 39

Lag	LL	LR	df	p	AIC	HQIC	SBIC
0	-711.229				36.5758	36.6064	36.6611
1	-663.616	95.225	4	0.000	34.3393	34.4311	34.5952
2	-654.532	18.168	4	0.001	34.0786	34.2316	34.5051
3	-643.236	22.593*	4	0.000	33.7044	33.9187*	34.3016*
4	-639.065	8.3406	4	0.080	33.6957*	33.9711	34.4635

* Optimal lag

Source: Stata output.

According to the result, for analyzing the connection between education spending and economic growth in Myanmar from 1980 to 2022, using a lag of 3 periods provides the most statistically fitting model. This conclusion is supported by lower values in criteria such as, AIC, HQIC, and SBIC. Based on the lag-order selection criteria (FPE, AIC, HQIC, and SBIC), lag 3 appears to be the optimal lag for the cointegration model between education expenditure and economic growth of Myanmar.

Cointegration between Education Expenditure and Economic Growth in Myanmar

Trend: Constant

Number of Observations = 40

Sample: 1983 to 2022

Number of lags = 3

Maximum rank	Parameter	LL	Eigenvalue	Trace statistic	Critical value 5%
0	10	-668.73		19.59	15.41
1	13	-659.41	0.37	0.95*	3.76
2	14	-658.93	0.02		

* Selected rank

Source: State output.

Above table shows that there is a stable, long-term relationship between education expenditure and economic growth in Myanmar. This was indicated by the presence of one cointegrating vector, as suggested by the selected rank of 1. Comparing the trace statistic with the critical value, it was found that the trace statistic (0.95) is smaller than the critical value, indicating evidence of cointegration between the variables. So, it can be concluded that there exist two integrating relationships, which implies that there exist two cointegrating linear combinations that are stationary. Also, it can be found that the variables share a long-run equilibrium relationship among them. Then, Error Correction Model (ECM) was applied to understand a short run interaction between variables.

Error Correction Model of Education Expenditure and Economic Growth in Myanmar

The Error Correction Model (ECM) was used to examine how variables relate to one another over the long and short run. The ECM describes how quickly a dependent variable, following a change in another variable, returns to its long-run equilibrium. It includes a process that pulls a variable out of disequilibrium and back into its long-term relationship. Both the short-term dynamics and the long-term equilibrium relationship between the variables are captured by the model.

The cointegration equation in the ECM illustrates the long-term relationship between the variables. The cointegration test, which ascertains if the variables have a stable long-term relationship, is the source of this equation. Usually, the cointegration equation is expressed as a linear combination of the variables, with coefficients denoting the long-term relationship.

The error correction term (ECT) in the ECM encapsulates the short-run dynamics. After an equilibrium deviation, the ECT calculates how quickly the dependent variable returns to its long-run equilibrium. In addition to reflecting the short-term relationship between the variables, it displays the disequilibrium correction process.

To determine whether there is short-run equilibrium between education expenditure and economic growth of Myanmar, the error correlation model was applied. Since the two variables are cointegrated, the relationship between education expenditure and economic growth can be expressed as ECM.

The Coefficients of Vector Error Correlation Model

Beta	Coefficient	Standard Error	Z	P-value	95% Of Conf. Interval	
GDP	1	.	.	.	.	.
Edu. Exp.	-22.0984	3.068015	-7.20	0.000	-28.108	-16.0816
Cons	6609151	.	.	.	.	.
Chi-square	(51.86392)	(P value- 0.000)				

The chi-square statistic of 51.86392 with a **p-value of 0.000** indicates that the overall cointegration model is highly significant. This suggests strong evidence of a long-term equilibrium relationship between education expenditure and economic growth. The null hypothesis of no cointegration is rejected, meaning that these variables move together in the long run, despite short-term fluctuations.

The error correction model of economic growth on education expenditure was estimated as follows:

$$\text{GDP} = -22.09 \text{ Edu. Exp.} + 6609151$$

(3.06)

The cointegration analysis between GDP and education expenditure shows a significant long-term relationship. With GDP normalized as the dependent variable, education expenditure is found to have a negative coefficient of -22.09. This suggests that an increase in education expenditure is associated with a decrease in GDP in the long run, which is counterintuitive as education investments are generally expected to boost economic growth by enhancing human capital. The coefficient is highly significant, with a p-value of 0.000, indicating that the relationship is statistically significant. This negative relationship between education expenditure and GDP may point to inefficiencies in how education spending is being utilized or lag effects, where the positive impacts of education investments take longer to materialize in the economy. Further investigation is required to explore the underlying factors contributing to this unexpected outcome. The constant term of 6,609,151 represents the long-term equilibrium level of GDP in the absence of changes in education expenditure.

Long Run Model between Education Expenditure and Economic Growth in Myanmar

Economic Growth	Coefficient	Standard Error	t	P-value
Edu Exp	0.00000566***	0.000	2.86	0.007
Constant	-0.39626530	0.721	-0.55	0.586

Source: Stata output.

Note: (*, **, ***) means 10%, 5% and 1% significant level).

According to the above Table, the coefficient of education expenditure indicates that, on average, one-million increase in education expenditure is associated with an increase of 0.00000566 in economic growth rate in Myanmar. The coefficient is statistically significant at the 0.01 level, as the p-value is less than the significance level. This suggests that education expenditure has a positive and significant impact on GDP growth in the long run.

The constant term represents the intercept of the regression equation. However, in this case, the coefficient is not statistically significant, as the p-value of 0.586 is greater than the significance

level of 0.01. This indicates that the constant term does not have a significant impact on the economic growth in the long run.

Short Run Model between Education Expenditure and Economic Growth in Myanmar

GDP Growth	Coefficient	Standard Error	t	P-value
Edu Exp	0.00000566***	0.000	3.02	0.004
Error	-0.2099932	0.188	-1.11	0.273
Constant	-0.4747288	0.743	-0.64	0.527

Source: Stata output.

Note: (*, **, *** means 10%, 5% and 1% significant level).

The coefficient of education expenditure in the above table indicates that, on average, one-million increase in education expenditure is associated with an increase of 0.00000566 in economic growth in the short run. The coefficient is statistically significant at the 0.01 level, as the p-value of 0.004 is less than the significance level. This suggests that education expenditure has a positive and significant impact on economic growth in the short run.

The coefficient represents the impact of the error term on economic growth. However, in this case, the coefficient is not statistically significant, as the p-value of 0.273 is greater than the significance level of 0.01. This indicates that the error term does not have a significant impact on the economic growth in the short run.

Based on these results, it can be concluded that education expenditure has a significant positive impact on economic growth in the short run in Myanmar. However, the error term and the constant term do not have a significant impact on the economic growth in the short run.

Testing for Granger-Causality of Education Expenditure and Economic Growth in Myanmar

To determine the causal relationship between the two variables: the education expenditure and the economic growth in Myanmar- the Granger Causality test was utilized. It was concluded that the education expenditure granger causes the economic growth since the p value of one variable, the economic growth, was considerably to forecast the value of the variable of the education expenditure. The Pairwise Granger Causality test results are displayed in the following Table.

Granger-Causality of Education Expenditure and economic Growth in Myanmar

Null Hypothesis	Chi ²	P-value	Decision
Education expenditure does not granger cause economic growth rate	15.856***	0.000	Reject
Economic growth rate does not granger cause education expenditure	9.8984***	0.007	Reject

Source: Stata output.

Note: (*, **, *** means 10%, 5% and 1% significant level).

The Granger-Causality test results point to a substantial causal relationship between GDP growth and education expenditure. The test demonstrated the granger causal relationship between economic growth and education expenditure, indicating that variations in economic growth rate

may accurately forecast the amount spent on education. This suggests that differences in the economic growth may be used as a predictor or explanation for changes in the amount spent on education in Myanmar.

On the other hand, the test also showed that economic growth is granger caused by education expenditure. This implies that variations in the amount spent on education may accurately forecast the economic growth. As a result, changes in education expenditure may be utilized to forecast or explain changes economic growth in Myanmar.

Overall, the Granger-Causality test results show that there is a bidirectional causal relationship between economic growth and education expenditure. The economic growth can be impacted by changes in education expenditure, and vice versa. These results demonstrate the relationship between education expenditure and the country economic expansion. It highlights the significance of taking education into account as a critical component in economic development plans and implies that policies intended to promote education investment may have a beneficial influence on economic growth and vice versa.

Conclusion

The empirical analysis conducted in this study offers valuable insights into the complex relationship between education expenditure and economic growth in Myanmar. Over the examined period from 1980 to 2022, the study employed cointegration analysis, Error Correction Model (ECM), and Granger-Causality tests to discern patterns and interactions between these key economic variables.

The cointegration analysis revealed a stable, long-term relationship between education expenditure and economic growth. This signifies that changes in education spending exhibit a sustained impact on economic growth over extended periods. The presence of one cointegrating vector implies a shared stochastic trend, emphasizing the enduring importance of education in the economic development of Myanmar. The ECM further contributed to understand by highlighting the short and long-term dynamics between education expenditure and economic growth. The positive and significant impact of education expenditure on economic growth in both temporal dimensions underscores the critical role of educational investments in fostering economic expansion. The bidirectional causal relationship uncovered by the Granger-Causality tests accentuates the dynamic interaction between economic growth and education expenditure, suggesting a symbiotic relationship between the two variables.

In terms of policy implications, these findings underscore the importance of prioritizing education in Myanmar's development agenda. Policymakers should recognize the bidirectional nature of the relationship, wherein economic growth influences education spending and vice versa. Crafting holistic policies that address both economic and educational objectives is essential for sustained and inclusive development. The positive impact of education expenditure on economic growth suggests that investments in education can serve as catalysts for economic prosperity. As Myanmar continues to navigate economic and social transitions, informed policy decisions in the education sector can play a pivotal role in fostering sustainable economic growth.

To enhance the impact of educational investments, it is essential for policymakers to focus on creating a robust framework that ensures efficient utilization of resources. Implementing mechanisms for monitoring and evaluating educational expenditures can help identify areas where

funds are most effectively used and where improvements are needed. This data-driven approach will enable the formulation of policies that are responsive to actual needs, promoting transparency and accountability in the education sector. Additionally, fostering public-private partnerships can mobilize additional resources and expertise, further boosting the quality and reach of educational programs.

Moreover, addressing disparities in education access and quality between urban and rural areas should be a priority. Policymakers must design and implement inclusive education policies that cater to the needs of marginalized and underserved communities. Ensuring equitable access to quality education across different regions will not only enhance overall educational outcomes but also contribute to reducing socio-economic inequalities. Investing in teacher training, infrastructure development, and digital learning tools can bridge the gap between urban and rural education systems, paving the way for a more balanced and sustainable economic growth trajectory. By prioritizing these strategic initiatives, Myanmar can harness the full potential of its human capital, driving long-term economic prosperity.

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EXAMINING MEDIATING ROLE OF JOB PERFORMANCE BETWEEN SKILLS AND ORGANIZATIONAL PERFORMANCE OF SMEs IN MYANMAR*

Khin Marlar Maung¹

Abstract

The objectives of the study are to analyze the effect of hard skills and soft skills on organizational performance and to examine the mediating effect of job performance between skills and organizational performance of SMEs in Myanmar. The different skills of owners of SMEs play an essential role in achieving job performance of owners and organizational performance. Moreover, the mediating role of job performance is an unavoidable requirement to support organizational performance. Structural Equation Modeling (SEM) with LISREL 8.72 is used to prove the objectives. The target population is 47,642 owners of SMEs in Myanmar. Among them, 440 owners are selected as the respondents by using simple random sampling method. As the final analysis, 215 owners of SMEs are included. The results revealed that soft skills and hard skills have significant direct effects on job performance. Soft skills have significant direct effect on organizational performance. Hard skills have no significant direct effect on organizational performance. Job performance has significant direct effect on organizational performance. Job performance is a full mediating variable for hard skills and partial mediating variable for soft skills. The importance of both skills is seriously emphasized by the owners of SMEs to enhance job performance and also organizational performance.

Keywords: Hard skills, Soft skills, Job performance, Organizational performance, SMEs, Myanmar

Introduction

The development of small and medium enterprises (SMEs) is the back bone for the development of a country. More broadly, Small and Medium Enterprises (SMEs) play the crucial role for economics contribution at the global, national, local and individual levels (Azari et al., 2017; Gamidullaeva et al., 2020). Because of Covid 19 pandemic, the decline of SMEs is suffered in the world including Myanmar. To achieve the overall performance of SMEs, the job performance of owners is critical requirement. The different skills of owners are the key success factor to upgrade the job performance of owners. The owners of SMEs need to build up their capacity for enhancing the growth of businesses with different skills related to their management. In Myanmar, the development of SMEs is strongly demanded and the government provides SMEs with advanced technology and other resources. The skills of owners of SMEs are the basic requirements for innovation, creativity, learning, and promoting business functions to achieve the organizational performance. The skills of owners are important to manage business effectively and to stand successfully in the strong competition among SMEs. Thus, the important role of hard skills and soft skills of owners is the area to be examined with the help of job performance of owners.

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¹ Department of Commerce, Meiktila University of Economics

The hard and soft skills of business owners can achieve not only the long-term operation of business but also a smooth relationship with suppliers, customers and other stake holders. The present study mainly focuses on hard skills and soft skills of owners of SMEs and the effects of these skills on job performance of owners and organizational performance. Hard skills are considered as the abilities of a person that support in performing the professional area and are often used as a measurement of a person's ability or the expertise of the quality. Soft skills are mainly based on interpersonal skills, problem-solving skills, communication skills, etc. which are applied in the daily business activities of the owners of SMEs.

The objectives of the study are to analyze the effect of hard skills and soft skills on organizational performance and to examine the mediating effect of job performance between hard skills, soft skills and organizational performance of SMEs in Myanmar.

Literature Review

The development from the industrial era to the information age brings significant changes. Human capital is a fundamental component for any enterprise and the quality of it deeply affects the results that the company can achieve (Cimatti, 2016). The owners of SMEs need to build up their capacity for enhancing the growth of businesses with management related skills. Bridgstock (2009) observes that, in the context of rapidly changing information and knowledge-intensive economies, individuals must have skills. In order to do so, they must not only maintain and develop knowledge and skills that are specific to their own discipline or occupation, but must also possess generic skills, dispositions and attributes that are transferable to many occupational situations and areas. The skill development is strongly demanded from both employers and employees.

SMEs can accept new technologies, adopting management methods and styles, develop and learn quickly, which encourages the competition strengthening those results in the improvement of products quality, services and lower prices (Gordana & Biljana, 2021). Not only employees but also employers need to acquire both hard skills and soft skills in performing the tasks and in achieving overall performance of organization. Hard skills are learned abilities that can be acquired and improved by means of practice, recurring, and education (Hasanah et al., 2020) and are those needed by a skilled person to successfully handle a role. The quality of the industry, in terms of quality of the product, of the organization, of the services and of the workers' life, strongly depends on the soft skills possessed by responsible persons at any level.

Hard Skills

Hard skills include a person's ability to perform the specific type of tasks and can be created, written and transferred between company activity units (Lombardi, 2019). Hard skills can be assessed from technical tests or practical tests. Hard skills can be described in general and are also based on the specific context in which these skills are used. Rainsbury et al. (2002) defined hard skills as skills related to technical aspects to perform several tasks in work. Basically, hard skills are cognitive and are influenced by intellectual quotient (IQ) (Muhammad et al., 2019). Discipline-specific skills are critical in many technical positions and employers continue to value knowledge in a specific career field. Hard skills are technical skills that are inherent or required for certain professions. Additionally, hard skills are the knowledge and technical abilities of a

person and also include knowledge of concepts related to the scientific field, mastery of as well as analyzing and identifying new ideas regarding products or services (Marzuki et al., 2024). Because of hard skills, technical advances and operational experiences are effectively handled by SMEs.

H1a: Hard skills have direct effect on job performance.

H1b: Hard skills have direct effect on organizational performance.

Soft Skills

Soft skill is an implementation of a person's emotional intelligence which is the requirement of a job. Every business organization must utilize several soft skills to share knowledge and keep learning among employees. Among the soft skills, the interpersonal skills involve the ability to communicate and build relationships with others and it is also called 'people skills.' The interpersonal skills are the cooperative learning behaviors of people as well as communicative skills that connect them to express, communicate, help, share and giving compliments to others effectively (Abid et al., 2021). Problem-solving skill is closely related with personal characteristics. People who possess good problem-solving skills can have better lives than others as they are more successful in figuring out the best possible solutions and know how to behave in problematic situations (Coskun et al., 2014). Adaptability, teamwork and creativity are also required to manage effectively. Effective communication can lead to enhanced productivity, heightened customer and employee satisfaction, new business deals, and significant cost savings and can help to build teamwork in the organization (Kalogiannidis, 2020). Lack of effective communication is one of the major reasons that can lead to confusion and poor planning in many organizations.

H2a: Soft skills have direct effect on job performance.

H2b: Soft skills have direct effect on organizational performance.

Job Performance

According to Campbell (1990), job performance is the value of all activities of employees that contribute both directly and indirectly to the accomplishment of organizational goals and later with colleagues as "goal-relevant actions that are under the control of the individual, regardless of whether they are cognitive, motor, psychomotor, or interpersonal." In order to achieve continuous improvement, the job performance of individual must be regularly evaluated and monitored. Deadrick and Gardner (1999) defined job performance as the achieved work outcomes for each job function during a specified period of time. El-Sabaa (2001) explained that job performance is related to the willingness and openness to try and achieve new aspects of the job, which will bring an increase in the individual's productivity. Borman and Motowidlo (1997) classified job performance into task performance and contextual performance. Task performance is defined as in-role behavior, in which employees achieve the expected goal by adopting the behavior prescribed by the organization. Contextual performance is an extra-role behavior, which refers to activities that show special enthusiasm, during the course of work, to complete tasks, cooperate with others, and actively perform tasks above and beyond organizational requirements.

H3a: Job performance mediates between hard skills and organizational performance.

H3b: Job performance mediates between soft skills and organizational performance.

Organizational Performance

According to Kalogiannidis (2020), organizational performance is associated with the actual results or outcomes registered by an organization based on its total input or based on the set goals and objectives. According to Agarwal et al. (2003), organizational performance has two dimensions comprises of judgmental and objective performance. Judgmental performance covers the employees and customers perceptions such as service quality, organizational performance and retention. On the other hand, objective performance includes financial and market-based assessments such as sales growth, profit, market share and efficiency. Organizational performance is defined as an assessment activity that allows organizations to make judgments and comparisons on goals, patterns, past decisions, and other processes and products. Abu-Jarad et al. (2010) added that even though organizational performance has become the most important issue for every organization, it is still not easy to conceptualize the performance measurement. The expected organizational performance is influenced by several conditions. The types of organizational performance, financial and non-financial performance based on the perception of owners are examined in this study.

Methodology

Research Instrument and Key Respondents

The study analyzes the effect of hard skills and soft skills on organizational performance with the mediating effect of job performance of SMEs in Myanmar. There are 47,642 owners of SMEs in Myanmar. According to Kline (2011), an ideal sample size-to-parameters ratio would be 20:1. Twenty-two measured variables were used and thus, the required sample size is 440. The owners were selected as the respondents to meet the sample size. They were selected by using simple random sampling method. In the final analysis, 215 owners of SMEs were included. Structured questionnaire with five-point Likert scale was used to collect primary data. The data collection period was in August, 2024. This study used structural equation modeling (SEM) with LISREL 8.72 to test the direct effects of hard skills and soft skills on job performance and organizational performance and the direct effect of job performance on organizational performance and the mediating effect of job performance. The internal consistency among the variables was checked with the Cronbach's Alpha.

Results

As the demographic factors of respondents, most respondents are male with the age of 51 years and above. They got bachelor and master degree. They established the business more than twelve years ago. Most of them are food processing, consumer goods, wood-based (not include furniture), garment and clothing and machinery firms. According to the recommendations of several researchers, including Hair et al., 2010; Bentler, 1990; Yankovenko and Holton, 2010, the model fit was assessed by examining several goodness-of-fit (GFI) statistics indices: ratio of χ^2 which is the most direct and obvious test of model fit, normed Chi-square (χ^2/df), Incremental Fit Index (IFI), Comparative Fit Index (CFI), standardized root mean residual (SRMR), and the root mean squared error of approximation (RMSEA). A well-fitting model will have the χ^2/df smaller than 2, IFI, and CFI values that are 0.9 or higher, RMSEA value below 0.06 and SRMR value less than or equal to 0.08 to indicate appropriate goodness-of-fit. Model fit statistics are presented in

Table (1). The mean values, standard deviation, reliability estimates, and correlation matrix of all variables are shown in Table (2).

Table 1: Models and fit statistics

Models	χ^2	df	IFI	CFI	SRMR	RMSEA
Proposed model	903.91	204	0.93	0.93	0.15	0.09
Revised model	170.45	143	1.00	1.00	0.04	0.02

Source: Survey data (August, 2024)

df = degree of freedom, IFI = incremental fit index, CFI = comparative fit index;

NNFI = non-normed fit index; SRMR = standardized root-mean-square residual; RMSEA = root-mean-square error of approximation

Table 2: Means, standard deviations, reliability, and correlation matrix

Variables	Mean	SD	HS	SS	JP	OP	Alpha	Item
HS	4.22	.508	-				.821	5
SS	4.13	.457	.542**	-			.747	6
JP	4.24	.452	.771**	.613**	-		.779	6
OP	4.35	.345	.601**	.624**	.705**	-	.756	5

Source: Survey data (August, 2024)

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

SD = Standard deviation; HS = Hard skills, SS = Soft skills, JP = Job performance,

OP = Organizational performance

According to Table (2), the respondents agreed that they always acquired hard skills and soft skills through the different types of learning such as trainings, workshops, seminars, etc. They also accepted that the better job performance is achieved based on their hard and soft skills. The latent variables are under the acceptable reliability level with the Alpha values of 0.7 and above (Cronbach, 1951). The correlation analysis results show that hard skills and soft skills have positive correlation with both job performance and organizational performance. Job performance also has positive correlation with organizational performance. The more the hard and soft skills are acquired by owners, the more the job performance and organizational performance can be expected by the owners. Moreover, because of job performance, the organizational performance is achieved. It is important to find the means to promote their skills. The results of the direct and indirect effects of hard skills, soft skills and job performance on organizational performance are shown in Table (3).

Table 3: Summary of effects

	Job performance			Organizational performance		
	Direct	Indirect	Total	Direct	Indirect	Total
Hard skills	0.64**	-	0.64	0.15	0.43**	0.58
Soft skills	0.34**	-	0.34	0.28*	0.20	0.48
Job performance	-	-	-	0.57**	-	0.57

Source: Survey data (August, 2024)

According to the LISREL results, hard skills have significant direct effect on job performance ($\gamma = 0.64$, $p < .01$), supporting hypothesis 1a. The direct effect of hard skills on organizational performance was not significant ($\gamma = 0.15$, $p > .05$). The result did not support hypothesis 1b. The direct effects of soft skills on job performance and organizational performance were significant ($\gamma = 0.34$, $p < .01$) and ($\gamma = 0.28$, $p < .05$). The results supported hypothesis 2a and hypothesis 2b. The direct effect job performance on organizational performance was statistically significant ($\beta = 0.57$, $p < .01$). According to the results, hard skills had significant indirect effect on organizational performance through job performance. This indirect effect of hard skills on organizational performance through job performance revealed that job performance fully mediated between hard skills and organizational performance. Hypothesis 3a was supported.

It is concluded that, hard skills alone cannot provide the overall performance of organization without the excellent job performance of owners. Job performance plays an essential role in achieving organizational performance by acquiring hard skills by owners. Because of the significant direct effect of (a) soft skills on job performance, and (b) soft skills on organizational performance, and (c) job performance on organizational performance, job performance partially mediated between soft skills and organizational performance. Soft skills are sure to upgrade both job performance of owners and the organizational performance. Gaining soft skills by owners is the area to be emphasized more for job performance and organizational performance. This result partially supports hypothesis 3b. The final results are presented in Figure (1).

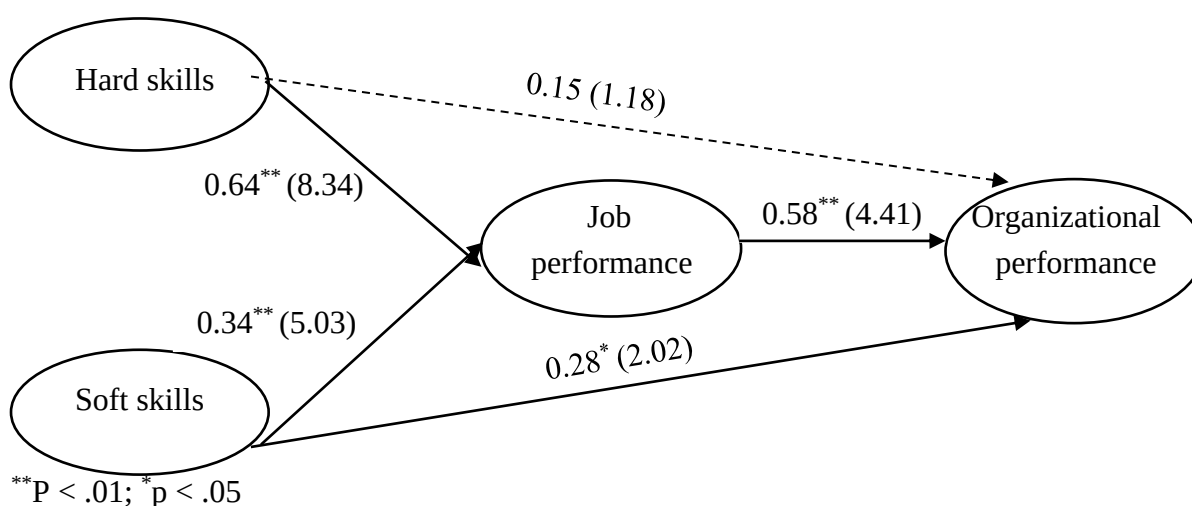


Figure 1: Hypothesized model with final results (t value in bracket)

Discussion

The study mainly emphasizes the hard skills and soft skills of owners of SMEs in Myanmar. The objectives are to analyze the effect of hard skills and soft skills on organizational performance and to examine the mediating effect of job performance between hard skills, soft skills and organizational performance of SMEs in Myanmar. As respondents, 215 SMEs owners are included in this study. The advanced technology and strong competition demand the different skills from both management and employees. The descriptive statistics results showed that the owners have both hard skills and soft skills. The respondents agreed that they have learned to gain several skills

from the different sources. They understand their management related to the operations, employees, markets and distribution. Their hard skills are essential for them to run their business smoothly. They also emphasize their soft skills. Because of the soft skills such as communication skill, interpersonal skill, critical thinking skill, adaptability skill, leadership skill, etc., they understand their strengths to sustain their business in the future and weaknesses to remedy.

The owners accepted that the hard skills are obtained from their different learning sources and they can manage their business to be an effective production. The technology related knowledge is also learned for their smooth operations. Furthermore, the owners prefer to learn job related skills to fit their present demand of the market and customers. The soft skills are also applied in their daily activities by owners. The effective communication is built with stakeholders. The decision-making skill, leadership skills and problem-solving skills are also used in their work effectively. The adaptability skills are demanded with advanced technology.

The correlation analysis results revealed that hard skills and soft skills have positive correlation with job performance and then, organizational performance and job performance has positive correlation with organizational performance. The more the hard skills and soft skills are acquired by the owners, the better job performance and organizational performance will be achieved in SMEs. The LISREL results showed that both hard skills and soft skills have significant direct effects on job performance. Job performance is a full mediator between hard skills and organizational performance and a partial mediator between soft skills and organizational performance. According to the results, hard skills and soft skills play an essential role in promoting job performance of owners of SMEs. The only hard skills are not significant to create and promote organizational performance without the help of job performance. The job performance of owners is fulfilled by their hard skills in achieving organizational performance. For soft skills, the owners achieve both job performance and organizational performance with their own soft skills. Thus, hard skills and soft skills are the requirements for owners in achieving their job performance and organizational performance.

Conclusion

The study mainly focuses on hard skills and soft skills of the owners of SMEs in Myanmar. According to the results, hard skills have direct effect on job performance and indirect effect on organizational performance. Without job performance, the skills cannot create the excellent organizational performance of SMEs. Soft skills can significantly influence job performance and organizational performance. It can be said that skills, both hard skills and soft skills, can significantly improve job performance. Those skills transform job performance into organizational performance. This study concluded that job performance plays the central role in enhancing organizational performance by acquiring hard and soft skills by owners. Because of the significant mediating effect of job performance between hard skills, soft skills and organizational performance, the owners should emphasize more on achieving these skills for job performance improvement and organizational performance.

In the near future, the hard skills and soft skills of owners will be more important factor because of the strong competition among SMEs and the use of advanced technology. The changing work environment and technology driven productions and operations are needed to be handled by

owners. Thus, learning hard skills and soft skills is the tool to overcome the challenges of 21st century and to achieve competitive advantage. Thus, the results of the study suggest the owners of SMEs to emphasize the hard and soft skills in shaping their future success in the industry 4.0 era.

Some limitations of the study are discussed to be fulfilled by further research. The scope of the study is the owners of SMEs in Myanmar. The skills of owners of large business organizations can be focused in further research. Only hard skills and soft skills were analyzed to prove job performance and organizational performance. Other skills and other factors should be examined as further studies to prove their importance for both job performance and organizational performance in SMEs and other service sectors.

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FACTORS INFLUENCING CUSTOMER SATISFACTION ON DIGITAL BANKING IN MYANMAR

Chaw Su Aung¹, Yin Nwe Phyo², Hnin Yu Hlaing³, Khine Waddy Thaw⁴

Abstract

This study aims to explore factors influencing consumer satisfaction on digital banking in Myanmar. The objective of this study is to examine the effect of factors influencing consumer satisfaction on digital banking in Myanmar. Descriptive method was used in this study. The primary data are collected from 150 active and potential digital banking users in Myanmar by using convenience sampling method. According to the Pearson's Correlation Analysis, there is a positive and significant relation between perceived usefulness, perceived ease of use, attitude towards use, and consumer satisfaction. The findings revealed that perceived usefulness and attitude toward use have a significant positive impact on customers' satisfaction. The result of this study finds that attitude towards use is the most influencing factor for consumer satisfaction of digital banking followed by perceived usefulness. Banks should prioritize improving customer attitudes towards use of digital banking services, followed by enhancing perceived usefulness and perceived ease of use. The results of this study can be useful for banks in Myanmar in improving their digital banking services to enhance customers' satisfaction. Banks should also consider promoting the perceived ease of use of their digital banking services to further increase customer satisfaction. Therefore, it is concluded that mobile financial service providers should focus on creating awareness and usefulness of digital banking services more and pay attention to better performance to exceed customers' satisfaction.

Keywords: Factors influencing, customer satisfaction, digital banking

Introduction

Nowadays, technology has been a powerful force in the development of civilization. New innovative mobile devices and functions are making our lives easier in every aspect. Digital banking is one of the smartphone applications which provides access to the bank and payment gateways. It helps to manage an individual's money through the mobile phone with all the features which can perform at a bank. Digital banking has also improved the efficiency of banking operations and reduced the cost of service delivery (Indrasari et al., 2022).

With the emerging Fintech industry, people are transforming from using traditional banking to advancing technological activities in finance (Gao & Waechter, 2017). The major benefits of using digital banking are minimizing cash handling risks as well as fraud reduction, faster payment, saving effort and time, and so on (Kesharwani, & Shaw, 2019).

Rationale of the Study

Traditional banking services are not convenient for the users due to the time consumption and users need to present physically at the bank to deposit, withdraw or transfer the money (Kyaw, 2019). Affordability and development in telecommunication services have enabled Myanmar people to access digital financial service platforms. Digital banking is the solution not only for transferring money at home or wherever the customers are but also the solution to pay the utility

¹ Department of Economics, Myeik University

² Department of Economics, Myeik University

³ Department of Economics, Myeik University

⁴ Department of Economics, Myeik University

bills, telephone bill top-up, TV channel subscription fees, buying gift cards for entertainment like game gift cards and google play store and purchasing for online shopping. Customer satisfaction has been used as an index to evaluate business performance and services (Mohamud et al, 2017). Nowadays, the banking industry has become more competitive and customer satisfaction is the most powerful competitive advantage for banks. It is difficult to maintain the service and provide the customer with a great experience as customers become more and more educated. The banks need to develop and maintain a variety of initiatives services and quality in order to win customer satisfaction. Therefore, this study focuses to find out which factors are influencing consumer satisfaction of digital banking in Myanmar. This study will provide a valuable contribution to the knowledge about the Fintech services in Myanmar.

Objective of the Study

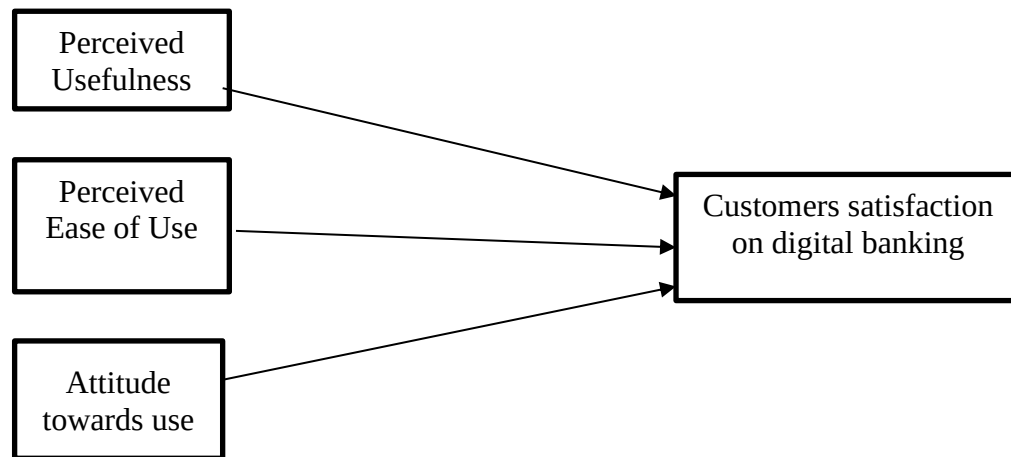
The objective of this study is to examine the effect of factors influencing consumer satisfaction on digital banking in Myanmar.

Materials & Method

This research purposes to explore the factors influencing customer satisfaction on digital banking in Myanmar. Customer satisfaction of digital banking only focuses on perceived usefulness, perceived ease of use, and attitude towards use. The study adopted descriptive and quantitative approach. Both primary and secondary data were used in this study. The primary data was collected from 150 active and potential digital banking users in Myanmar by using survey questionnaires through Google Forms. The convenience sampling method was used in this study.

Literature Review

Digital banking has become a critical element for enhancing the efficiency and competitiveness of both private and government banks, thereby improving the national economy (Khatoon et al., 2020). Technology Acceptance Model (TAM) is designed and tailored to examine how external variables are likely to influence an individual's decision and intention to use the new technology. Technology Acceptance Model (TAM) by Davis, F. D. (1989) is used for this study to develop the variables. This study uses perceived usefulness, perceived ease of use, and attitude towards use. According to Lee, S.W., et al., (2019), perceived of usefulness in which an individual has confidence in that using appropriate system would increase his or her job performance. Pooya (2020) also described that perceived ease of use is the driving force of electronic banking because it provides convenience, security, standardized, and easy access to banking business through the use of information and communication technologies. Consumers learn attitudes from direct experience with the product, word of mouth, exposure to mass media, and other information sources. (Schiffman & Wisenblit, 2019).



Source: Adapted by Davis, F. D. (1989)

Figure: Conceptual Framework

Analysis and Findings

Demographic Characteristics of the Respondents

Demographic characteristics of respondents are shown in Table (1). Table provides an overview of the profile of respondents who used digital banking services in Myanmar.

Table (1) Demographic Characteristics of the Respondents

Items	Categories	No. of Respondents	%
Gender	Male	59	39.3
	Female	91	60.7
Total		150	100
Educational Qualification	Undergraduate	8	5.3
	Graduate	80	53.3
	Master/ PhD	62	41.3
Total		150	100
Age (Years)	18-25	15	10
	26-35	89	59.3
	36-50	46	30.7
Total		150	100
Monthly Income (in Kyats)	Below 100,000MMK	5	3.3
	Between 100,000 – 300,000MMK	26	17.3
	Between 300,001 – 500,000MMK	31	20.7
	Between 500,001 – 1,000,000MMsK	40	26.7
	Above 1,000,000MMK	48	32
	Total	150	100
Occupation	Students	8	5.3

Items	Categories	No. of Respondents	%
	Government Staff	25	16.7
	Company Staff	91	60.7
	Self Employed	26	17.3
	Total	150	100

Source: Survey data (2024)

Table shows that, according to the gender, 59 respondents (39.3%) are male and 91 respondents (60.7%) are female. For education qualification, 8 respondents (5.3%) are undergraduate, 80 respondents (53.3%) are graduated people and 62 respondents (41.3%) are master degree and PhD holders. From all respondent, graduated people are maximum number of respondents. Concerning age, 15 respondents (10%) fall in the age group of 18 to 25 years, 89 respondents (59.3%) fall between 26 to 35 years and 46 respondents fall between 36 to 50 years. Therefore, the result is showing that people in age group of 26 and 35 has the highest percentage of using mobile wallet and have more interest in using mobile wallet services than other ages. According to monthly income, most of the mobile wallet users are people who have monthly income above 1,000,000MMK. Based on the occupation, the majority of respondents 60.7 % have company staff and the minority 5.3 % have students.

Table (2) Digital Banking Usage of Respondents

Items	Categories	Frequency	Percentage %
Total		150	100
Mostly used Digital Banking by Customers	Wave Money	40	26.7
	CB Pay	34	22.7
	One Pay	5	3.3
	KBZ Pay	126	84
	AYA Pay	35	23.3
	Mytel Pay	4	2.7
	M Pitesan	5	3.3
	OK \$	9	6
	A ⁺	1	0.7
	Other	5	3.3
Purpose of Using digital banking	Transfer Money	132	88
	Top Up	119	79.3
	Contactless payments	73	48.7
	Bill Payment	107	71.3
	Agent pay	35	23.3
	Purchase for online shopping	64	42.7
Total		150	100

Items	Categories	Frequency	Percentage %
Duration of using digital banking	Several times per day	24	16
	About one time per day	28	18.7
	About one to three time per week	60	40
	About one to three time per month	35	23.3
	No Transaction	3	2

Source: Survey data (2024)

According to the Table (2), According to the survey, KBZPay and Wave Money are the most preferable digital banking by the respondents. Among 150 respondents, 126 people (84%) of the people prefer to use KBZPay most of the time and 40 people (26%) prefer to use Wave Money while the rest of the digital banking are also used randomly. Regarding purpose of using digital banking, 132 respondents (88%) of total 150 respondents use mobile wallet for money transfer, 107 people (71.3%) of total 150 respondents use to make bill payments, 119 people (79.3%) of total 150 respondents use to top up phone bills, 73 people (48.7%) of total 150 respondents use to make contactless payments, 64 people (42.7%) of people use to purchase for online shopping and 35 people (23.3%) of total 150 respondents use to do cash in, cash out services at agent shops. The result is showing that most of the people use mobile wallet for money transactions, bill payments and mobile phone bill top ups. Concerning frequency of using digital banking, 60 respondents (40%) use mobile wallet one to three time per week, 35 respondents (23.3%) use one to three time per month, 28 respondents (18.7%) use about one time per day, 24 respondents (16%) use several times per day and 3 respondents (2%) do not use at all even though they have mobile wallet account in their mobile phone.

Reliability Test

The principles of reliability test are used to access the overall quality of research. The Cronbach's alpha value are used to test the reliability among variables. The following Table (3) describes the reliability test among variables.

Table (3) Data Reliability for Factors Influencing Customers Satisfaction on Digital Banking

Reliability Test	Item	Cronbach's Alpha
Perceived Usefulness	7	0.787
Perceived Ease of Use	5	0.840
Attitude toward use	6	0.883
Customer Satisfaction	5	0.768

Source: Survey data, 2024

According to Table, the Cronbach's Alpha value of perceived usefulness is 0.787, perceived ease of use of 0.840, attitude toward use is 0.883 and customer satisfaction is 0.768. Cronbach's Alpha value greater than 0.7 which indicate a high level of reliability.

Perception on Perceived Usefulness of Respondents about Digital Banking

The respondents were asked to express their degree of agreement against each question. The perception of respondents on perceived usefulness of digital banking is presented in Table (4).

Table (4) Perception on Perceived Usefulness of Respondents about Digital Banking

No	Statement	Mean	Standard Deviation
1	Using digital banking saves my time.	4.17	0.849
2	Digital banking is a practical option in making payments.	4.17	0.599
3	Using digital banking makes easier for me to carry out my day-to-day tasks.	4.14	0.695
4	Using digital banking is the trend of the modern lifestyle.	4.27	0.609
5	Digital banking can manage the financial functions more smoothly.	4.01	0.705
6	Digital banking is convenient to use because it eliminates the risks of carrying cash.	4.13	0.726
7	Using digital banking can save the transaction handling fees in performing banking transaction.	3.79	0.838
	Overall Mean	4.10	0.717

Source: Survey data, 2024

The Table (4) reflects the descriptive statistic result of perceived usefulness. The mean score of perceived usefulness is in the range of 3.79 and 4.27. Among seven usefulness, saving time, being a trend in modern lifestyle and being convenient are the influencing factors of mobile wallet. Conversely, the lowest mean score 3.79 highlights using digital banking can save the transaction handling fees in performing banking transaction. The overall mean score of 4.10 indicates that all variables in perceived usefulness are as agree level.

Table (5) Perception on Perceived Ease of Use of Respondents about Digital Banking

No	Statement	Mean	Standard Deviation
1	Learning to use digital banking is not difficult for me.	4.19	0.721
2	I can quickly become proficiency in using services of the digital banking.	4.11	0.597
3	The functions in the digital banking are user friendly, easy to learn and understand.	4.05	0.583
4	Digital banking is the modernized tool which can handle the payments easier.	4.19	0.617
5	Digital banking transaction procedures are simple and straightforward.	4.01	0.613
	Overall Mean	4.11	0.626

Source: Survey data, 2024

According to Table (5), the mean score of perceived ease of use is in the range of 4.01 and 4.19. Among five perceived eases of use, learning to use digital banking is not difficult and it is the modernized tool which can handle the payments easier got the same mean 4.19. Conversely, the lowest mean score 4.01 highlights digital banking transaction procedures are simple and straightforward. The overall mean score of 4.11 indicates that all variables in perceived ease of use are at an agree level.

Table (6) Perception on Attitude towards use of Respondents about Digital Banking

No	Statement	Mean	Standard Deviation
1	I believe that using digital banking is beneficial for me.	4.03	0.645
2	For me, I am very willing to use digital banking among other payment methods.	4.14	0.531
3	Using digital banking services is time-saving and comfortable for users.	4.15	0.564
4	For me, digital banking a very good way to pay when purchasing goods and services.	4.07	0.715
5	As a user, I will continue to use digital banking also in the future because of its easy and comfortable functions.	4.05	0.583
6	I feel secure about my personal data while using digital banking.	3.96	0.674
	Overall Mean	4.07	0.619

Source: Survey data, 2024

According to Table (6), the mean score of attitude towards use is in the range of 3.96 and 4.15. Among six statements on attitude towards use, using mobile wallet services is time-saving and comfortable for users got 4.15 mean. Conversely, the lowest mean score 3.96 highlights users feel secure about my personal data while using digital banking. The overall mean score of 4.07 indicates that most respondents agree that all variables in attitude towards use of digital banking are at an agreed level.

Table (7) Perception of Customers Satisfaction about Digital Banking

No	Statement	Mean	Standard Deviation
1	I am satisfied that using digital banking is smooth and seamless.	3.83	0.915
2	I am satisfied effectively use digital banking without assistance.	4.15	0.649
3	I decided to use digital banking because I want to try out new technology.	3.77	0.763

No	Statement	Mean	Standard Deviation
4	Digital banking system provides a secure and convenient process for transactions and purchases for product and services.	4.17	0.549
5	I feel that using digital banking is easy because of clearly providing instructions.	3.89	0.773
	Overall Mean	3.96	0.730

Source: Survey data, 2024

Based on Table (7), the study revealed that the mean value of customer satisfaction is in the range of 3.77 and 4.17. The highest mean score 4.17 indicates that digital banking system provides a secure and convenient process for transactions and purchases for product and services. The lowest mean score, at 3.77, users decided to use digital banking because they want to try out new technology. The overall score of 3.96 indicates that most respondents agree that all variables in customer satisfaction are agree level.

Pearson Correlation Analysis of Independent and Dependent Variable

After determining the research's reliability, correlation is examined to determine the factors influencing customer satisfaction about digital banking in Myanmar. Person correlation is categorized into five levels based on the strength of the relationship: 0.80- 1.000 (very strong), 0.60-0.799 (strong), 0.40-0.599 (moderate), 0.20-0.399 (weak), and 0.000-0.1999 (extremely weak). The results of the Pearson Correlation Test are presented in Table (8).

Table (8) Pearson Correlation Analysis of Variables

Correlations				
	Perceived Usefulness	Perceived Ease of Use	Attitude towards use	Customer Satisfaction
Perceived Usefulness	1	.592	.713	.623
Perceived Ease of Use	.592	1	.573	.448
Attitude towards use	.713	.573	1	.701
Customer Satisfaction	.623**	.448**	.701**	1

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

According to the Pearson's Correlation Analysis, there is a correlation between customers' satisfaction and all of the factors, namely perceived usefulness, perceived ease of use and attitude towards use. Perceived usefulness and attitude towards use have a strong correlation with customers' satisfaction but perceived ease of use has a moderate correlation with customers' satisfaction about digital banking in Myanmar.

Multiple Regression Analysis of Factors Influencing Customer Satisfaction on Digital Banking

Multiple regression analysis of factors influencing customer satisfaction of digital banking are presented in Table (9).

Table (9) Influencing factors on Customers Satisfaction on Digital Banking

Variables	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig
	B	Std. Error	Beta		
Constant	0.520	0.298		1.746	0.083
Perceived usefulness	0.279***	0.096	0.250	2.910	0.004
Perceived ease of use	0.001	0.080	0.001	0.012	0.990
Attitude towards use	0.564***	0.091	0.522	6.173	0.000
R ²	0.523				
R ² (Adj.)	0.513				
F-test	53.351***				

Source: Survey data (2024)

Notes: ***Significant at 1% Level,**Significant at 5% Level,*Significant at 10% Level

As a result of the analysis, R² is 0. 523 that reveals 52% of the total variance in customer satisfaction is explained by three factors: perceived usefulness, perceived ease of use and attitude towards use. The significance value of perceived usefulness and attitude towards use are 1% level. There is a positive and significant relationship between perceived ease of use, attitude towards use and customer satisfaction about digital banking. According to the results of standardized coefficient, attitude towards use is the most influencing factor for consumer satisfaction about digital banking and in the second place, there is perceived usefulness and third place is perceived ease of use. The result of F statistics indicates the overall significance of the model, with F value of 53.351at p value of 0.000.

Discussion

The primary objective of the research is to examine the effect of factors influencing consumer satisfaction on digital banking in Myanmar. The study aims to assess the impact of independent variables, including perceived usefulness, perceived ease of use and attitude towards use on the dependent variable of customer satisfaction. Based on the findings, most of the customer in the study are female, age group between 26 and 35, Graduate people who hold a bachelor degree from University, a group that are earning above 1,000,000MMK and company staff respectively. KBZPay and Wave Money are the most preferable digital banking by the respondents. Regarding purpose of using digital banking, most of the respondents use mobile wallet for money transfer. Concerning frequency of using digital banking, most of the respondents use mobile wallet one to three time per week. Therefore, customers are able to use digital banking not only to manage their daily financial activities but also for their daily personal activities and lifestyle.

According to the Pearson's Correlation Analysis, there is a positive and significant relation between perceived usefulness, perceived ease of use, attitude towards use, and consumer satisfaction. The findings revealed that perceived usefulness and attitude toward use have a significant positive impact on customers' satisfaction. The result of this study finds that attitude towards use is the most influencing factor for consumer satisfaction of digital banking. This finding is consistent with Almansour, B., & Elkrghli, S. (2023) research. This means that customers who have a positive attitude towards digital banking are more likely to be satisfied with it. This research suggests that the more positive the customer's attitude towards digital banking, the higher the level of customer satisfaction with financial services.

Conclusion

Based on the results, it can be concluded that perceived usefulness and attitude toward use have a significant positive impact on customers' satisfaction of digital banking in Myanmar. Banks should prioritize improving customer attitudes towards use of digital banking services, followed by enhancing perceived usefulness and perceived ease of use. The results of this study can be useful for banks in Myanmar in improving their digital banking services to enhance customers' satisfaction. Banks should also consider promoting the perceived ease of use of their digital banking services to further increase customer satisfaction. The results indicate that the electronic payment providers should pay more attention to two factors, which are, attitude toward use and perceived usefulness as they have the most influence on the consumers' satisfaction about digital banking. Therefore, it is suggested that mobile financial service providers should focus on creating awareness and usefulness of digital banking services more and pay attention to better performance to exceed customers' satisfaction.

This study provides several contributions for the improvement of digital banking in Myanmar and valuable insight into the mobile financial service providers to enhance satisfaction of potential users to use their digital banking and innovate better solutions to solves customer's issues. The findings can be used by digital banking service providers to improve the quality of their services and enhance customer satisfaction. In addition, this research suggest that Myanmar people are not very familiar with the technology, it is very critical to educate people to adopt cashless payment services and the functions of the digital banking should be very user friendly and easy.

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BANK HOSPITALITY, SERVICESCAPE ON CUSTOMER SATISFACTION AND CUSTOMER LOYALTY OF PRIVATE BANKS IN MONYWA

Ye Wint Aung¹, Sie Sar Oo²

Abstract

This study investigates the effects of hospitality behavior on customer satisfaction of private banks in Monywa. Moreover, it is also developed the effect of servicescape on customer satisfaction and analyses whether it exist the effect of customer satisfaction on loyalty or not. A total of 200 bank customers from private banks in Monywa were surveyed through the structured questionnaire instrument with cluster sampling method. Both the correlation and regression were evaluated to meet the objective of the study. Results reveal that customers are satisfied with the hospitality behavior of bank personnel and servicescape environment in the private banks in Monywa. Regression analyses confirm that bank hospitality exerts positively have significant effect on customer satisfaction; moreover, “servicescape in the private banks have the positive direct effect on customer satisfaction. In addition, the customer satisfaction has also significant effect on customer loyalty. Therefore, this study suggests that the private banks in Monywa need to rely on the training programs to improve their hospitality behaviour at further levels and invest more on servicescape in their banks.

Keywords: Banks hospitality, Servicescape, customer satisfaction and loyalty

Introduction

In service industry, there is also a form of communication either directly or indirectly between employees and customers. Hospitality has a vital role which directly communicate with customers, such as hotels, banks, restaurants, hospitals, tourism agencies, airline companies and insurance agencies. Banks have customers who come from various backgrounds and occupation or profession. Therefore, quality of bank hospitality and servicescape should be good so that it can maintain the loyal customers through the satisfaction. The point is that clients are loyal to those products which have a greater value as compared to those of competitors.

Hospitality is the quality or disposition of receiving and treating guests in a warm, friendly and generous way (Brotherton & Wood, 2008). Ariffin, et al (2013) argued that hospitality behavior is supportive service and it can be increased the customer preference emotional feeling with regard to meet the customer value. Hospitality is a relationship between the host and guest that has a good effect on society. Ariffin et al (2013) developed that hospitality behavior has the influence on customer satisfaction. The effect of personnel behaviors can achieve customer loyalty through the customer satisfaction with the well-known image of the banks in the long term.

The quality of the service, the behavior of staff and the access of the service rapidly and in an uneventful manner to the customer are the necessary factors for the customer satisfaction. Ariffin et al. (2013) argued about the customer satisfaction that is affected by the quality of the staff performance and an emotional experience that is not tangible elements of the service.

The bank hospitality behavior has the influence on customer satisfaction because only with good communication quality, so any information provided by employees will be well received by customers. The bank staff's communication quality has positively influence the satisfaction with

¹ Department of Commerce, Monywa University of Economics

² Department of Commerce, Monywa University of Economics

customers' perceived value of provided communication of these bank staffs. Gropper & Boily (1999) suggest that customer satisfaction is a primary goal for the success of the organization.

The bank staff's hospitably behavior need to meet the customer expectation with the preference service. while taking service so as to grow customers' loyalty. It can be concluded that hospitality behavior is concerned with relationship of host-guest to highlight the customers exceptional experience (Ariffin, et al. 2013).

As a result, customer exceptional or unique experience is very important to achieve the customer satisfaction in relation with these customers expectation (Hacıfendioglu & Koç 2009). With regard to customers satisfaction, there are many factors such as servicescape (ambiance, decor and design) and hospitality behavior of bank staff rather than financial factors. Customer wants to take the service in a peaceful place which makes the customer be pleased. Hacıfendioglu and Koç (2009) studied about the concept of quality in service that is enhanced with the differentiation of the service provided. The more qualified the service which is offered is the more pleased the customer is. That is to say, customers' preferences which are based on their satisfaction make the companies advantageous in the competition.

However, satisfaction is not enough to achieve an organization's success if the customers do not have a loyalty to the organization. Customer satisfaction will create customer loyalty. In general, the indicators of loyalty include less intention of customers to switch to competitors despite the existence of uniformity in banking goods and services (Chakravarty et al., 2004), and repurchase intents and favorable word-of-mouth to others (Supriyanto et al., 2021). According to Wakefield & Blodgett (1996), servicescape can influence behavior intention of customers such as approaching or avoiding behavior and the intention to repurchase. The bank hospitality behavior and servicescape can promote the customer satisfaction to meet the loyalty and approach behavior with preference and dominate conditions.

Therefore, banks can earn higher profit in relation with the competitors in terms of services provided. For this reason, every banking institution should focus on service quality so as to satisfy customer and retain customer loyalty. As a result, the study emphasized the effect of bank hospitality behavior and servicescape on loyalty through the customer satisfaction.

Rationale of the Study

With regard to the development of competition, accomplishing the higher level of customer satisfaction is concerned with the challenging task especially in the banking industry. In order to face this challenging task, bank industry has captured to loyal customer through the satisfied customers by providing bank hospitality and banks servicescape so as to achieve the competitive advantages. Research on service industry like banking, customer satisfaction and loyalty has been drawing high attention in this era. In early 90s, service sector has transformed greatly because of change in marketing environment (Zafar et al., 2011).

Additionally, maximum number of the research has been accompanied in developed countries. Hence, there is a need for more authentication of customer satisfaction and customer loyalty with regard to the service sector like banking particularly for developing countries like Myanmar. Therefore, in such situation, testing customer satisfaction might be interesting one in the country like Myanmar. This study is carried out in context of private banks in Monywa in order

to identify the factors that affect the customer satisfaction because the factors leading to satisfied customers differ from one geographical region to another.

In some places, customers are satisfied with the service provided by government banks and in some places, customers are satisfied towards private banks. Moreover, in upper Myanmar, Monywa is a second largest city and the most important one in Sagaing division of Myanmar. In addition, Monywa is the major trading and communication center. Many University students, many marketers and farmers are rapidly developed in using the banks service.

Objectives of the Study

The objectives of this study are

1. To examine the effect of the bank hospitality and servicecape on customer satisfaction
2. To analyze the effect of the bank customer satisfaction on customer loyalty

Methods of the Study

In this study, both primary and secondary data are used. The required data for this study were collected from the consumers who visited at private banks (Kanbowza Bank, AYA Bank, YoMa bank, United Amara Bank and Asia Green Development Bank) in Monywa. Firstly, there are 17 private banks, it is selected five private banks among them with simple random sampling method. In addition, the sample size of the study was 200 respondents from the five private banks by using cluster sampling method. Structured questionnaires were used to collect both qualitative and quantitative primary data. Primary data were used to explore the consumers' satisfaction and loyalty and these primary data were collected during the weekday. The secondary data were collected from the sources such as internet websites, journals, books and documents that have conducted by previous researchers. The questionnaires are composed of four sections: 1. bank hospitality; 2. servicecape of bank; 3. Customer satisfaction and 4. Customer loyalty. All the statements were measured by a 5-point Likert scale ranging from strongly disagree (1) to strongly agree (5). The research model was analyzed by applying multiple regression analysis.

Scope and Limitations of the Study

This study analyzes the bank hospitality and servicecape to meet the loyalty through the customer satisfaction of private banks in Monywa. First limitation would be that the study analyzed only in the context of private banks in Monywa. Second, attention must be exercised when generalizing these findings to other types of private banks' product categories. Third, the bank hospitality and servicecape within a private bank catering to a particular customer segment might be perceived differently from bank hospitality and servicecape within other apparel retailer catering to a different customer segment. Fourth, this study did not measure any specific servicecape (e.g., ambiance, design and layout).

Literature Review

The literature review is constructed using different sections that are related to the purpose of the research. This section is to present why the bank industry needs to manage the bank hospitality behavior and servicecape to achieve the loyal customer through the customer satisfaction.

Bank Hospitality and Customer Satisfaction

The servicescape (ambiance, décor and design) has the positive effect on customers satisfaction while hospitality behavior of bank staff plays a vital role in these sections. Avcı & Sayılır (2006) argued that the bank staff's hospitality behavior is very important factors for customers' preference perception of the service provided by these staff. Ariffin et al (2013) identified that hospitality is concerned with the bank personnel behavior while servicescape is about appearance of the physical environment in which the performance is taken place. Hospitality is the quality of treating the guests in a sharing knowledge friendly (Brotherton & Wood, 2008). Ariffin et al (2013) stated that hospitality behavior as an additional service that increases the value of perceived service to achieve the customer satisfaction.

Servicescape and Bank Customer Satisfaction

According to Hacıfendioglu and Koç (2009), satisfaction is the customer's evaluation of the advantage which the customer received from the service with the meet of customer expectations. The benefit that customer provides may not always be financial. Sometimes, the ambient of work place wellness, decoration and harmony relieve the customer psychologically. Customer wants to take the service in a peaceful place which makes the customer be pleased. Hacıfendioglu and Koç (2009) studied about the concept of quality in service that is enhanced with the differentiation of the service provided. The more qualified the servicescape (such as ambiance, design and layout) which is offered is the more pleased the customer is. That is to say, customers' preferences which are based on their satisfaction make the companies advantageous in the competition.

Servicescape is the foundation of marketing activities in the few decades. In marketing literature, the atmosphere and environment can be called the servicescape (Baker, 1987). While it has identified the term of servicescape and atmosphere (Kotler, 1973), servicescape also means the physical environment in a service organization (Weerasinghe, 2019). Correspondingly, there are many definitions of servicescape from other authors' study and theoretical view point. It can be concluded that servicescape and the man-made physical environment are closely similar point of view (Bitner, 1992). Moreover, that, Bitner (1992) developed the effect of servicescape on customers satisfaction by showing the result of positive effect with preference customers experience and it is the best relevant factor of approach behavior.

Servicescape and Hospitableness of Hosting Behavior and Bank Customer Satisfaction

Ariffin et al. (2013) showed that hospitality and servicescape have an important role on guest satisfaction. If the servicescape in which the customer takes service is unfavorable, the customer doesn't prefer the bank even if the staff has hospitableness of hosting behavior. Namely, the bank staff's hospitableness of hosting behavior and the positive effect of servicescape provide the customer satisfaction considerably in banks focusing on customers.

Since the customers' demands are fulfilled fast and reliably, hospitableness of hosting behavior appeals the customers. Gümüş and Korkmaz (2014) studied about the banks that were at the beginning of the institutions in which communicated with customers face to face and so the differentiations were revealed in hospitality and the quality of servicescape individually. Reliability is the most important factor for the bank customers, and then the monitoring of personal information and the campaigns suitable for customers' income level and that the transactions are achieved in a short time are also very important.

The banks' goods are the services they offer and this service provides the maximum customer satisfaction with the help of qualified servicescape of banking sector and the hospitableness of hosting behavior as this service is offered communicatively. According to Gümüş and Korkmaz (2014), it needs to emphasize on customers perception by providing valuable service with the advanced technology. Therefore, banks should make innovations to provide the customer satisfaction and servicescape in hospitableness of the hosting behavior.

Besides that, the Standard of Organization International (2017) defines supporting activities of management or servicescape as an organizational performance which integrates staff and physical environment within the man-made environment for the purpose of improving the perceived quality of service. Drion, Melissen, & Wood (2012) assert that facilities management or servicescape is a management function that focuses on managing the physical environment to meet the value-added process of the bank or business organization.

In the scopes of facilities management or servicescape, organizational performance can promote by using valuable human resource with effective working environment and sustainable development and economic activities. Management of physical environment is the primary task of the organization as an integrating activities of services to provide customer satisfaction and value (Mohd Noor & Pitt 2009). Therefore, it can be concluded that managing the servicescape and physical environment is identifying an environment for providing the organizational performance with a harmless, efficient and effective environment for business operation.

Customer Satisfaction and Customer Loyalty

Customer satisfaction is concerned with the emotional response that varies in intensity depending on how well a customer's expectations were met during or after using a particular good or service. Positive disconfirmation results from customers' perceptions of product or service performance that exceeds expectations, while negative disconfirmation, or dissatisfaction, results from perceptions of underperformance, and zero disconfirmation results from perceptions of performance that is equal to expectations (Balcha, et al., 2023)

Consumer satisfaction is a central concept in modern thought and marketing in their practice. The new marketing concepts emphasize the transmission of satisfaction, not just products, to the consumers in order to make profits out of it. Satisfaction can be understood as the perception of the extend of the customer in their needs, goals and desires have been fully achieved (Oliver, 1999). It can also be defined as achieve or meter individual expectations for a product or service. Rooted in the psychology literature, assessment of satisfaction asks customers of companies to achieve total satisfaction, as if this not occur, the company does not become competitive and becomes unable to retain its customer base (Mittal et al., 2014).

The management literature claims that customer satisfaction is the consequence of perceptions that consumers have from the amount received during a transaction or relationship where the value equals achieved service quality (Hallowell, 1996). Keeping customers happy is still seen as important for companies to achieve success. However, the importance of customer satisfaction differs based on the degree of hedonism and benefits that company offers has to give (Mittal et al., 2014). In the bank customer satisfaction, it needs to develop preference relationship between the customers and the service. However, it is related with a requirement to satisfy and

retain customers (Hoq & Amin, 2010). Oliver (1999) stated that customers satisfied tend to be loyal customers by advocating that satisfaction is an indisputable determinant of loyalty.

Customer loyalty combines both attitudinal and behavioral loyalty. Attitudinal loyalty refers to the customers' positive propensity toward a good or service based on their overall experiences. If a competitive brand with better quality and a lower price becomes available on the market, these customers can switch. Contrarily, customers loyalty is concerned with customers' engagement to the stimuli provided by marketers which tend to become approach behavior to meet competitive advantages (Balcha, et al., 2023). In general, the indicators of loyalty include less intention of customers to switch to competitors despite the existence of uniformity in banking goods and services (Chakravarty et al., 2004), and repurchase intents and favorable word-of-mouth to others (Balcha, et al., 2023)

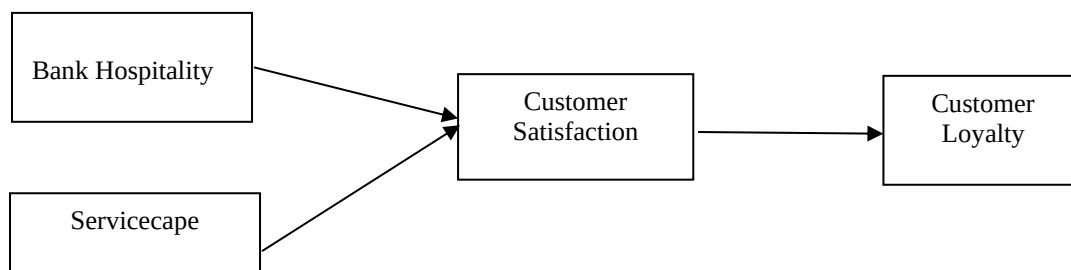
For companies that already have a strong focus on service, future improvements in service can come only through the addition of new programs betting on endo marketing to their employees in order to achieve better productivity and efficiency with consumers (Zahorik & Rust, 1993).

Hypotheses Development

Based on the above literature, the following two hypotheses were formulated. This which can be seen below:

H1: Bank hospitality behavior and banks' servicecape (ambiance, color and design) will lead to the positive effect on bank customers' satisfaction

H2: Customers satisfaction will have a significant effect on customer loyalty.



Source: Own Compilation

Figure 1: Conceptual Framework of the Study

In the course of testing the relationship between variables, the study generates the theoretical contribution. The study needs to investigate whether the positive direct effect of bank hospitality and servicecape on consumers satisfaction to meet the consumers loyalty is existed or not because servicecape is important in studying the consumers satisfaction (Bitner, 1992). In the conceptual model of the study, the independent variables are bank hospitality and servicecape (ambiance, layout and décor). Moreover, dependent variable is customer loyalty through the customer satisfaction.

Correlation Matrix of the Items

In this section, the correlation matrix of the variables was analyzed to identify the presence of highly correlated variables. As shown in the correlation matrix table Table 1, there are correlated between independent and dependent variables: bank hospitality and customer satisfaction and servicecape and customer satisfaction. There is also low correlated between two independent variables: (bank hospitality and servicecape).

Table 1 Correlation Matrix

Contracts	Bank Hospitality	Servicecape	Customers Satisfaction
Bank Hospitality	1.000	0.299**	0.837**
Servicecape	0.299**	1.000	0.472**
Customers Satisfaction	0.837**	0.472**	1.000

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

The relationship between bank hospitality and customer satisfaction are measured by using Pearson's correlation coefficients. According to Table 1, bank hospitality and customer satisfaction are correlated at 1% level of significance. Since the calculated value of correlation coefficient for bank hospitality and customer satisfaction is 0.837, then there is a positive relationship between these variables. Likewise, the calculated value of correlation coefficient for servicecape and customer satisfaction (0.472) show there is a positive relationship between servicecape and customer satisfaction. Moreover, the relationship between two independent variables: bank hospitality and servicecape are measured by using Pearson's correlation coefficients. The calculated value of correlation coefficient for bank hospitality and servicecape is 0.299, then it can be concluded multicollinearity is not considered as a significant problem.

Empirical Analysis of the Effect of Bank Hospitality and Servicecape on Customer Satisfaction and Loyalty towards Private Bank in Monywa

In this section, bank hospitality and servicecape are considered as independent variables and customer loyalty is considered as dependent variables through customer satisfaction. When estimating regression coefficient in concerned with the effect of bank hospitality and servicecape on customer satisfaction of private banks in Monywa, it was calculated regression coefficient, standard error and significant 'p' values presented in Table 2.

Table 2 Effect of Bank Hospitality and Service on Customer Satisfaction of Private Bank in Monywa

Independent Variables	Unstandardized Coefficient		T	Sig
	B	Std Error		
(Constant)	-0.782	0.187	-4.170	.000
Bank hospitality	0.991	0.046	21.494	.000
Servicecape	0.214	0.030	7.138	.000
R	0.879			
Adj R ²	0.770			
F Value	332.092			

Source: survey data (2024)

Dependent Variable: Customer Satisfaction

Notes: ** indicates that 't' is significant at 5% level and

***indicate that 't' is significant at 1% level.

According to the Table 2, adjusted R squared value is the percentage or the value that indicated how the independent variables can explain the dependent variable. The adjusted R-squared value of the current study is 0.770. Therefore, 77% variation of customer satisfaction can be explained by bank hospitality and servicecape. The results also show that bank hospitality and servicecape are significant at 1% level. In addition, F value is 332.092 which indicates that the model is less error and significant.

Based on the regression analysis, the effect of bank hospitality on customer satisfaction is found to be positively significant ($B = 0.991$, $p < 0.01$). The results of multiple regression model for testing H1 are provided. This implies that a greater level of bank hospitality can increase the customer satisfaction of this Bank. Moreover, the effect of servicecape on customer satisfaction has the significantly influenced with the standardized coefficient ($B = 0.214$, $p < 0.01$). This implies that customers satisfaction can be much enhanced if the private banks provide its servicecape such as ambiance and design.

. As this result, the private banks can provide well train staff and preference servicecape to achieve to achieve customer satisfaction from the pleasant emotional feeling and the bank atmosphere can influence on product and service carried in these private banks with regard to communication of banks staff and bank servicecape.

Analysis of the effect of Customer Satisfaction on Customer Loyalty

In this section, customer satisfaction is considered as independent variables and customer loyalty is considered as dependent variables. The regression model is estimated by using backward method to examine the relationship between customer satisfaction and customer loyalty of private banks in Monywa. When investigating the significant factors, the calculated 't' values for each coefficient is examined. The calculated 't' values are presented in Table 3.

Table 3 The Effect of Customer Satisfaction on Customer Loyalty

	Unstandardized Coefficient		T	Sig
	B	Std Error		
(Constant)	2.283	0.314	7.282	.000
Customer Satisfaction	0.476	0.078	6.135	.000
R	0.401			
R ²	0.430			
F Value	37.644			

Source: survey data (2024)

Dependent Variable: Customer Loyalty

Notes: ** indicates that 't' is significant at 5% level and

***indicate that 't' is significant at 1% level.

According to Table 3, customer satisfaction has the direct positive effect on customer loyalty of private banks in Monywa at 1% significant level. Therefore, the results of multiple regression model for testing H2 are accepted. The customer satisfaction has regression value of 0.476. The variable is significant at 1% significant level. R value is 0.401 and R square is 0.160. It indicates 30.1% and 16% relationship between customer satisfaction and customer loyalty of private banks in Monywa. In addition, F value is 37.644 which indicates that the model is less error and

significant. Therefore, it can be concluded that the more the bank managers used the successful qualify bank hospitality and servicecape; the more the customers achieved customer satisfaction and loyalty.

Findings and Discussion

This study offers several contributions that can help private banks which want to appeal to more customers and increase loyalty or patronage. As expected, banks hospitality and servicecape had significant influence on customers satisfaction of private banks. In the current study on customer loyalty of private banks, it can conclude that banks hospitality and servicecape have the positive effect on customer loyalty through customer satisfaction. This means that customer loyalty is due to banks hospitality and servicecape because of reasonable information-inference from the preference or positive emotional feeling. This implies that customers satisfaction can be much enhanced if the private banks provide banks hospitality and its servicecape such as ambiance and design.

. It can be concluded the private banks can provide well train staff and preference servicecape to achieve customer satisfaction from the pleasant emotional feeling and the bank hospitality and servicecape can influence on product and service carried in these private banks with regard to communication of banks staff and bank servicecape.

Conclusion

The conceptual framework for this study aims to understand consumer satisfaction and loyalty of private banks in Monywa. The model explained the relationships among bank hospitality, servicecape, customer satisfaction and loyalty. This study found that the private banks can maintain the loyal customers through the customer satisfaction by providing the appropriate bank hospitality behavior and servicecape. It is also essential for the private banks to build the preference experience of customers. Similarly, even if the bank hospitality and servicecape meet the customer's expectations, the customer perceives the banks to be satisfactory that will lead the patronage behavior or loyalty.

Needs for Further Study

This study analyzes the bank hospitality and servicecape to meet the loyalty through the customer satisfaction of private banks in Monywa. First limitation would be that the study analyzed only in the context of private banks in Monywa. Second, attention must be exercised when generalizing these findings to other types of private banks' product categories. Third, the bank hospitality and servicecape within a private bank catering to a particular customer segment might be perceived differently from bank hospitality and servicecape within other apparel retailer catering to a different customer segment. Fourth, this study did not measure any specific servicecape (e.g., ambiance, design and layout).

This section attempts to explain the requirement for further study. Firstly, this study only focuses on consumers' satisfaction and loyalty of private banks in Monywa. As the further study, consumers' satisfaction and loyalty of private banks in other cities and public banks in Myanmar should be analyzed.

Adding on to the first, the one limitation of the study would be that this study did not consider individual elements of the business environment or servicecape (e.g., design or ambiance); but attempted to capture the overall effect of the servicecape. For example, the effect of music on consumer loyalty of the private banks.

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CHALLENGES AND MENTAL HEALTH PROBLEMS FACED BY THE EMPLOYEES FROM THE TELEVISION SECTOR DURING THE COVID-19

Cho Yi Mon Tun¹

Abstract

Worldwide, coronavirus is a major respiratory disease that causes severe illness and high death rates. Since its 2019 emergence, it has also been known as COVID-19. The impacts of COVID-19 were devastating to the global economy, causing a financial crisis as well as challenges in the fields of education, healthcare, construction, tourism, and even the media. In March 2020, Myanmar reported its initial case of COVID-19, and as a result, the print and broadcast media industries were among the worst affected since they lost all of their advertising opportunities, television programs, and newspaper distribution due to COVID-19. Furthermore, COVID-19 had serious negative impacts on the television industry as a whole as well as its employees in different ways. This study analyzes the specific challenges and mental health problems faced by television industry employees during the pandemic period. It also examines the impact of production halts, job insecurity, remote working constraints, health-related anxieties, and financial instability on television employees. According to the findings, 80% of the employees from the television sector were infected with the disease. As the victims of the COVID-19 pandemic, a number of employees lost their primary jobs and regular income due to the financial crisis in the sector. The findings also point out increased levels of stress, anxiety, depression, and burnout, exacerbated by long working hours, social isolation, and the pressure to meet content demands under restrictive conditions. Therefore, this study suggests raising awareness and promoting actionable strategies for crisis management in the television industry.

Keywords: TV Employees, Television Sector, COVID-19, Financial Crisis, Mental Problems

Introduction

The novel coronavirus disease (COVID-19) outbreak, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is seeing a rapid increase in infected patients all over the world. Anyone can get sick with COVID-19 and become seriously ill or die at any age, depending on their immune system. According to a World Health Organization (WHO) report, the pandemic has impacted more than 190 countries, affecting 60 million people worldwide (World Health Organization, 2020). With the continued and increasing rate of COVID-19 cases, the number of death tolls also continues to rise, and a large number of countries have been forced to do social distancing, lockdown, and stay at home immediately (Yuki & et al., 2020). Within a short period of only several months, the COVID-19 virus has caused an unprecedented global crisis with enormous impacts on the political, social, and economic systems (Carlsson & et al., 2020). Therefore, on March 11, 2020, the World Health Organization (WHO) declared COVID-19 to be a global pandemic due to its immense magnitude and wide range of effects (World Health Organization, 2020).

In Myanmar, coronavirus disease 2019 (COVID-19) was found out in March 2020 when the first laboratory confirmed. Myanmar was hit by the four waves of COVID-19 from 2020 to 2022. During the first wave of the COVID-19 pandemic, there were 379 confirmed cases, 359 recovered cases (94.7%) and 6 deaths (2.4%) (Ministry of Health, Myanmar, 2021). However, these numbers are shifting quickly. In order to flatten the epidemic's peak and prevent the spread

¹ Department of Journalism, National Management Degree College

of the disease as of April 18, 2020, the government and the Ministry of Health implemented containment measures. Social distancing, stay-at home restrictions, school closures, work-from-home policies, and office closures are all parts of the strictly containment measures (Ye Min & et al., 2022). The outbreak of COVID-19 in Myanmar has become a major barrier for the television sector in terms of both occupational hazards in the operation, and the safety and wellbeing of employees. Moreover, television channels in Myanmar are facing more challenges while enhancing the new normal lifestyle with measures for protection.

As the media is the fourth pillar of the country, it is important to note that the media has always played a pivotal role in shaping society and the development of the entire country as well. At the beginning of this health crisis, news had become a valuable resource for citizens (Andreu, 2020). Since the world is facing completely new and dreadful diseases, the media sector has played a very positive and responsible role as a fourth pillar of the country. In the current situation, Myanmar's print media has declined in people's interests due to the influence of social media. But, people cannot rely only on social media because of the numerous fake news stories there. Meanwhile, the television sector continues to contribute to the evolution of traditional media into new media, and there are still television viewers even in the countries that are leading the way with modern digital technology. During the pandemic, the television channels had a significant impact on the way that accurate and up-to-date information about COVID-19 and its infections was communicated both locally and globally. Additionally, the television channels can help people release stress by providing entertainment programs and interesting contents during the difficult time of staying at home.

Research Method

In this study, the perspectives, feelings, and experiences of the participants need to be captured in detail. Therefore, the qualitative method approach through in-depth interviews is chosen for this research paper. Since both of the television sectors are based in Yangon, Myanmar, in-depth interviews with participants from Yangon were conducted for this research paper as part of the qualitative rapid assessment. Specifically, the in-depth interview received responses from 15 participants who work in the private television sector, 5 participants who work for the government-owned television sector, and 5 former employees who lost their jobs during the pandemic. The purposive sampling technique is used in this research paper, and the sample size is focused on the different ages, genders, fields and positions. Besides, the comparative analysis is applied to compare the experiences of the employees in the public and private television sectors.

Table 1 Demographic description of respondents

No	Sector	Gender	Age	Job Positions	Job Status
1	Private Television Sector	Male	18-50	Cameraman	Lost the job during COVID-19
				Presenter	Currently working
		Female	18-50	Production Director	Currently working
				Editor	Lost the job during COVID-19
				Admin	Lost the job during COVID-19

No	Sector	Gender	Age	Job Positions	Job Status
2	Government-owned Television Sector	Male	35-50	Deputy Director	Currently working
				Junior Engineer	Currently working
		Female	35-50	Chief Officer	Currently working
				Staff Officer	Currently working

Source: Survey (2023)

Research Questions

The following research questions are investigated in order to fulfill the study's research objectives.

- What impacts does the COVID-19 pandemic have on the employees from the television sector in Myanmar during the outbreak?
- How have the employees from the television sector in Myanmar reacted to the challenges of the COVID-19 pandemic?

Literature Review

The global outbreak of COVID-19 has brought an unexpected financial and economic crisis that could have a significant impact on both society and the global economy (Miguel & et al., 2021). Additionally, lockdown and other measures to prevent the COVID-19 virus from spreading have had significant health consequences in the normal workings of healthcare organizations all over the world. It has made patients stay away from accident and emergency departments and reach out for urgent medical conditions such as heart and cancer illnesses (Iyengar, 2020). Besides, COVID-19 is having important and profound effects in several spheres of society (Gerald & Mulatu, 2022). Social and mental health issues such as isolation, anxiety attacks, depression, panic states, mental disorders, health risks, and many other issues affect the lives of individuals and society as a whole. Moreover, COVID-19 had a negative impact on the education sector around the world. Over 94% of students worldwide—nearly 1.6 billion students in more than 200 countries—have been impacted by closure of school, institutions, and other learning spaces. With the spread of the coronavirus, the media sector has encountered numerous challenges, like other sectors. The COVID-19 pandemic creates challenges for the media and its employees to contribute to dealing with the crisis (Musfialdy & et al., 2022). The media (both print and broadcast media) is in a dilemma on many levels, such as news gathering, distribution, production, broadcasting, advertising, and financing (Shivaji, 2020).

In addition, the COVID-19 pandemic has significantly impacted television employees, with notable effects on job loss, mental health, and infection risks. The pandemic led to significant disruptions in program production and a sharp decline in advertising revenues, both of which contributed to widespread job losses in the television sector (Binns & Evans, 2021). The authors, Griffiths and Mowen, indicated that the television sector experienced significant layoffs as companies faced reduced revenues from advertising and sponsorships. Many television channels were forced to postpone the television programs, leading to temporary or permanent job losses for the employees, such as production staff, and other related roles (Griffiths & Mowen,

2020). Besides, operational disruptions due to lockdowns and social distancing measures further exacerbated job losses. The inability to conduct in-person programs and the need for remote work arrangements led to a reorganization of workflows and a reduction in the number of employees required for program production (Smith & Johnson, 2021). According to a report by the International Federation of Journalists (IFJ) in 2020, the global media sector, including television, experienced significant job losses due to the pandemic. The IFJ estimated that around 10-20% of workers in the media sector, including television, faced job losses or severe financial distress during the peak of the pandemic.

Moreover, the earlier study showed that the common situations such as job insecurity and disruption of work routines linked to the pandemic, have made mental health issues worse. A study by Smith and co-authors found that television employees experienced increased levels of anxiety, depression, and burnout as a result of the pandemic's pressures and uncertainties. The authors emphasized that the shift to remote work and changes in program production significantly contributed to these mental health challenges (Smith & et al., 2021). Additionally, the authors highlighted the mental health toll on television employees, noting that isolation and financial instability were major factors contributing to psychological distress. The study suggested that the lack of social interaction and the financial issues from postponed programs led to heightened feelings of anxiety and depression among television employees (Adams & Green, 2022). Furthermore, in the research study, "Covering COVID: Journalists' Stress and Perceived Organizational Support While Reporting on the Pandemic," the author discussed the situation of the impacts of the COVID-19 pandemic on employees' stress and the role of industry support in overcoming it. The author, Hoak, found that the industry's support greatly affected the stress and performance of its employees during the pandemic (Hoak, 2021). In response to the increased mental health needs, the industry has also expanded mental health support services. The author, Anderson, highlighted the integration of mental health resources and counseling services into industry practices as a response to the pandemic's psychological impact. The study emphasized that these support mechanisms have been vital in helping television employees manage stress and anxiety during the pandemic (Anderson & et al., 2022).

On the other hand, the television sector, characterized by close physical proximity and frequent interaction, faced significant challenges in managing COVID-19 infection risks. According to a study by the author, Lee, the television sector reported higher infection rates compared to other workplaces. The study attributed this to the inherent difficulty in maintaining social distance and the high level of interaction among third parties and the team members. The implementation of safety measures, such as frequent testing and enhanced sanitation protocols, was crucial in mitigating these risks (Lee, 2021). However, despite all of the challenges and difficulties, the television industry played a crucial role in providing news, information, and entertainment during the COVID-19 global crisis. As lockdowns forced people to stay home, television became a primary source of information, providing awareness of COVID-19 and up-to-date news. Moreover, the television sector served as an essential tool for mental health support during the pandemic.

Findings And Analysis

The consequences of the COVID-19 pandemic brought major disruptions to multiple areas of the television sector in Myanmar. Due to social distancing and stay-at-home policies, TV programs have stopped being produced, and all the television channels have relied on repeating programs to be aired. Additionally, there were also financial problems in the television sector after declining income from TV advertisements as the country's business sector was disrupted by COVID-19. Therefore, salary cuts and decreasing employees have occurred in the private television sector. Moreover, the work activities have changed, and the workload has become a challenge for the television employees with the increase in infected people in the workplace. When analyzing the study, these four main areas of research are found out: infection rate and concerns of employees, financial crisis and salary cut-off, reducing the quantity of employees, and the reactions of the employees to the pandemic.

Infection Rate and Concerns of Employees

It is not possible for the television employees to prevent the transmission of COVID-19 during the pandemic, especially those who are tasked with collecting information and recording the audio and videos among the crowded people. Specifically, during the second and third waves of COVID-19 in Myanmar, a survey (2023) found that 80% of the workforce in the television industry was infected. Around that time, the remaining 20% of television employees began to experience stress and pressure from their workloads. However, the smaller television channels and some locally located branch offices with a few employees were less infected than the other major and largest television companies. In these circumstances, most of the participants said that their biggest loss was the death of the majority of their family members during the pandemic. However, they did not have a chance to say goodbye and take care of them before they passed away because they were assigned to stay and work in the office at least for three months. Therefore, a few employees who worked as camping in the office shared their opinions and feelings as follows.

“We didn’t want to stay and work in the offices for 24 hours. Because we were feeling worried about our families every day.” (Participant from a private TV channel)

“Actually, we did PCR tests many times when symptoms of COVID-19 were found in team members in the workplace. We were very exhausted from doing this PCR test so many times.” (Participant from the state-owned TV sector)

“There was no basic healthcare, not even medicines, for the employees in the office. When someone is ill or experiencing COVID-19 symptoms, there is no one to take care of them. Only the team members and other employees take care of this person. As unlucky as it is, due to the crowded patients in the hospitals and COVID-19 center, we would not be able to go there if we were infected with this virus. So, the government and the authorities should know and manage effectively this situation in the workplace, which actually happened in the private television sector.”(Participant from a private TV channel)

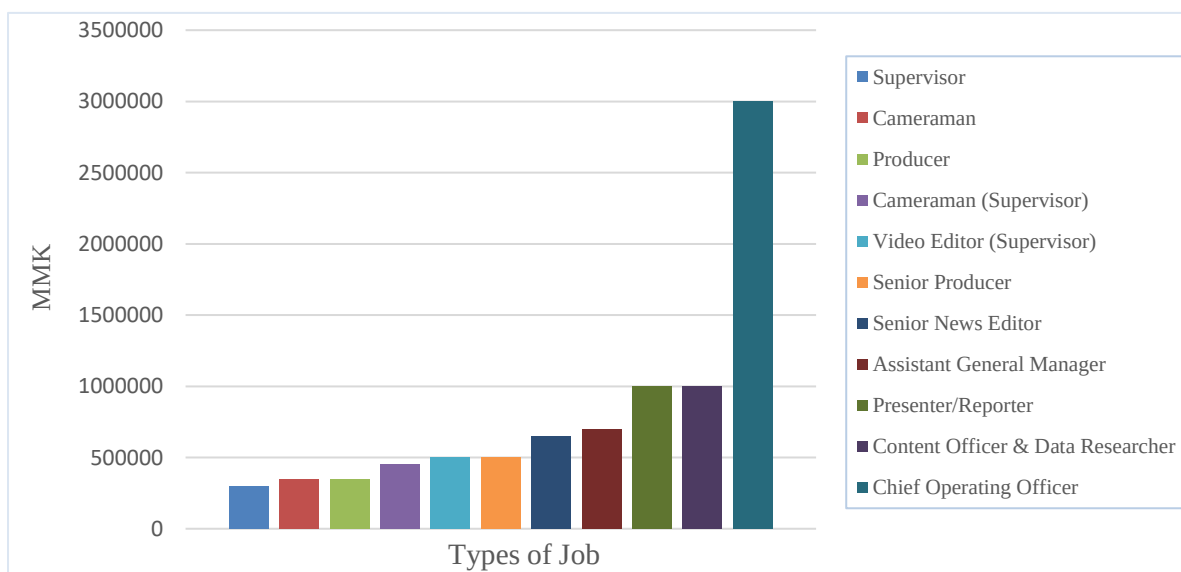
Financial Crisis and Salary Cut-off

Before the outbreak of COVID-19 in Myanmar, the salary of employees in the private television sector was about double that of employees working in the state-owned television sector (Figure 1). Moreover, the salary of employees, those who are working in the private television sector, also varies widely based on their performances and media companies, as illustrated in Figure 2. Because media companies can pay their employees more if they just own only one TV channel. However, if the media companies have more than three channels, they can only pay their employees a slightly lower salary than the other media companies.



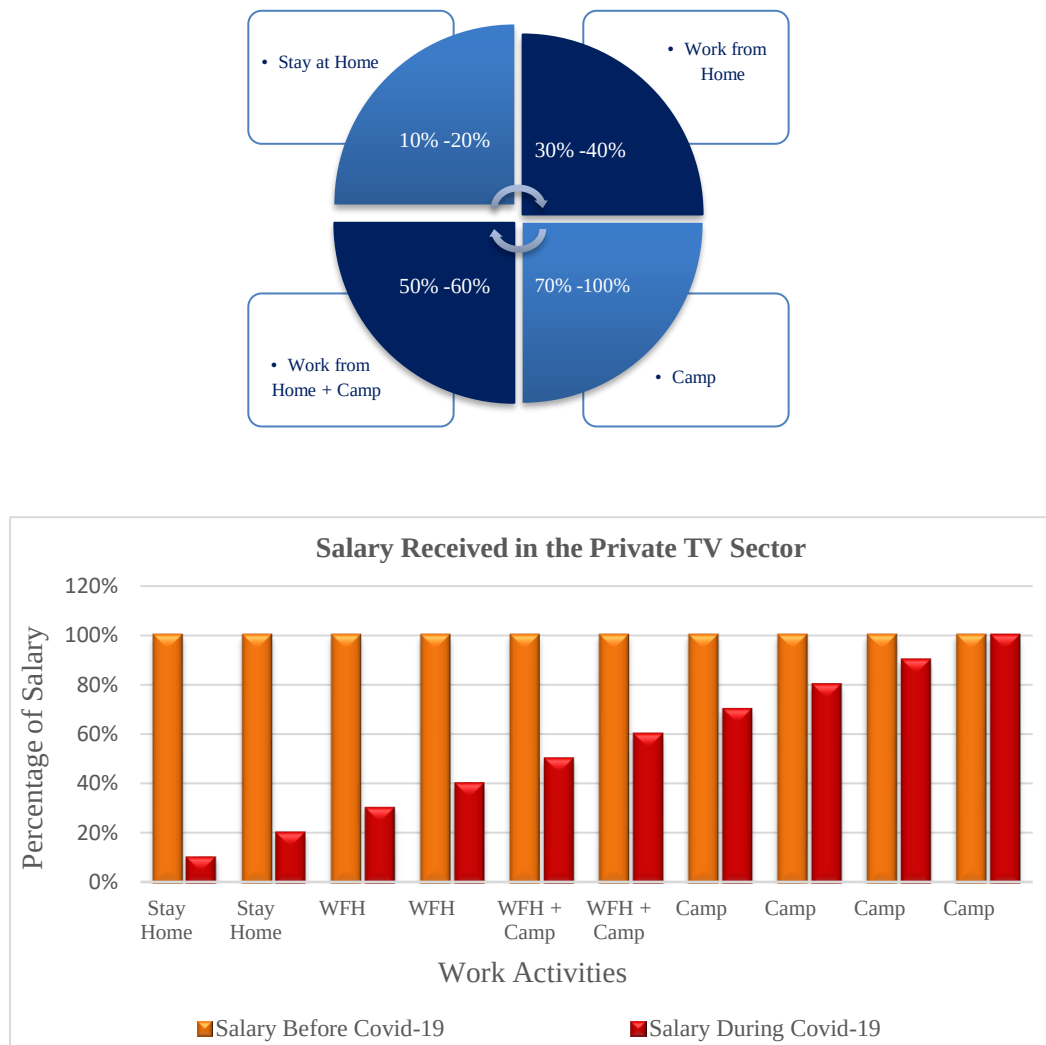
Source: Survey (2023)

Figure 1 Comparison of salaries among employees from the two television sectors



Source: Survey (2023)

Figure 2 Salary of respondents from the private television sector before COVID-19



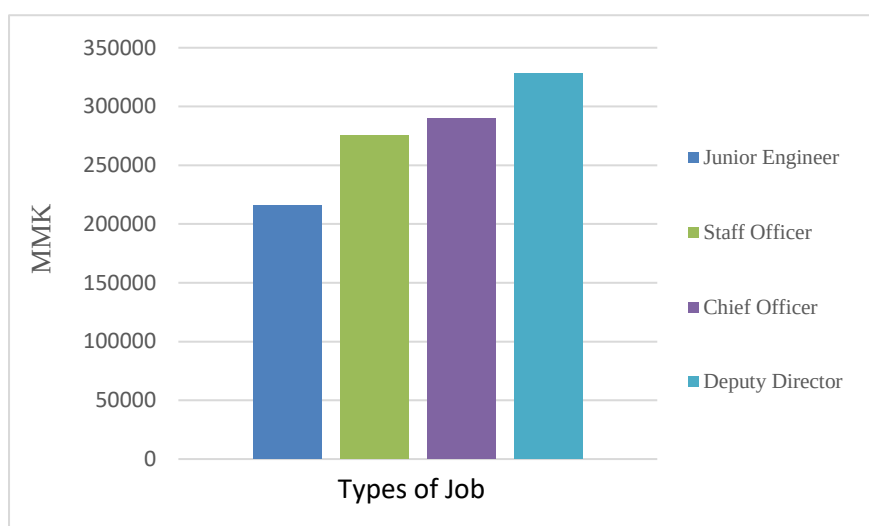
Source: Survey (2023)

Figure 3 Percentage of salary received depending on the employees' working activity

According to Figure 3, during the outbreaks of COVID-19, most of the employees in the private television sector only received 10% to 60% of their salaries, whereas some employees who worked on program productions like camping in the office received 70% to 100% of their salaries. These percentages of salary depended on their work activities, such as staying at home (where they do not need to work), working from home, and camping. (The term "camping" means a temporary living and working arrangement in the office for a certain period of time. In addition, the duration of camping is about a month, or sometimes it can last about three months.)

When the financial crisis was faced in the private television sector, the authorities from the companies managed to cut-off the salaries of their employees after a month of this crisis, and these four categories were described as the reasons for salaries being cut-off. (1) The employees who were under the category of fully staying at home received only 10%–20% of their salaries; (2) the employees who fully worked from home received 30%–40%; (3) the employees from the production team who both worked from home and in the camp received 50%–60%; and (4) the employees who fully stayed and worked at the office received 70%–100% of their salaries.

Due to the cuts in salary mentioned above, some employees were not able to work in the television sector for so long that only 10% to 20% of their salaries were not enough to support their entire family. Moreover, during the pandemic of COVID-19, transportation charges as well as the prices of groceries, medicines, masks, hand sanitizer, and gloves became higher than before COVID-19. With the rising costs, it would be impossible for those who had been fired due to the pandemic and employees who earned only 10% to 20% of their salaries to be self-sufficient or provide for their families. As a result, they left the television industry, which contributes to the increasing unemployment rate in the television sector. Nevertheless, in some television channels, the cuts in salary slightly depended on the actual salary they received before the COVID-19 pandemic. For example, employees with a lower salary received 80% of their actual salary, while those in higher positions or with more authority only received 30% of their actual salary. Therefore, it can be said that in the private television sector, getting a salary during the pandemic actually depended on their companies and their work activities. However, when compared to the private television sector, all of the employees in the state-owned television sector received their salary fully without any cut-wage, whether in any other kind of condition like working at the office, staying at home, or working from home, as illustrated in Figure 4.



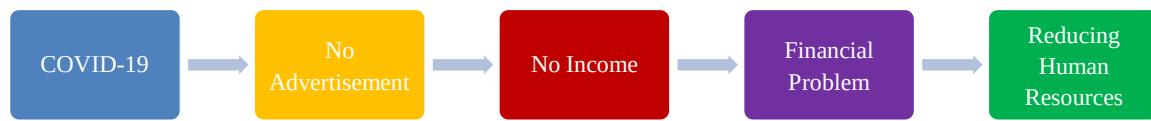
Source: Survey (2023)

Figure 4 Salary of respondents from the state-owned TV sector before and during COVID-19

Reducing the Quantity of Employees

As illustrated in Figure 5, when there was no further income from TV advertisements during the pandemic, most of the television channels faced some financial problems, such as running the company on a low budget. Therefore, they tried to find solutions to this financial problem, and then the best way to manage this difficult situation during the pandemic was to reduce the human resources in their companies. In June 2020, after three months following the first wave of COVID-19 in Myanmar, the private television channels started to fire their employees. Depending on how long the employees had worked for the company and how much experience they had, the dismissed employees received three or six months' pay as compensation. Even though the higher authority level at the media companies fired their

employees by following the Myanmar Labor Law, there are still some conflicts among these dismissed employees.



Source: Survey (2023)

Figure 5 Causes and effects of the high unemployment rate in the private TV sector

Based on the study, half a year after the pandemic hit Myanmar, private television channels made the decision to reduce their workforce, in particular reducing three members from one department and overall reducing the employee count to 20-50. Therefore, in fact, a total of 30% of human resources in private television channels were laid off as a result of the financial crisis. According to Figure 6, the following are the main reasons for firing the employees:

1. The employees who are too old to work for their company
2. The employees who have less than ten years of employment with their company
3. The employees who didn't have good performance on the job
4. The employees who broke the rules and policies of the company at least once and
5. The employees who are not working for both the program production team and technical team and those who are not essential to their work (for example, cleaners, drivers, employees from the setting and lighting department, office staff, and camera crews).

Even though there were a few employees who felt confident about their work performance and never worried about their jobs like the others did, most of the employees were anxious and stressed about their jobs and were unsure of when they would be the next ones to be fired due to the decrease in human resources in the private television sector. In order to solve the financial issues, the reduction in human resources in the private television sector had an impact on the mental health of the dismissed employees, whether they had been fired for one of the reasons listed above or not (as indicated in Figure 6). Half of the dismissed employees are still afraid to apply for other jobs after the trauma of losing their job during the pandemic.

They think they are not qualified to get a job after involving themselves in the reasons listed above for being fired. Thus, even though some dismissed persons are starting a new job and a new opportunity in their lives after being fired from the private television channels, others, especially women and older persons, are still hiding their abilities by relying on the incomes of their family members. Compared to the employees of the private television sector, those who work in the state-owned media under the government sector are guaranteed a job for life. Therefore, the employees of the state-owned television sector do not need to worry about their salary or job like the employees of the private television sector.



Source: Survey (2023)

Figure 6 Main reasons for being involved in the list of dismissed employees

Reactions of the Employees to the Pandemic

In an effort to avoid contracting COVID-19, employees in the television industry strictly adhered to government-mandated pandemic rules and workplace safety protocols. These employees, especially those involved in fieldwork and live production, consistently wore appropriate personal protective equipment (PPE) when venturing into crowded areas for programs. They understood the risks involved and took precautions not just for themselves but also for the safety of their colleagues and team members. Even when some employees were infected with the virus, many acted responsibly by self-isolating and prioritizing their recovery to prevent further transmission within their teams. This sense of duty and consideration highlighted their commitment to maintaining the continuity of television programming despite health risks and operational disruptions.

However, while they managed to follow safety protocols in the workplace, employees struggled with deep and lingering concerns about their personal lives. Many were anxious about the health and well-being of their family members, particularly those who were elderly or medically vulnerable. This emotional burden was compounded by financial insecurity. With the industry facing budget cuts, reduced advertising revenue, and program shutdowns, many workers experienced delayed payments, significantly reduced salaries, or even months of working without compensation.

Some employees were laid off with little to no support, and those who remained often had to shoulder additional responsibilities without any increase in pay or job security. The uncertainty around their employment status, combined with the fear of infection, led to significant psychological distress. Unfortunately, most employees found themselves unequipped to manage the growing mental health challenges brought on by the pandemic. As a result, many workers felt

overwhelmed and powerless. Some chose to endure the harsh conditions and continue working despite the low pay and emotional strain, simply following company policies in order to survive. Others, feeling unsupported and burnt out, decided to resign altogether in search of better opportunities or to protect their well-being. Ultimately, the pandemic exposed the vulnerabilities of employees from the television sector, particularly in terms of health, financial stability, and mental wellness. While their dedication to their work remained commendable, the lack of sufficient institutional support left many feeling isolated, undervalued, and emotionally exhausted.

Discussion

It can be clearly seen that COVID-19 had a very significant impact on the employees from the television sector in Myanmar during the pandemic. To begin with, employees working in sectors such as public healthcare, transportation, and food services received higher salaries during the COVID-19 pandemic. They were considered to be operating in high-risk environments where they faced a serious threat to their lives due to constant exposure to the virus. In contrast, television sector employees in Myanmar did not receive similar financial benefits, despite facing significant health and safety risks while performing their duties throughout the pandemic. Moreover, they also experienced increasing stress after their salaries were cut off.

On the other hand, COVID-19 has led to significant job cuts in the private television sector as companies have to struggle with the economic fall-out of the pandemic. In June 2020, more than half of the employees were fired because of declining incomes from advertisements and financial problems. Regarding the unemployment rates in Myanmar, the International Labor Organization (ILO) also predicted that an estimated 6.9 million to 7.3 million jobs could be disrupted in Myanmar as a result of the pandemic and related containment measures. In the current situation, although the unemployment rate in the private television sector can be controlled with the increasing income and advertisements in the sector, the mental health of the dismissed persons from the private television sector and their financial problems are still problems that need to be solved. Furthermore, there were a lot of requirements for the employees who were camping at the office. They were not provided with basic health care in the camp, and even they needed to buy some medicines by themselves. Moreover, those who had been shown some slight symptoms of illness, still needed to be isolated in the office, and there was no professional care for them during that time. Even when there were serious symptoms, they did not have the opportunity to go to the quarantine centers because, unfortunately, most of the quarantine centers and hospitals were overcrowded during the outbreaks of COVID-19 in Myanmar.

To manage the issue of an increasing infection rate, both of the television sectors provided COVID-19 essential protections, including masks, face shields, gloves, hand gels, and occasionally personal protective equipment (PPE) for special events, to their outdoor and indoor program team members. Furthermore, the Myanmar government and the television sector collaborated to arrange for at least two doses of the COVID-19 vaccination to be given to all of their employees. As a result, in January 2021, after ten months since the first COVID-19 case in

Myanmar was confirmed, all of the media companies managed to provide their employees with the COVID-19 vaccination doses. According to the latest report from the World Health Organization (WHO), a total of 64,549,994 vaccine doses have been administered in Myanmar. Moreover, regarding the COVID-19 vaccination data on the respondents, most of the employees from both the private and state-owned television sectors in Myanmar completed their first and second doses of the COVID-19 vaccine. Besides, a few employees from both sectors got a chance to complete the third dose and booster dose of the COVID-19 vaccine.

Although almost all of the employees from the television sector did not avoid or prevent the infection of COVID-19 during their working hours, they could survive the attack of COVID-19 and fully recover with the complement results of the COVID-19 vaccination. In addition, according to the respondents to the research interviews, there were only 4-6 employee deaths both in the private and state-owned television sectors in Myanmar while they were at work. It is clearly seen that the support of the Myanmar government and the collaboration of the television sector were significant and quite effective for their employees. Thus, it can be said that the television sector has strategically managed the issue of employees' infections. However, some problems are still to be solved in the post-COVID-19 era. Since April 2023, the number of infected cases in Myanmar was reportedly decreasing, and as a consequence, the television sector allowed the employees to come back to the office normally. Now the sector no longer requires to manage these issues of working from home and virtual broadcasting because they are making their indoor and outdoor programs and also broadcasting as usual, just as they did before the pandemic.

Conclusion

The findings of this research study clearly indicate that the COVID-19 pandemic has had profound and far-reaching negative effects on employees in the Myanmar television sector. While certain challenges have been partially addressed by the television sector, many critical issues remain unresolved, delaying the sector's ability to fully recover and return to a stable state in the post-COVID-19 period. The pandemic disrupted the livelihoods of hundreds of workers who rely on this sector for income and professional growth. Among the most challenging was the drastic decline in television advertising, which significantly reduced the revenue streams of private TV channels. As a result, numerous employees faced layoffs, while many others experienced salary reductions and job insecurity. These financial challenges created an effect, impacting not only the employees themselves but also their families and dependents.

Although the government extended support in the form of business loans to private television channels as a means of aiding recovery, this assistance was perceived as being delayed and insufficient in fully addressing the financial hardships that arose during the outbreak of the pandemic. Consequently, the private television sector was left to make difficult decisions, such as reducing their workforce and cutting operational expenses, in an effort to survive the economic downturn. To prevent these issues in future crises, it is imperative that both the government and the television sector work collaboratively to develop a Standard Operating Procedure (SOP) specifically tailored for crisis response and management within the media sector. This SOP should be comprehensive, outlining financial, operational, and health-related protocols to ensure

the sector's resilience during national emergencies or public health crises. It must also emphasize the timely provision of financial aid and policy interventions to prevent long-term damage to the sector. In addition, the government should consider implementing temporary tax relief **or** tax suspension measures for private television channels during times of financial distress. Such policies would ease the financial burden on this sector, allowing them to retain employees and continue operations without resorting to severe cost-cutting strategies such as layoffs or salary reductions.

Beyond financial support, the mental well-being of television sector employees also demand attention. The pandemic intensified stress, anxiety, and uncertainty among workers, many of whom faced not only the fear of infection but also the emotional toll of job insecurity and financial strain. Therefore, it is vital for the government and media organizations to jointly establish mental health support programs, including access to counseling, awareness campaigns, and stress management training. These initiatives would help prevent long-term psychological harm and promote a healthier, more productive workforce.

In conclusion, the COVID-19 pandemic exposed vulnerabilities in the Myanmar television sector that must be addressed through proactive, coordinated efforts. Financial support, mental health services, and strategic policy frameworks are essential to ensuring the long-term sustainability of this vital industry and the well-being of its workforce. By learning from the challenges of the pandemic and preparing for future crises, Myanmar can build a more resilient and adaptive television sector that continues to serve the public and support the professionals who power it.

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SOCIAL MEDIA MARKETING AND BRAND IMAGE ON CONSUMERS ATTITUDE TOWARDS SINGLE-BRAND APPAREL RETAILERS

Sie Sar Oo¹, Ye Wint Aung²

Abstract

This study investigates the effects of social media marketing and brand image on consumers attitude towards single -brand apparel retailers to meet consumers response. A total of 175 respondents from three private banks in Yangon were surveyed through the structured questionnaire instrument with this respect. Both the correlation and regression were evaluated. Results reveal that customers are achieved approach behavior with the affective evaluation by providing the social media marketing (interesting content, scenario-based experience and user participation interaction). Regression analyses confirm that scenario-based experience and user participation interaction positively have significant effect on consumer internal evaluation; moreover, affective evaluation have the positive effect on customer response. Therefore, this study suggests that the single-brand apparel retailers need to provide positive interaction with the customers to achieve deep interaction and participation with social media marketing and brand image provided by single-brand apparel retailers.

Keywords: Social Media Marketing, Brand Image, Affective evaluation and Response (Approach and Avoidance Behavior)

Introduction

Nowadays, Social media can be seen as effective communication channels for marketers to attract the customers. Marketers deliver the valuable information of the products easily while direct interaction with the customers. (Song & Yoo, 2016) developed that social media is concerned with influential web-based communication channel that present the communication activities, particularly in marketing. Social media allows both the customer and seller to contact in a virtual platform and exchange the relationship among people (Gretzel & Dinhopl, 2013).

It can be created the communication network by using social media to capture the consumers with different contents to achieve the experience by exchanging information and sharing knowledge (Khang et al., 2012). In this transformation era, social media plays the vital role of online shopping. As the click and motor store developed, customers received the product information in a save time from the social media and then efficient and effective communication achieve to buy and sell the merchandise through the internet (Huang & Benyoucef , 2015). Social commerce is a new approach for every business to achieve competitive advantages (Hajli, 2014).

Nowadays, social media is important for every business organization through the marketing strategies (Song & Yoo, 2016). The study develops the effect of social media marketing activities and brand image on response through the consumers attitude. It also examines how these factors influence the consumers response (approach or avoidance) behavior through the affective evaluation. The importance of socisal media had already been established in several research. Social media proponents mentioned that social media influences brand attitudes, and consumer response. Previous studies revealed that Social media positively influences consumer purchase

¹ Department of Commerce, Monywa University of Economics.

² Department of Commerce, Monywa University of Economics.

decisions in reputable markets (Abzari et al., 2014). Social media marketing activities are more effective rather than traditional media (Hoyer et al., 2010).

Consumer brand image and brand attitude is an important research topic in consumer behavior. Accurately grasping consumers' attitudes towards their own brands helps companies to tap the needs of consumers. Brand attitude is the trust and brand dominance of consumers towards a certain brand. A comprehensive evaluation of a brand's ability to meet its needs and goals. Consumer attitude towards the brand is perception and emotional feeling of the brand value provided by marketers. In an assent, attitude towards the brand refers to cognitive thinking and emotional feeling of the stimuli of marketers through the social media. There are three elements in concerned with the attitude towards brand: cognition, emotion (affective) and behavioral intention. Scholars have analyzed the relationship between these three elements. These three elements effect with each other such as affective-cognitive sequence and cognitive-affective sequence respectively. In the study, it is developed the effect of social media marketing on consumers response (approach or avoidance behavior) through the internal evaluation (affective evaluation).

Rationale of the Study

These days, there are a lot of single-brand apparel retailers in Myanmar and the numbers of these stores increasing over time. This study aims to examine the consumers' attitude toward single branded apparel retailers. Single brand apparel market is a booming in present time because the numbers of such retailers are increasing year by year. Although there were few single-brand apparel retailers in the mid-1990, nowadays its numbers are increasing to 36 shops.

Even though retail branding is one of the most main current developments in the retail industry, few studies have been focused on retail branding in the apparel sector. This study focuses on the effect of social media marketing on consumer behavior through internal evaluation (affective evaluation) towards single-brand apparel stores. To achieve this, this study aims to understand consumer perceptions of social media marketing delivered by the single-brand apparel retailer.

Objectives of the Study

To analyze the relationship among the stimuli, organism and response, the specific objectives of this study are developed. Accordingly, the objectives of the study are:

1. To examines the effect of social media marketing on affective evaluations and cognitive evaluation towards the single-brand apparel retailers
2. To analyze the effects of cognitive evaluations and affective evaluation on approach or avoidance behavior towards the single-brand apparel retailers

Method of the Study

In this study, both primary and secondary data are used. The required data for this study were collected from the consumers who shopped at single brand apparel retailers two-stage stratified random sampling methods from the three banks (KBZ bank, CHID bank and MTB bank among 27 banks in Yangon. Structured questionnaires were used to collect both qualitative and quantitative primary data. Primary data were used to explore the consumers' approach and avoidance behavior. The secondary data were collected from the sources such as internet websites, journals, books and documents that have conducted by previous researchers. The sample size of

the study was 175 respondents from the three banks (KBZ bank, CHID bank and MTB bank among 27 banks in Yangon. The research model was tested applying a multiple regression.

Scope and Limitations of the Study

This study only focused on consumer attitudes towards the single brand apparel retailers and utilized the stimulus organism and response (SOR) framework. In this study, there were 175 respondents to analyze the relationship between exogenous and endogenous variables. The variables were social media marketing (interesting content, user participation interaction and scenario-based experience), affective evaluation of the store and response (approach or avoidance behavior).

The limitation would be that this study tested only in the context of single-brand apparel retailers which adopting social media marketing. Besides, the proposed model was tested only in the context of single-brand apparel retailers. Attention has to be paid when generalizing the findings to other sorts of retail stores or product categories. The social media marketing of the single-brand apparel retailer catering to a particular customer segment might be perceived differently from social media marketing within other apparel retailer catering to a different customer segment. Moreover, this study did not measure any certain cognitive evaluation (e.g., perceived quality, perceived price) and affective evaluation (e.g., pleasure, arousal).

Literature Review

Relevant literature related to marketing activities through social media marketing, consumers' attitude (cognitive and affective evaluation) to approach or avoidance behavior in the case of apparel products are compiled and presented as follows:

Social Media Marketing

According to Kaplan and Haenlein (2010), social media is a connection network of marketers to meet customers awareness through the internet with the effective content and short video. Social media marketing is also defined as the use of social media channels to promote a brand and its products as a subset of online marketing activities with traditional web-based promotion strategies combining technology, social interaction, weblogs and exchange of user-generated content (Kim & Ko, 2010; Laksamana, 2018). As a result, it can be created branding concept through social media marketing while the marketers provide the information as the stimuli to engage consumers and enhances brand image so as to meet customers response (approach behavior). Along this line of discussion, it can be concluded that the single-brand apparel retailers emphasized on social media to capture the loyal customer and to achieve competitive advantages. Hence, customer interesting in the single-brand apparel retailers can be engaged with positive emotional feeling.

Chen and Rodgers (2008) argued that marketers need to create interested and entertained content to dominate and arouse. Rose (2013) In content marketing, it needs to provide the information of short video with useful and interesting. Short video marketing often builds real-life consumption experience through consumers expected brand value. Today, it can motivate the target customers by providing the message with internet while these customers can dissatisfy with receiving stimuli.

Brand Image

Wells et al. (2011) developed that brand image is concerned with consumers' emotional evaluation which have the positive influenced on consumer' response (approach behavior) (Hutteret al., 2013). Moreover, it exists brand recall and recognized through the brand awareness that can meet the consumers' desire to purchase (Yasmin &Buzdar, 2017). With regard to Keller's brand equity model, brand image is consumers' perception of brand association provided by marketers while the brand image plays the vital role in consumers' response. The brand equity is the consumers' responses with regard to preference and differentiate perception of the marketers' stimuli such as social media in which grow the brand image. As a result, consumers perception towards brand image with regard to the providing the differentiate stimuli of social media can increase consumer approach behavior (Rahman & Haque, 2011; Yasmin & Buzdar, 2017;) evaluation).

Consumers Attitude

Consumers' attitude means the perception or opinion of consumers about a product that is determined through market research (Suh & Youjae, 2006). Proponents of the brand attitude stated a approach response through preference emotional feeling with stimuli of social media. It can be achieved the consumer response through the social media. (Abzari, Ghassemi, & Vosta, 2014). Attitude is concerned with internal evaluation. Scholars have founded two forms of individuals' internal evaluation states which were caused by the physical environment, namely cognitive and affective (Mehrabian & Russell, 1974; Zeithaml, 1988).

Affective Evaluation

Emotional state or affective evaluation is an assessment if an object is pleasant, attractive, valuable, likable, or preferable (Russell & Snodgrass, 1987). Mehrabian and Russell (1974) postulated that any atmosphere could supply creating and generating various emotional states in a person. Mehrabian and Russell (1974) proposed three elements for the emotional states which were built in a person's mind: pleasure, arousal and dominance, which were also known as the PAD framework. The three elements generally depict the organism aspect of the SOR framework. The 'pleasure' assesses whether a person perceives the atmosphere as pleasant or not. The 'arousal' assesses how much the atmosphere encourages a person. The 'dominance' pertains to if a person feels dominant (in control) or submissive (under control) in the atmosphere (Mehrabian & Russell, 1974).

The Response (Approach or Avoidance Behavior)

Response is related with the psychological reactions like attitudes and behavioral reactions of customers (Bagozzi, 1986). Approach is the willingness to remain at the store, keep buying and enthusiasm to stay for quite long time. However, avoidance behaviors were related to negative reactions comprising an aspiration to leave the store and not return (Mehrabian & Russell, 1974). Approach-avoidance behaviors were the actions causing from an individual's internal states. Mehrabian and Russell (1974) argued that approach behaviors consisted of physical approach, work performance, exploration, and social interaction. Turley and Milliman (2000) asserted that atmospheric cues led to a particular behavioral response by the customer, for instance, time consumed of consumers in the store, items examined, information acquired, and satisfaction. Besides, Donovan and Rossiter (1982) stated a number of responses related to a retail setting,

containing the volume of items bought, time consumed and money used at the store, and whether the shopper enjoyed the store atmosphere. Zeithaml, Berry, and Parasuraman (1996) presented five proportions of behavioral intention: intention to be loyal, tendency to switch, disposition to pay more, external response to problem, and internal response to problem. Donovan and Rossiter (1982) stated that approach behavior and the related behavioral intentions were influenced by consumers' emotional responses to an atmosphere within an environment.

Conceptual Framework of the Study

In this section, proposed research model was developed in concerned with the participants characteristics and consumers' internal evaluation. Figure shows the proposed research model of the study.

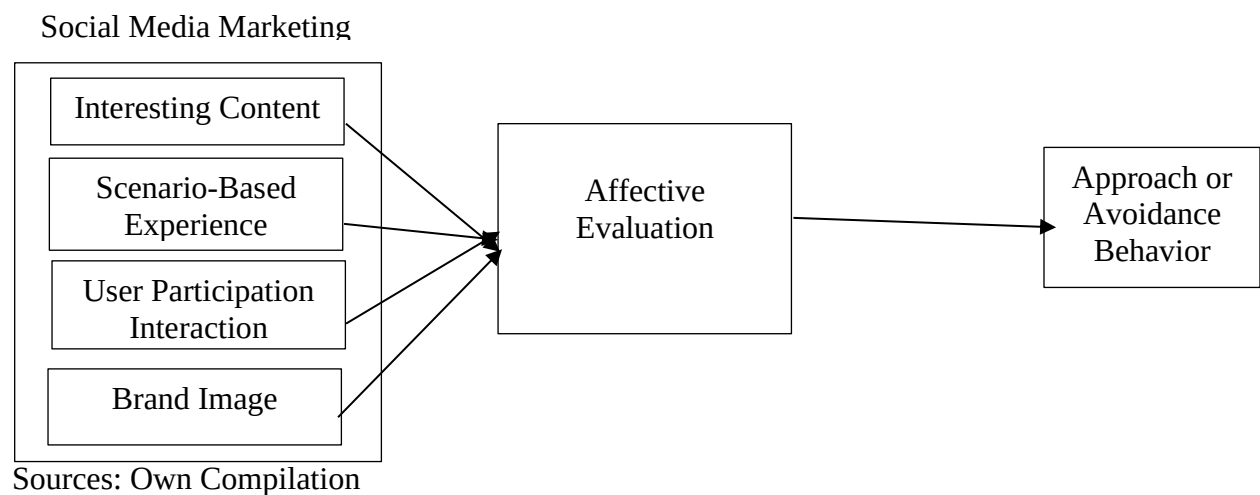


Figure: Conceptual Framework of the Study

In the course of testing the relationship between variables, the study generates the theoretical contribution. The study needs to investigate whether the influence of social media marketing on consumers attitude to meet the consumers response (approach or avoidance behavior) is existed or not because social media marketing is important in studying the consumers attitude. In the conceptual model of the study, the independent variables are social media marketing (interesting content, Scenario-based interaction and user participation interaction). Moreover, dependent variable is customer response through the customer internal evaluation sates (affective evaluation).

Analysis of Reliability of Consumer Attitudes

The measurement scales employed in this study were adapted from the literature and, in some cases, modified to be tailored to the single-brand apparel retail context. The questionnaire was composed of six sections.

Table 1 Reliabilities Test of Items Used in the Main Survey

Constructs	Number of Items	Reliability Cronbach's Alpha
Interesting Content	10	0.709
Scenario-based experience	10	0.731
User participation interaction	5	0.671
Brand Image	7	0.935

Constructs	Number of Items	Reliability Cronbach's Alpha
Affective Evaluation towards store	8	0.877
Approach or avoidance behavior	8	0.782

Sources: Survey Data (2024)

As shown in Table 1, it can be found that the Chronbach's alpha value for all scales items are acceptable with the cut-off value of 0.65, indicating high reliability and thus it can be expected that scale items used in this study will produce reliable data.

Correlation Matrix of the Items

In this section, the correlation matrix of the variables was analyzed to identify the presence of highly correlated variables. As shown in the correlation matrix table, there are correlated between variables identified in the study: interesting content, scenario-base experience, user participation interaction and brand image. There is also low correlated between the independent variables.

Table 2 Correlation Matrix

Contracts	Interesting Content	Scenario-Based Experience	User Participation Interaction	Brand Image
Interesting Content	1.000	0.046	0.083	0.063
Scenario-Based Experience	0.046	1.000	0.644	0.018
User Participation Interaction	0.083	0.644	1.000	0.026
Brand Image	0.063	0.018	0.026	1.000

Sources: Survey Data (2024)

The calculated value of correlation coefficient for independent variables (interesting content and scenario-based experience is 0.046, interesting content and user participation interaction is 0.083, user participation interaction and scenario-based experience is 0.644, then it can be concluded multicollinearity is not considered as a significant problem.

Empirical Analysis of the Effect of Social Media Marketing on Consumers' Internal Evaluation and Response towards Single-Brand Apparel Retailers

In this section, social media marketing are considered as independent variables and consumers response is considered as dependent variables through customers' internal evaluation. When estimating regression coefficient in concerned with the effect of Social Media Marketing on Consumers' Internal Evaluation and Response towards Single-Brand Apparel Retailers, it was calculated regression coefficient, standard error and significant 'p' values presented as follows.

Table 3 Effect of Social Media Marketing on Affective Evaluation of Single-Brand Apparel Retailers

Independent Variables	Unstandardized Coefficient		Standardized Coefficient	T	Sig
	B	Std Error	Beta		
(Constant)	0.519	1.913		3.688	0.000
Interesting Content	-0.044	0.078	-0.039	-0.557	-0.578
Scenario-Based Experience	0.246**	0.117	0.193	2.102	0.037
User Participation Interaction	0.210***	0.082	0.235	2.566	0.011
Brand Image	0.127**	0.055	0.162	2.321	0.022
R			0.424		
Adj R ²			0.160		
F Value			9.331		

Sources: Survey Data (2024)

Dependent Variable: Affective Evaluation

According to the Table 3, adjusted R squared value is the percentage or the value that indicated how the independent variables can explain the dependent variable. The adjusted R-squared value of the current study is 0.1600. Therefore, 16% variation of customer satisfaction can be explained by social media marketing. Moreover, F value is 9.331 which indicates that the model is less error and significant.

Based on the regression analysis, the effect of scenario-based experience on affective evaluation is found to be positively significant ($B = 0.246$) with 5% significant level. This implies that a greater level of scenario-based experience can increase the affective evaluation. Moreover, the effect of user participation on affective evaluation has the significantly influenced with the standardized coefficient ($B = 0.210$) with 1% significant level. This implies that customers emotional feeling can be much enhanced if the retailers provide its experience. In concerned with the effect of brand image on consumers affective evaluation, there is positive effect with the standardized coefficient ($B = 0.127$), 1% significant level. It can be concluded that the best consumers brand image can increase consumer affective evaluation.

As this result, the retailers can provide well train staff and preference service to achieve customer interaction with brand recall and recognize from the pleasant emotional feeling.

Analysis of the effect of Affective Evaluation on Customer Response

In this section, consumer affective evaluation is considered as independent variables and customer response is considered as dependent variables. The regression model is estimated by using backward method to examine the effect of affective evaluation on customer response. When investigating the significant factors, the calculated 't' values for each coefficient is examined. The calculated 't' values are presented in Table 4.

Table 4 The Effect of Affective Evaluation on Customer Response

	Unstandardized Coefficient		Standardized Coefficient	t	Sig
	B	Std Error	Beta		
(Constant)	1.242	0.173		7.168	.000
Affective Evaluation	0.417***	0.041	0.582	10.134	.000
R			0.835		
Adjusted R ²			0.694		
F Value			198.223		

Sources: Survey Data (2024)

Dependent Variable: Customer Response

According to Table 5, affective evaluation have the positive effect on customer response at 1% significant level. The affective evaluation has regression value of 0.417. The variable is significant at 1% significant level. F value is 198.223 which indicates that the model is less error and significant. Therefore, it can be concluded that the more the retailers used the successful qualify social media marketing, the more the customers achieved customer response through the positive emotional feeling and cognitive thinking.

Findings and Discussion

This study offers several contributions that can help single-brand apparel retailers which want to appeal to more customers and increase patronage (approach behavior). It can be concluded there is approach behavior. As expected, scenario-based experience and user participation had significant influence on affective evaluation. In the current study on response, it can conclude that social media marketing has the positive effect on customer response through affective evaluation. This means that customer response is due to social media marketing (scenario-based experience and user participation interaction rather than interesting content) because of reasonable information-inference from the preference or positive emotional feeling. This implies that customers emotional feeling can be much enhanced if these retailers provide social media marketing such as scenario-based experience and user participation interaction rather than interesting content.

Conclusion

The conceptual framework for this study aims to understand attitude towards single-brand apparel retailers. The model explained the relationships among social media marketing and consumer response through the internal evaluation (affective evaluation). This study found that the retailers can maintain the customers through the affective evaluation by providing the appropriate scenario-based experience because affective evaluation is more influence rather than cognitive evaluation on consumer response. In concerned with social media marketing, scenario-based experience is the most influencing factors on affective evaluation. It is also essential for the retailers to build the preference experience of customers. Similarly, even if social media marketing meets the customer's expectations, the customer perceives the banks to be satisfactory that will lead the approach behavior.

Limitation and Needs for Further Study

First limitation would be that the study analyzed only in the context single-brand apparel retailers. Second, attention must be exercised when generalizing these findings to other types these retailers. Third, the social media marketing within these retailers catering to a particular customer segment might be perceived differently from others Fourth, this study did not measure any specific cognitive and affective evaluation. This section attempts to explain the requirement for further study. Firstly, this study only focuses on consumers' attitude towards single brand apparel retailers.

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INTERNAL MARKETING PRACTICES AND EMPLOYEE PERFORMANCE OF PRIVATE HOSPITALS IN MANDALAY

Aye Aye Nwe¹

Abstract

This study aims to analyze the internal marketing practices and employee performance of private hospitals in Mandalay. The service quality of professionals in the hospital is more important than other services because this service takes responsibility on the lives of the patients. The descriptive and analytical methods are used and analysis is conducted based on the data collected from all medical staff, 291 employees from Mandalay, Mingalar and Myat Thukha Hospitals in Mandalay. In this study, cluster sampling method is used to collect the primary data. The result indicates that compensation and benefits, internal communication, organizational support, and empowerment have a positive and significant effect on employee job satisfaction. The result shows that employee job satisfaction has a positive and significant effect on the performance of employees in private hospitals in Mandalay. This study concludes that compensation and benefit system in private hospitals is fair. The more the staff are compensated and provided the benefits, the more job satisfaction is achieved in performing their duties. This study suggests that the private hospitals should provide the opportunity to learn advanced health knowledge as medical staff need to have adequate knowledge and skill to improve performance.

Keywords: Internal marketing practices, Compensation and benefits, Internal communication, Organizational support, Empowerment

Introduction

Service quality is important to ensure the success of the service business. Businesses find the approach to inspect and assess the operations internally in order to fulfill the needs of employees and to improve the service quality. Businesses attempt to understand the method of attracting and satisfying employees. In many organizations, the internal marketing concept is increasingly adopted because these organizations emphasize the high quality of products and services. Internal marketing is important in motivating and encouraging the employees who offer superior services to customers. Internal marketing has become the pivotal role of the business for employee job satisfaction. Job satisfaction enhances productivity to be higher, responsibility for the organization, and physically and mentally healthy for employees. Thus, the person will work in a better mood, learn more skills, and finally his performance will improve (Coomber & Barribal, 2007).

In modern society, the healthcare sector is increasingly important for ensuring people's health and longevity, as people are more knowledgeable about their health. Healthy people are necessary for national development, and high healthcare service quality is important for healthy people. Healthcare providers will provide high-quality healthcare service if they are satisfied with their work. Health organizations become focused on the satisfaction and retention of their employees. The presence of a highly satisfied and motivated health workforce, especially medical workers, is an important idea of the effective contribution of the private healthcare sector to society. Happy and active medical staff will go the extra mile to provide excellent service as much as they can. They will be passionate about upgrading the performance level of their own and also the level

¹ Department of Commerce, University of Co-operative and Management, Sagaing.

of the performance of their hospitals. It is crucial to motivate medical staff to increase efficiency when providing healthcare services to the public. Therefore, management of a private hospital emphasizes the needs of its employees, especially medical staff, as the hospital's performance largely relies on employees (Franco, 2002).

Rationale of the Study

Hospital services are essential for every country because there is a demand for better medical care. Improving the quality of healthcare services is a primary concern for patients. Patient satisfaction is considered as a basic determining factor in keeping for extending over a long period of time of patient relationships (Oliver, 1980; Zeithaml et al., 1996). Employee job satisfaction plays a dominant role in defining organizational success. Employee satisfaction not only increases productivity but also increases the quality of work. If the hospitals create a work environment that encourages employees, they will respond to the needs of the customer. Customer satisfaction generated by the satisfied employees leads to organizational and financial success (Taner & Sntony, 2006). Healthcare services have a distinct position among other services due to the highly involving and risky nature of services and the general lack of expertise possessed by consumers (Taner & Antony, 2006).

Most of Myanmar's private and public hospitals run at full capacity to meet patients demand, especially in cities such as Yangon and Mandalay. During the limited number of healthcare professionals and the large number of patients, the stage of service and care provided is below international standards. Private hospitals tend to perform better than public hospitals in this respect (Healthcare Guide, 2018). In addition, acquiring skilled local medical professionals is challenging. In private hospitals, it is significant to retain existing medical staff, and it is equally important to upgrade their performance. If they are well-performing their jobs, they will provide effective health care service to patients and the general public. Well-performed staff can result from their job satisfaction. Therefore, the determinants of job satisfaction and performance of medical staff working in private hospitals are interesting areas to study.

Problem Statement of the Study

Private hospitals in Mandalay are facing a lack of employees, especially the medical workforce. There is growing demand for medical staff due to the increasing population, high expectations, health awareness, and health education of patients. In private hospitals, it needs to develop a level of achievement for medical staff to attain patient satisfaction. Moreover, it is significant to provide reliable and high-quality medical services to patients. In the private hospitals of Mandalay, there is a limited workforce to implement essential services due to the health crisis that arises from ongoing Covid-19 pandemic response (Myanmar Public Health Organization, 2022). This shortage highlighted that retaining medical staff is a very important part of providing healthcare.

Currently, private hospitals in Mandalay provide various trainings. However, there are weakness in analysis of training needs of each medical staff and evaluation of training results. Moreover, trainings are not interested by medical staff because these are not relevant with the job requirements of their respective field. Managers of private hospitals need to provide clear guidance and instruction what to do and how to do by delegating the tasks. It is necessary to take into

consideration employees' suggestions on the issues of the hospitals. Furthermore, there is lack for fulfillment of adequate resources and information.

In private hospitals, various methods of attraction for medical staff are crucial. Moreover, it is essential to focus on the satisfaction and performance of existing medical staff to maintain them in the workplace. Private hospitals necessitate providing the needs and wants of medical staff to provide high-quality services. The satisfaction of medical staff in private hospitals largely depends upon the internal marketing practices. Medical staff are motivated by not only pay and benefits, promotion, but also respectable position and autonomy to make decisions on the provision of service.

Objectives of the Study

The main objective of the study is to analyze the internal marketing practices and employee performance of private hospitals in Mandalay.

The specific objectives are:

- (1) To analyze the effect of internal marketing practices on employee job satisfaction of private hospitals in Mandalay and
- (2) To identify the effect of employee job satisfaction on employee performance of private hospitals in Mandalay.

Methods of Study

In this study, three private hospitals are randomly selected out of ten private hospitals that are 50-bedded and above. To achieve the aims of the study, descriptive methods and analytical methods are used. Primary data are collected from permanent medical staff in private hospitals in Mandalay. All permanent medical staff of ten 50-bed and above general private hospitals in Mandalay are the target population of the study. The cluster random sampling method is used to collect the required sample, and the general private hospitals are considered clusters. All medical staffs of these selected hospitals constitute the sample of the study. There are 291 permanent medical staff who are medical doctors or medical officers (MO), nurses, nurse aids, laboratory technicians, radiology technicians, physiotherapists, and pharmacists with at least one year of service.

Scope and Limitations of the Study

This study mainly focuses on internal marketing practices and employee performance of private hospitals in Mandalay. It also focuses on the effect of internal marketing practices on employee job satisfaction of the surveyed hospitals. This study is limited to general hospitals, and specialty hospitals are not included. Permanent medical staffs are constrained, and non-medical staffs are excluded in this study.

Literature Review

Internal Marketing

Internal marketing (IM) is not only a concept but also a philosophy and a method to manage a company (George, 1990; Gronroos, 1985; Wilson & Fook, 1990). According to the IM concept, employees form an internal market within an organization because they need to be trained, rewarded, and motivated to meet external customers' expectations (Varey & Lewis, 2000). The essence of IM is to consider employees as necessary as external customers by treating them as internal customers (Ali, 2016; Kanyurhi & Akonkwa, 2016). IM focuses on motivating employees

and satisfying employees' needs to engage in appropriate customer behaviors and work better (Grönroos, 1985).

The purpose of IM is to motivate internal customers, from which external customers will be satisfied. Therefore, IM aims to align with the organization's efforts to provide better services to customers (Cooper & Cronin, 2000). Internal marketing is the process of considering employees as internal clients and viewing jobs as internal products that meet these clients' requirements and desires while advancing the goals of the organization. Kotler and Armstrong (1991) defined internal marketing as the building of customer orientation among employees by training and motivating both customer contact and support staff to work as a team. Therefore, the company should think about how to sell the internal products to the internal customers, fulfill the company objectives, and deliver services of high quality.

Compensation and Benefits

Mornay (2010) presented that new employee must be recruited and current employees must be retained by offering a market-related salary consisting of a fixed salary, a commission structure and a profit-sharing benefit. It is evident that many firms want to attract and retain the best candidates and should firstly provide the candidates with an attractive salary. If an organization's key outcome measures are customer satisfaction and loyalty, it is expected that rewarding employees for providing excellent customer service would enhance these desired behaviors. A reward is the benefits, including financial and non-financial ones that employees receive from their job (Govindarajulu & Daily, 2004). The high reward will motivate employees to do a better job and be more committed to the organization (ELSamen & Alshurideh, 2012).

Training

Training is the act of enhancing a person's knowledge and ability to perform a particular task. This is the bridge between job demands and the current needs of employees. This means that employees' work styles and attitudes towards work and the company are changing. Today, education is increasingly seen not only as a means of driving the growth of individual employees but also as an integral part of the growth of an organization.

According to Armstrong (2016), education and training help employees understand the importance of striving to comply with internal service standards in their internal interactions as a prerequisite for achieving quality customer service. Training is very important for a company that wishes to survive in a competitive and dynamic environment because it allows employees to improve their knowledge, skills, and abilities to satisfy customer demand with high-quality services (Tsai & Tang, 2008).

Internal Communication

To achieve the company's goal, the relationship between manager and subordinate is vital. One way to assure is an effective internal communication program. Internal communication is the procedure of transmission and reception of information within the company. It involves the communication channels, the content of the information, the flow, and the type of communication. According to Thomas et al. (2009), getting timely, accurate, and relevant information from the supervisors and coworkers makes them more likely to feel less vulnerable. Internal communication is important because it can ensure common understanding between the management and the subordinates. Moreover, it can reduce the possibility of misunderstanding, help the employees to

align their goals with the organizational goal, and increase motivation and workforce engagement. According to Grönroos and Gummerus (2014), a communication system that allows employees to express their opinions that benefit both internal and external customers because employees can provide more effective customer service.

Organizational Support

Organizational support is an important concept in which organizational support can provide an explanation of the relationship between organizational treatment and the attitudes and behaviors of employees towards their work and organization (Eisenberger et al., 1986). Organizational support is defined as one's contribution to one's organization and its recognition by the organization (Hellman et al., 2006). The staff who perceive this support may be more committed to their work, and they are expected to work hard to pay for it (Howes et al., 2000).

Leadership

Leadership plays very important role of the employee job satisfaction, it has a great impact on the employee motivation (Voola et al., 2003). According to Sohail and Jang (2017), the satisfaction level of the customers increases when the process of service delivery is positive. Therefore, empowering employees affects attitudes and behaviors, and it can enhance changes and creation of desired transformation. Leadership is the skill of influencing a group towards the achievement of a vision or a set of goals (Robbins & Judge, 2014). Leadership is a process where multilevel leader–follower communication transpires in a particular way to share a purpose and cooperate work willingly (Yammarino, 2012). It affects the association between the leaders and the employees, and the way they perform changes to achieve a common goal (Du Plessis, 2014). In the frame of an organization or institution, the role of leadership is crucial for its proper function and welfare.

Empowerment

Kreitner and Kinicki (2010) defined empowerment as a process of giving workers a certain level of independence, self-regulatory to enable them to make decisions, so that managers in departments share with their subordinates what is available from senior management and the delegation of employees to make some decisions, in addition to giving them the opportunity to provide suggestions, recommendations, and ideas based on their knowledge and regulatory expertise to achieve organizational goals. While Ani (2007) confirmed that empowerment means the delegation of authority to subordinates and also giving workers enough power and resources to provide them with enough freedom to make decisions in order to achieve organizational goals. Empowerment is an effective part of employee development (Proctor & Doukakis, 2003). Kaner et al. (2007) defined empowerment as authorizing and enabling employees to act, behave, think, and make their decision to get the job faster and easier to make. This supports getting the job done faster in the organization and creates experience at different levels in the organization (Gronroos, 1981).

Employee Job Satisfaction

Khuong and Tien (2013) defined employee job satisfaction as an emotional state that results from the appraisal of job experience. Employee job satisfaction is generally described as the feeling of gratification or prosperity that employees procure from their job, whether they are happy to work or not, and perceive the jobs as meaningful (Griffin & Moorhead, 2013). Matzler and Renzl

(2006) defined employee satisfaction as one of the most important drivers of employee service quality, productivity, and loyalty.

Employee Performance

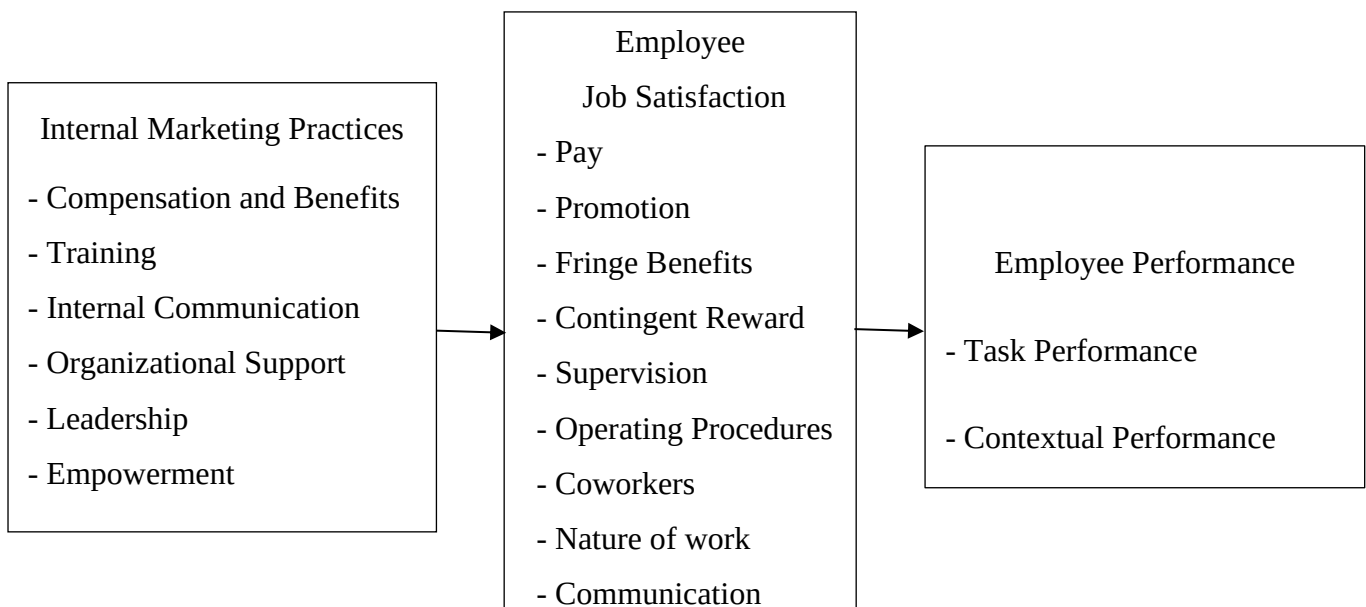
Performance indicates the level of achievement of work constituting the worker's job and the way by which the individual worker achieves his job requirements. Staff performance has been defined as the degree of achievement or completion of tasks constituting the job. This definition reflects how the individual satisfies or achieves his job requirements (Albarnouti, 2000). Borman and Motowidlo (1993) divided performance into task and contextual performance.

(a) Task Performance: Task performance was defined as the effectiveness with which job incumbents perform activities that contribute to the organization's technical core (Borman & Motowidlo, 1997). According to Murphy (1989), task performance entails the accomplishment of duties and tasks that are specified in a job description. The term task performance is the core technical behaviors and activities involved in the job. Task performance encompasses job explicit behaviors, such as fundamental job obligations delegated as part of the job description.

(b) Contextual Performance: Contextual performance describes actions that facilitate the environment in which the technical core functions. Common examples of contextual performance behaviors include helping coworkers, volunteering for tasks, and defending the organization (Borman & Motowidlo, 1993). These behaviors are important for achieving organizational outcomes and particularly for supporting long-term success (Allen & Rush, 1998; Ostroff, 1992).

Conceptual Framework of the Study

The conceptual framework of the study is developed based on the literature review and empirical studies. As presented in the literature, many researchers in different countries studied the relationship between the internal marketing and employee job satisfaction in different industries. In Myanmar, there are few studies of the relationship between internal marketing and employee job satisfaction in private hospitals. There are two main internal marketing models proposed by Leonard Berry's model and Christian Grönroos's model. In this study, conceptual framework of the study is developed based on Leonard Berry's model. The conceptual framework of the study is shown in Figure (1).



Source: Own Compilation

Figure (1) Conceptual Framework of the Study

Findings

Demographic Factors of Respondents

In this section, profiles of medical staff from three private hospitals are analyzed. For demographic factors of employees, gender, age, marital status, education level, job title, year of service, and number of trainings attended at the present job are shown in the following table.

Table (1) Demographic Factors of Respondents

Sr. No.	Descriptions		No. of Respondents	%
1	Gender	Male	57	20.0
		Female	228	80.0
2	Age (Years)	≤ 25	92	32.3
		25-35	154	54.2
		35-45	23	8.2
		≥ 45	16	6.1
3	Marital Status	Single	217	76.1
		Married	68	23.9
4	Education Level	Bachelor	146	51.2
		Master	9	3.2
		Dr. Med.Sc	14	4.9
		Diploma	52	18.2
		Non-graduate	64	22.5
5	Job Title (Medical Staffs)	Doctor	32	11.2
		Technologist	40	14.0
		Nurse	126	44.2
		Pharmacists	87	30.5
6	Year of Service	≤ 5	226	79.3
		5 -10	39	13.7
		≥ 10	20	7.2
7	No. of Trainings Attended at the present Job	1-5	217	76.1
		5-9	36	12.7
		≥ 9	32	11.5

Source: Survey Data, 2023

According to the above table, 228 respondents (80%) are female employees, and 57 respondents out of 285 employees (20%) are male employees. Therefore, female respondents are more than male respondents. According to this survey, female employees are more interested in healthcare services compared to male employees. The majority of the respondents, 154 respondents (54.2%), are found in the age range between 25 and 35 years. Moreover, 92 respondents (32.3%) are included in the age group 25 years and under. It is found that 23 respondents (8.2%) are between the 35 and 45 year age groups, and 16 (6.1%) respondents are in the group of 45 years and above. According to the survey result, it can also be said that young people are the largest portion of these private hospitals who are interested in healthcare service.

Regarding the marital status, the majority of the employees are unmarried. There are 217 employees, and it represents 76.1% of the total respondents. The rest of the employees, 68 employees, who represent 23.9% of total respondents, are married. Concerning education level, 146 respondents with bachelor degrees represent the majority of the employees (51.2%). Nine respondents are master degree holders, which represents 3.2% of total respondents, and 22.5% of total respondents are non-graduates. Non-graduates are nursing assistants who are employed as there are no sufficient technicians in the surveyed private hospitals. Since the survey was only done for the managerial employees, most respondents are graduates.

According to the survey result, 11.2% of respondents are doctors, 14% are technologists, 44.2% are nurses, and 30.5% are pharmacists. Therefore, the majority of respondents are nurses. Regarding the year of service, 79.3% of respondents have 5 years and under of total work experience, 13.7% of respondents are between 5 and 10 years of total work experience, and 7.2% of respondents have 10 years and above of total work experience. Therefore, the respondents with the total work experience of 5 years and under were the least found among other groups. It shows that most employees have weaknesses to commit to their hospitals. Concerning the number of trainings attended, the result shows that employees who attended trainings provided by these private hospitals at least 1 to 5 times are the majority (76.1%, 217). It can be said that medical staffs in these private hospitals in Mandalay necessitate continuous training for their skill development.

Reliability Analysis

Cronbach's Alpha measures are carried out to test the reliability of questionnaire items. After conducting the survey, reliability and validity tests for the internal marketing practices, employee job satisfaction, and employee performance of private hospitals were performed. In this study, Cronbach's Alpha reliability test method is used to measure the internal consistency of variables and an accurate representation of the data.

Table(2) Reliability of Variables

Sr. No.	Variables	No. of Items	Cronbach's Alpha
1	Compensation and Benefits	7	0.881
2	Training	6	0.871
3	Internal Communication	7	0.852
4	Organizational Support	6	0.843
5	Leadership	5	0.847
6	Empowerment	5	0.844
7	Employee Job Satisfaction	11	0.887
8	Task Performance	6	0.819
9	Contextual Performance	7	0.830

Source: Survey Data, 2023

The results of the reliability for each factor in this study are presented in Table (2). It shows that the Cronbach's Alpha values of internal marketing practices: compensation and benefits, training, internal communication, organizational support, leadership, and empowerment are 0.881, 0.871, 0.852, 0.843, 0.847, and 0.844, respectively. The Cronbach's Alpha values of internal service quality, employee job satisfaction, and employee performance; task performance and contextual performance are 0.9, 0.887, 0.819, and 0.830, respectively. Scale items of each variable are consistent and reliable because Cronbach's Alpha values are greater than 0.7. This could be assumed that all variables were reliable and acceptable in this study.

Analysis of the Effects of Internal Marketing Practices on Employee Job Satisfaction

In this analysis, compensation and benefits, training, internal communication, organizational support, leadership, and empowerment are regarded as independent variables, and employee job satisfaction is defined as a dependent variable. The results are shown in the following table. Table (3) shows the results of multiple regression analysis of internal marketing practices and employee job satisfaction.

Table (3) The Effects of Internal Marketing Practices on Employee Job Satisfaction

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	VIF
	B	Std. Error	Beta			
(Constant)	0.975	0.190		5.138	0.000	
Compensation and Benefits	0.293***	0.045	0.353	6.459	0.000	1.665
Training	-0.022	0.051	-0.026	-0.444	0.658	1.904
Internal communication	0.141**	0.066	0.141	2.132	0.034	2.436
Organizational Support	0.099*	0.059	0.107	1.673	0.095	2.274
Leadership	0.098	0.075	0.094	1.309	0.192	2.900
Empowerment	0.181***	0.062	0.200	2.944	0.004	2.584
R ²	0.502					
Adjusted R ²	0.491					
F	46.627 (P-value =0.000)					

Source: Own Computation (August, 2023)

Dependent Variable: Employee Job Satisfaction

***, **, * indicate statistical significance at the 1%, 5% and 10% levels respectively.

According to the multiple regression analysis results, compensation and benefits and empowerment are significant at the 1% level, respectively. Internal communication is significant at the 5% level, and organizational support is significant at the 1% level. Training has no effect on employee job satisfaction, although the private hospitals provide training frequently. Leadership has no influence on employee job satisfaction. The results show that compensation and benefits have the most significant effect on employee job satisfaction, followed by empowerment, internal

communication, and organizational support. Most of the employees are motivated by their chances to increase salary in the surveyed private hospitals in Mandalay. In these private hospitals, a reward system is applied to employees in order to satisfy to their work by providing bonuses, accommodations, and promotions. Medical staffs in the surveyed private hospitals in Mandalay satisfy on compensation and benefits at an above-average level.

Medical staff receives bonuses based on performance, years of service, regular attendance, and the number of patient treatments in the hospital. Moreover, overtime pay depends on extra working hours, and promotion is based on working experience, performance, and rules and regulations. The compensation and benefit system (salary, bonuses, etc.) in private hospitals is fair. The more the staff are compensated and provided the benefits, the more job satisfaction is achieved in performing their duties.

In the surveyed private hospitals in Mandalay, internal communication is the key to cooperation among medical staff and results for medical staff and hospitals. Health issues are discussed through senior management team meetings, and information is communicated through departmental meetings. Medical staff in surveyed private hospitals enables them to attain the hospital's goals by way of open communication. Medical staff communicates with each other through phone, email, viber and official letters. Information about changes in new policies, instructions, and upcoming changes is communicated in advance. Therefore, employees at all levels understand the direction and key priorities of the hospital. The better communication, the more, the satisfaction of medical staff in the surveyed private hospitals in Mandalay.

The surveyed private hospitals are responsible for supporting their medical staff. Private hospitals allow their employees to take medical leave and provide health insurance and free vaccination programs, health insurance programs, free of charge (FOC), and discounts on medical expenses for medical staff and their families. Medical equipment (CT scanners, MRI, memo, ultrasound, X-ray, and laboratory) is provided, and medical staff are supported with pharmaceuticals and uniforms. The surveyed private hospitals arrange knowledge-sharing programs to develop the skills and competencies of medical staff. The hospitals celebrate a staff party annually and a birthday party monthly. In the surveyed private hospitals, providing physical support and mental support is critical to maintaining the satisfaction of medical staff.

Empowerment is an important practice applied by the surveyed private hospitals to improve the job satisfaction of medical staff. Private hospitals allow employees to do tasks with their own skills to be a high-quality job and to participate in decision-making to solve the problem. In a workplace with a high level of empowerment, employees are given the self-determination to choose how they complete their work and are not closely monitored by their superiors. They are given the authority to take more responsibility to complete their tasks and are able to make decisions and solve problems on their own. This practice is essential for job satisfaction for medical staff. It can be said that employees are allowed to do their tasks with initiatives and given authority to participate in decision-making. These hospitals consider the new ideas and contributions of medical staff and encourage them to solve problems in their workplace. Medical staff are allowed to take more responsibility and higher responsibility to get work experience.

Training has no significant effect on employee job satisfaction. It indicates that there is no changes on employees' satisfaction by training in the surveyed private hospitals. The surveyed

private hospitals have weaknesses in training. The surveyed private hospitals should identify various training courses, training methods and materials, and training period according to their position and job title. Trainings need to be consistent with the requirements of medical staff because the required skills of medical staff vary. It is important to attain employees' satisfaction by providing training for their professional development specifically.

Moreover, leadership has no influence on the job satisfaction of employees. The leadership in the surveyed private hospitals does not change on employees' satisfaction. The relationship between leader and subordinates should be familiar as leadership practice is crucial for medical staff to encourage to do their job.

Analysis of the Effect of Employee Job Satisfaction on Employee Performance

The effect of employee job satisfaction on employees' performance is measured by a simple linear regression analysis. The independent variable is employee job satisfaction, and the dependent variable is employee performance.

Table (4) The Effect of Employee Job Satisfaction on Employee Performance

Variable	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.024	0.155		13.075	0.000
Employee Job Satisfaction	0.510***	0.039	0.615	13.119	0.000
R ²	0.378				
F	172.103 (P-value =0.000)				

Source: Own Computation (August, 2023)

Dependent Variable: Contextual Performance

*** indicates statistical significance at the 1% level.

According to the above table, regression analysis is conducted with employee job satisfaction and employee performance. The R² value is 0.378, which means that approximately 37.8% of the variability of employee job satisfaction is accounted for by the variable in the model. The results show that the F value is 172.103, which is significant at $p = 0.000$ (< 0.01). Therefore, the estimated regression model can significantly explain the relationship between dependent and independent variables.

It is also found that the regression coefficient between employee job satisfaction and employee performance is 0.510 ($t = 13.119$, $p = 0.000$, $p < 0.01$). This result shows that employee job satisfaction has a positive and significant effect on the performance of employees in private hospitals in Mandalay. If there is an increase in employee job satisfaction in private hospitals, it will increase the performance of employees in private hospitals.

Analysis of the Effect of Employee Job Satisfaction on Task Performance

The effect of employee job satisfaction on task performance is measured by a simple linear regression analysis. The independent variable is employee job satisfaction, and the dependent variable is task performance.

Table (5) T.he Effect of Employee Job Satisfaction on Task Performance

Variable	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.878	0.177		10.630	0.000
Employee Job Satisfaction	0.530***	0.044	0.579	11.934	0.000
R ²	0.335				
Adjusted R ²	0.332				
F	142.416 (P-value =0.000)				

Source: Own Computation (August, 2023)

Dependent Variable: Task Performance

*** indicates statistical significance at the 1% level.

The estimated regression mosdel is $TP = 1.878 + 0.530 EJS$

According to Table (5), regression analysis is conducted with employee job satisfaction and task performance. The R² value is 0.335, which means that approximately 33.5% of the variability of employee job satisfaction is accounted for by the variable in the model. The results show that the F value is 142.416, which is significant at $p = 0.000 (< 0.01)$. Therefore, the estimated regression model can significantly explain the relationship between independent variable and dependent variable.

It is also found that the regression coefficient between employee job satisfaction and task performance is 0.530 ($t = 11.934, p = 0.000, p < 0.01$). This result demonstrates that employee job satisfaction has a positive and significant effect on task performance of employees. If there is an increase in employee job satisfaction in the private hospitals, it will increase task performance in private hospitals in Mandalay.

If the expectations of employees have been fulfilled by the surveyed private hospitals, they will carry out the work according to their abilities and expertise to produce positive results for their work timely. If medical staffs are satisfied, they are able to perform their tasks with their high ability. High level of satisfaction leads to high quality and high level of work and the timeliness of carrying out the tasks assigned by the hospital.

Analysis of the Effect of Employee Job Satisfaction on Contextual Performance

The effect of employee job satisfaction on contextual performance is measured by a simple linear regression analysis. The independent variable is employee job satisfaction, and the dependent variable is contextual performance.

Table (6) The Effect of Employee Job Satisfaction on Contextual Performance

Variable	Unstandardized Coefficients		Standardized Coefficient	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.738	0.174		15.752	0.000
Employee Job Satisfaction	0.367***	0.044	0.447	8.406	0.000
R ²	0.200				
F	70.654 (P-value =0.000)				

Source: Own Computation (August, 2023)

Dependent Variable: Contextual Performance

*** indicates statistical significance at the 1% level.

The estimated regression model is $CP = 2.738 + 0.530 EJS$

According to Table (6), regression analysis is conducted with employee job satisfaction and contextual performance. The R² value is 0.2, which means that approximately 20% of the variability of employee job satisfaction is accounted for by the variable in the model. The results show that the F value is 70.654, which is significant at $p = 0.000$ (< 0.01). Therefore, the estimated regression model can significantly explain the relationship between dependent and independent variables.

It is also found that the regression coefficient between employee job satisfaction and contextual performance is 0.367 ($t = 8.406$, $p = 0.000$, $p < 0.01$). This result reveals that employee job satisfaction has a positive and significant effect on the contextual performance of employees in private hospitals in Mandalay. If there is an increase in employee job satisfaction in the private hospitals, it will increase contextual performance in private hospitals.

Job satisfaction of medical staff is a crucial factor for the improvement of contextual performance in the surveyed private hospitals. Employees who are satisfied with their work lead to higher levels of contextual performance, such as coordinating among fellow workers, participating in group discussions and work meetings with their colleagues. Satisfied employees are likely to seek opportunities to improve their knowledge and skills.

Discussion

In this study, the effects of internal marketing practices on employee job satisfaction are analyzed. According to the multiple regression analysis results, compensation and benefits have the most significant effect on employee job satisfaction, followed by empowerment, internal communication, and organizational support. Most of the employees are motivated by their chances to increase in salary in the surveyed private hospitals. The surveyed private hospitals arrange accommodation and allow to take various leaves for medical staff. In these private hospitals, a reward system is applied to employees in order to commit to their work by providing bonuses, and promotions. The compensation and benefit system in private hospitals is fair. The more the staff are compensated and provided the benefits, the more job satisfaction is achieved in performing their duties.

In the surveyed private hospitals, the internal communication helps drive better results for individuals and organizations. Health issues are discussed through senior management team meetings, and information is communicated through departmental meetings. Medical staff communicate with each other through phone, email, and viber. Information about changes in new policies, instructions, and upcoming changes is communicated in advance. Therefore, employees at all levels understand the direction and key priorities of the hospital. The better communication, the greater the satisfaction of medical staff.

In the surveyed private hospitals, organizational support is critical to maintaining the satisfaction of medical staff. The surveyed private hospitals are responsible for supporting their medical staff. Private hospitals provide health insurance and free vaccination programs. Medical staffs are supported by a knowledge-sharing program to improve medical knowledge. Employees who are supported by their organization feel satisfied with their job. The greater the extent to which employees perceive that the hospital is giving them support, the more they feel a moral obligation to keep working for that hospital.

Empowerment is an important practice used by the surveyed private hospitals to improve the job satisfaction of medical staff. Medical staff need to have some extent level of autonomy to solve the problem in time. Private hospitals allow employees to do tasks with their own skills to be high-quality jobs. Medical staff have the right to participate in decision-making to solve the problem. Medical staff handle and solve the emergency cases on a daily basis. They are given the authority to solve problems on their own. Empowerment for employee is essential for job satisfaction.

Training does not increase or decrease employee job satisfaction although the surveyed private hospitals provide various trainings. It can be concluded that employees have no ability to accept trainings which are not relevant with their work. In order to attain employees' job satisfaction, training needs should be analyzed and training programs should be updated.

Moreover, the job satisfaction of employees does not change by leadership. It is necessary to build good relationship between leaders and subordinates. It may be possible that subordinates expect familiar and close relations from their leader.

The effect of employee job satisfaction on employee performance including task performance and contextual performance is analyzed by regression analysis. This result demonstrates that employee job satisfaction has a positive and significant effect on the performance of employees in private hospitals in Mandalay. If there is an increase in employee job satisfaction in private hospitals, it will increase the performance of employees in private hospitals.

Conclusion

The study analyzed the effect of internal marketing practices on employee performance of private hospitals in Mandalay. The multiple regression analysis shows that compensation and benefits, internal communication, organizational support and empowerment are significantly associated with employee job satisfaction. But training and leadership are not significantly associated with employee job satisfaction. The surveyed private hospitals should provide trainings which are relevant with the required skill in the work to attain employees' job satisfaction. Training programs are necessary to differ according to various professions. There is necessary to have good

relationship between leader and subordinates. Taking care by the leader encourage the subordinates for enhancing their satisfaction. Therefore, the leader should attempt to understand the emotions of subordinates. Employee job satisfaction has a positive and significant effect on the performance of employees in private hospitals in Mandalay. If there is an increase in employee job satisfaction in private hospitals, it will increase the performance of employees in private hospitals.

Contributions of the Study

Compensation and benefits is the most attractive and essential practice for every employee in any organization. Private hospitals in Mandalay provide fair compensation and benefits to their medical staff. These hospitals should maintain the current compensation and benefit system and employ the more attractive one to motivate their medical staff. If the better compensation and benefits system is applied, medical staff will go extra mile and contribute to their hospitals inevitably.

The current private hospitals in Mandalay emphasize training activities. The surveyed private hospitals should provide on-the-job training continuously and off-the-job training or in-class training in the surveyed private hospitals. For effective training, managers need to evaluate after training and ask employees about their perception on training. These hospitals should provide various types of training according to different position of medical staff. It is necessary to emphasize that medical staff are sent to training classes outside of the workplace and they are trained by healthcare professionals. The surveyed private hospitals should conduct interim training programs according to the technical skill.

The surveyed private hospitals provide information by using various media channels currently. To communicate information effectively, these hospitals should built a good relationship between medical staff in different departments. It is necessary to focus on the flow of information from one department to another is sure to create a quick response to patients.

Private hospitals in Mandalay give opportunities to learn about their job and to develop the skills and competencies of medical staff by knowledge-sharing programs. The surveyed private hospitals should value the contributions of employees and take care of their well-being and fulfill social needs.

The leader should guide medical staff for doing tasks with time management and coaches them by sharing job experience. In the surveyed private hospitals, the relationship between the leader and subordinates should be familiar and respectful, ensuring that the tasks are completed smoothly. The supervisors need to listen to what subordinates have to say about their jobs or a problem related to their job.

In private hospitals in Mandalay, medical staff are allowed to do with their own skills. The hospital should consider the knowledge, skills as well as behavior of medical staff who are suitable to give power to make effective decisions. These hospitals are needed to focus on the new ideas of medical staff and encourage them to solve problems in their workplace for their skill development. Furthermore, these hospitals should praise them for having taken an initiative for patient satisfaction.

The findings of this study can contribute not only to the surveyed private hospitals in Mandalay but also to the private hospitals in Myanmar. First, this study provides guidance to currently operating private hospitals on how to enhance the job satisfaction and performance of

their medical staff. It also outlines the development of internal marketing practices for medical staff, which they can implement to improve their job satisfaction and performance. The currently operated private hospitals should implement the above-given suggestions for increasing their coverage area in Mandalay. Second, this study also highlighted the private hospitals in Myanmar to improve their operations to face the challenges of prospected new private hospitals. Last, the policy maker should also be aware of the importance of private hospitals in Mandalay and should provide necessary help to private hospitals, such as improvement of medical equipment, getting healthcare knowledge from developed countries, allowing knowledge sharing with healthcare professionals, sending off training to overseas, and giving financial, technical, and other necessary supports. Medical staff are satisfied to enhance their performance when their managers supply acute vision and mission, pay attention to them, and give recognition. The most important task of management is to settle the plans for organizational conditions and systems of operation to obtain the goals for medical staff towards organizational objectives.

By summary, it is suggested that private hospitals in Mandalay will be creditable and reliable for the patients nearby Mandalay Region by using more attractive internal marketing practices.

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RELATIONSHIP BETWEEN CHARACTERISTICS OF TRAINEES AND TRAINING EFFECTIVENESS IN GOOD AGRICULTURAL PRACTICES (GAP) TRAINING*

Khaing Thazin Aung¹, Sulae Win², Naw June Rose³, Shoon Lae Oo⁴

Abstract

Good Agricultural Practices (GAP) offers a framework for sustainable agriculture, focusing on food safety, environmental preservation, and economic sustainability. The Department of Rural Development in Myanmar has provided vocational training on GAP, which includes farming techniques aimed at improving agricultural productivity and sustainability. This study aims to understand the relationship between the characteristics of trainees and the training's outcomes. Primary data were collected through a survey of 192 trainees who participated in the GAP training between 2018-2019 and 2022-2023. Data were collected through structured questionnaires using a five-point Likert scales. Statistical analysis, including t-tests and ANOVA, was applied to determine the relationship between participant characteristics and training effectiveness. The study finds that there is a relationship between gender, age, experience and training effectiveness. However, there is no relationship between education level and training effectiveness. The study recommends that government agencies promote and support GAP training by providing targeted funding, resources, and policy frameworks that encourage inclusivity and accessibility, are actively engaged and benefit from the trainings to enhance agricultural productivity and sustainability.

Keywords: Good Agricultural Practices (GAP), training effectiveness, Yamethin Township

Introduction

Agriculture is a major source of food and income for poor and rural households living in developing countries; yet, agricultural systems are increasingly threatened by changing climate conditions that compromise their productivity and resilience. Over time, international aid has provided support to the agricultural systems of recipient countries, though the literature is not unanimous in confirming their effectiveness (Trentinaglia et al., 2023).

Agriculture is a critical sector that supports livelihoods, ensures food security, and contributes significantly to the global economy. Agriculture is central to the livelihoods of the rural poor and in the attainment of the Millennium Development Goals (MDGs). Agriculture in developing countries plays a crucial role both economically and in improving people's lives. In developing countries, the livelihood of rural and poor households largely depends on agriculture, which provides them with food, income, and employment. In some of these countries, agriculture even accounts for up to 70% of total employment, and its contribution to the overall Gross Domestic Product (GDP) is often even higher (International Labour Organization, 2021).

Good Agricultural Practices (GAP) are essential guidelines and standards aimed at ensuring safe and sustainable agricultural production. These practices cover a wide range of

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¹ Department of Economics, Meiktila University

² Department of Economics, Meiktila University

³ Department of Economics, Meiktila University

⁴ Department of Economics, Meiktila University

agricultural activities, from crop production and harvesting to animal husbandry and resource management. The primary goal of GAP is to produce food that is safe for consumption while minimizing the environmental impact and ensuring the welfare of agricultural workers. With the increasing demand for safe, high-quality food and the pressing need for sustainable agricultural practices, GAP have become essential. GAP encompasses a set of principles, regulations, and technical recommendations aimed at ensuring food safety, quality, and environmental sustainability in agricultural production.

According to World Bank (1986), the general economic policies pursued by developing countries have pursued have often limited the growth of agricultural production and hampered efforts to reduce rural poverty. In many cases, sector-specific pricing and tax policies have resulted in substantial discrimination against agriculture. Moreover, government interventions across all stages of production, consumption, and marketing of agricultural products and inputs have frequently led to greater inefficiencies, resulting in lower output and incomes. Consequently, farm incomes in many developing countries have stagnated, and little progress has been made in alleviating poverty.

The continuous implementation of rural development projects necessitates human resource development. Providing vocational training courses for rural residents is a significant aspect of this approach. In rural development, it is essential not only to build basic infrastructure but also to promote economic growth and human resource development. GAP is crucial as it reinforces responsible farming methods from site selection and land preparation to harvesting and handling. According to the Food and Agriculture Organization of the United Nations [FAO\(2022\)](#), GAP applies available knowledge to address environmental, economic, and social sustainability in on-farm and post-production processes, resulting in safe and healthy agricultural products.

Since its introduction, GAP has been implemented across various sectors, including crop cultivation, livestock farming, and aquaculture, with an emphasis on sustainable resource management and reducing chemical inputs. The Ministry of Agriculture, Livestock, and Irrigation (MOALI) has played a central role in developing GAP standards and providing training programs to educate farmers on best practices. These efforts aim to align Myanmar's agricultural practices with international standards, thereby improving market access for its agricultural exports.

In recent years, GAP initiatives have been integrated into rural development programs, particularly in areas where agriculture remains the primary source of livelihood. The Department of Rural Development, for example, has offered GAP training sessions to farmers in different regions of Myanmar, focusing on enhancing productivity, improving food safety, and promoting sustainable agricultural techniques.

In Myanmar, the Department of Rural Development has been offering vocational trainings since 2013. Between 2013 and 2023, a total of 6,515 training sessions were conducted, reaching 181,606 participants. In Yamethin, GAP training was introduced in 2018. Accordingly, this study analyzes the the relationship between the characteristics of trainees and the effectiveness of the training provided by Department of Rural Development in Yamethin Township.

Objective

This study aims to examine the relationship between characteristics of trainees and the training effectiveness.

Materials and Methods

This study used analytical method based on primary data. In Yamethin, GAP training offered in 2018-2019 and 2022-2023, a total of 255 trainees is attended. Among them, a total of 192 trainees who attended the GAP training are chosen as sample respondents by using stratified random sampling method which include 109 trainees in 2018-2019 and 83 trainees in 2022-2023.

There are 5 wards and 63 village tracts in Yamethin Township. Among them, farmers from four villages such as Tein Nyaat Kone, Nyaung Aine, Bhumma, and KaTin attended GAP training offered by Department of Rural Development, Yamethin Township. This study focuses on the good agricultural practices (GAP) trainings conducted in Yamethin, offered by the Subdivision Department of Poverty Alleviation and Vocational Support under the Department of Rural Development. In 2018-2019, a total of 150 trainees participated from Tein Nyaat Kone and Nyaung Aine villages and in 2022-2023, a total of 105 trainees participated from Bhumma, and KaTin villages. Table 1 provides details of the GAP trainings held in Yamethin in 2018-2019 and 2022-2023 fiscal year:

Table (1) GAP Trainings in Yamethin (2018-2019 & 2022-2023) Fiscal Year

No.	Location	Number of Trainees	
		Frequency	Percent
1	Tein Nyaat Kone Village	50	26.0
2	Nyaung Aine Village	33	17.2
3	Bhumma Village	62	32.3
4	KaTain Village	47	24.5
Total		192	100

Source: Survey Data (August, 2024)

Good Agricultural Practices (GAP) trainings were conducted in various villages of Yamethin in 2018-2019 and 2022-2023 fiscal years. In total, 192 trainees participated in the GAP trainings in 2018-2019 and 2022-2023 fiscal years.

Results and Findings

In Yamethin Township, there has been a consistent increase in the number of training sessions offered, demonstrating a growing demand for skill development in agricultural practices. The study surveys 192 participants who attended GAP training 2018-2019 and 2022-2023, aiming to examine the relationship between characteristics of trainees and the training effectiveness.

This section provides a description of the characteristics of the respondents including gender, age, marital status, education level, farming experience, and farm size.

Table (2) Characteristics of the Respondents

Variables	No. of Respondents	Percentage (%)
Gender		
Male	149	77.60
Female	43	22.40
Total	192	100
Age (Years)		
18-25	5	2.60
26-35	5	2.60
36-45	21	10.94
46-55	50	26.04
Above 56	111	57.81
Total	192	100
Marital Status		
Single	8	4.17
Married	184	95.83
Total	192	100
Education Level		
Primary education	70	36.46
Secondary education	82	42.71
High School	39	20.31
Graduate	1	0.52
Total	192	100
Farming Experience		
1-5 years	4	2.08
6-10 years	4	2.08
More than 10 years	184	95.83
Total	192	100
Farm Size		
1-5 acres	24	12.50
6-10 acres	73	38.02
More than 10 acres	95	49.48
Total	192	100

Source: Survey Data (2024)

As shown in Table (2), male respondents (77.60%) participate in this survey more than female respondents (22.40%). Respondents are categorized into five age groups: 18-25 years, 26-35 years, 36-45 years, 46-55 years, above 56 years. Most respondents are above 56 years (57.81%) who are followed by those between the 46 to 55 age group (26.04%). Most respondents

are marriage (95.83%). Then, most respondents are secondary education (42.71%) and among 70 respondents, (36.46%) of the respondents are primary education. All of the respondents grow grape. Their farming experiences are more than 10 years (95.83%). The farm size of respondents is more than 10 acres (49.48%) and among 73 respondents, (38.02%) of the respondents are 6 to 10 acres.

The study explores the relationship between characteristics of trainees and the training effectiveness. Table (3) presents the relationship between gender and the training effectiveness.

Table (3) Relationship between Gender and the Training Effectiveness

Description	Gender		n	Mean	Mean Differences	t	Degree of Freedom	P-value
Training Effectiveness	Male		149	4.69	-0.3592	-3.835	576	0.000***
	Female		43	4.46	-0.1127			

***,1% significant level

Source: Survey Data (2024)

The result in Table (3) reveals a statistically significant effectiveness of GAP training between two gender groups (Male, Female). The mean average for females is 4.46, and for males, it's 4.69. This indicates that males rate the training's effectiveness higher than females. The p-value is 0.000, which is highly significant at 1% significant level. Male respondents reveal a higher perceived effectiveness of the training compared to female respondents. Male farmers often have greater access to resources, such as land, equipment, and financial support, which can facilitate the application of training content and thus enhance the perceived effectiveness. Additionally, traditional gender roles in many agricultural communities' place men in more direct, hands-on farming positions, while women may handle household responsibilities, potentially limiting the relevance of the training content to their daily roles. This result is consistent with the study of Meinzen-Dick et al. (2014).

The study explores the relationship between age and the training effectiveness. Table (4) presents the relationship between age and the training effectiveness.

Table (4) Relationship between Age and the Training Effectiveness

Description	Age	Mean	Sum of Square	Degree of Freedom	Mean Square	F value	Sig
Training Effectiveness	18-25	3.99	3.632	4	0.908	10.66	0.000***
	26-35	4.33					
	36-45	4.51					
	46-55	4.62					
	Above 56	4.72					

***,1% significant level

Source: Survey Data (2024)

Table (4) displays the result of ANOVA examining the relationship between age and training effectiveness. The analysis indicates that the differences in age and across five age groups are statistically significant at the 1% level. The result indicates that age has a statistically significant impact on how participants perceive the effectiveness of the GAP training. Above 56 respondents reveal a higher perceived effectiveness of the training. This is because the old – age farmers (above 56 respondents) have more farming experiences and knowledge than others age range that apply to the GAP training. This result is similar with Kariyasa and Dewi (2011).

The study explores the relationship between experience and the training effectiveness. Table (5) presents the relationship between experience and the training effectiveness.

Table (5) Relationship between Experience and the Training Effectiveness

Description	Experience	Mean	Sum of Square	Degree of Freedom	Mean Square	F value	Sig
Training Effectiveness	1-5	4.00	2.499	2	1.249	13.84	0.000***
	6-10	4.20					
	Above 10	4.67					

***,1% significant level

Source: Survey Data (2024)

Table (5) presents the result of ANOVA examining the relationship between experience and training effectiveness. The p-value (0.000), which is extremely significant, indicating that the differences in effectiveness across experience groups are highly statistically significant. The result that experiences has a significant impact on the perceived effectiveness of GAP training. The almost 95% of respondents have farming experiences above 10 years. This is because more experience farmers (above 10 years respondents) have more perceived effectiveness of GAP training. This result confirms the study of Liao (2020).

The study explores the relationship between education and the training effectiveness. Table (6) presents the relationship between education and the training effectiveness.

Table (6) Relationship between Education and the Training Effectiveness

Description	Education	Mean	Sum of Square	Degree of Freedom	Mean Square	F value	Sig
Training Effectiveness	Primary	4.69	0.31	3	0.103	1.009	0.39
	Secondary	4.63					
	High School	4.59					
	Graduate	4.82					

Source: Survey Data (2024)

Table (6) presents the result of ANOVA examining the relationship between education and training effectiveness. The analysis indicates that p-value (0.39), which is not statistically significance. This result indicates that the training is designed and delivered in a way that is equally accessible and understandable to participants, regardless of their educational background. Additionally, since agriculture relies heavily on experiential learning and practical application,

formal education may play a less critical role in framing the perceived value of training in this context.

Discussion

Based on the findings of the study, given that older participants tend to perceive the training as more effective, it is recommended that GAP trainings be tailored to different age groups. Specifically, younger participants, who expressed concerns about the environmental impacts of GAP practices, would benefit from additional content that emphasizes sustainable agricultural methods and ecological considerations. Customized modules could ensure that the training remains relevant to diverse age demographics and addresses varying concerns. The study's findings suggest that males rated the training's effectiveness higher than females, with a statistically significant difference between genders. To bridge this gap, it is advisable to develop gender-sensitive approaches within the GAP training framework. This could include designing programs that address the unique challenges women face in agriculture, offering more inclusive learning environments, and ensuring that training materials and examples are relatable to both male and female participants.

Since participants with greater farming experience rated the training more positively, it is recommended to introduce advanced GAP training modules aimed at experienced farmers. These modules could help into complex agricultural techniques and innovations, ensuring that more experienced farmers continue to find value in the training. Advanced sessions could also serve to reinforce long-term engagement and enhance the relevance of GAP training for seasoned farmers. The study indicates high levels of satisfaction with the training environment and its practical applications. To build on this success, future GAP training should maintain and enhance the focus on practical, hands-on learning experiences. Incorporating more field demonstrations and real-life case studies could further strengthen participants' ability to apply learned techniques to their farming practices.

Conclusion

A statistically significant difference was found between gender and training effectiveness. The mean average for females and males is 4.46 and 4.69 respectively. This indicates that males rate the training's effectiveness higher than females. The p-value is 0.000, which is highly significant at 1% significant level. Male respondents reveal a higher perceived effectiveness of the training compared to female respondents. Male farmers often have greater access to resources, such as land, equipment, and financial support, which can facilitate the application of training content and thus enhance the perceived effectiveness. The study found a significant relationship between age and training effectiveness. The highly significant p-value (0.000) suggest that as age increases, participants tend to perceive the training as more effective. Above 56 respondents reveal a higher perceived effectiveness of the training. This is because the old – age farmers (above 56 respondents) have more farming experiences and knowledge than others age range that apply to the GAP training.

A strong, statistically significant relationship was observed between experience and training effectiveness. The p-value of (0.000) indicate that participants with more farming

experience rated the training as more effective. The almost 95% of respondents have farming experiences above 10 years. This study found that the almost 95% of respondents have farming experiences above 10 years. This is because more experience farmers (above 10 years respondents) have more perceived effectiveness of GAP training.

However, this study found that the relationship between education level and training effectiveness are not statistically significant. This result indicates that the training is designed and delivered in a way that is equally accessible and understandable to participants, regardless of their educational background. Additionally, since agriculture relies heavily on experiential learning and practical application, formal education may play a less critical role in framing the perceived value of training in this context.

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SCROLLAHOLIC, DIGITAL WELL-BEING AND ONLINE USERS' BEHAVIOUR: A STUDY OF FACEBOOK USAGE TRENDS AMONG MYANMAR USERS*

Hsu Thiri Zaw¹

Abstract

This study focuses on the influence of Facebook use on digital well-being and online users' behavior, with an emphasis on the phenomena of "scrollaholic" concepts. The data is collected from 200 participants, by measuring how frequent and extended Facebook activity affects users' emotional states and interactions. According to the findings, a large proportion of Facebook users suffer from worry, stress, and social isolation as a result of their extended activities on social media. Many participants express making unpleasant postings or comments when they are disturbed, resulting in greater online conflict and emotional load. The research aims to reflect that "scrollaholic" habits, defined as excessive and obsessive scrolling, influence on the users' digital well-being and online behaviour by utilizing in-depth interview with participants. Despite some users finding momentary time off through online venting, the overall impact on digital well-being is mainly negative, causing emotions of stress and concerns. The research also points out the need for mindful social media practices and offers recommendations for enhancing digital well-being, including raising awareness, encouraging mindful usage, improving emotional support resources, promoting positive interactions, and monitoring online users' behavior. These insights aim to support a healthier digital environment among the users in Myanmar.

Keywords: social media, Facebook, online behaviour, digital well-being, social media addiction.

Introduction

In the digital era, social networking channels have grown into an integral part of people's everyday lives throughout the world. Among these platforms, Facebook stands out, particularly in Myanmar, where it is extensively utilized as a key source of information, communication, and entertainment. With millions of active users, Facebook has altered not just how people communicate, but also how they receive media and information (Roberts & David, 2020).

The word "Scrollaholic" refers to the obsessive behavior of continually scrolling through social media feeds, frequently at the negativity of other critical tasks. This practice, while frequent, can have major consequences for psychological well-being and efficiency, resulting in feelings of worry, sadness, and social isolation. In Myanmar, Facebook is more than a social media platform; it is frequently referred to as "the internet" itself. Many individuals in the nation use Facebook for news, entertainment, and even commercial transactions (Andreassen, Pallesen, & Griffiths, 2017).

In today's digitally linked society, social media platforms such as Facebook play an important part in daily life. In Myanmar, Facebook has developed as a prominent platform, with millions of users engaged in its diverse functions ranging from networking to news consumption. However, as social media use grows, worries regarding the impact on users' mental health and social behavior have emerged. This research focuses on three interconnected phenomena: scrollaholic behavior, digital well-being, and online user behavior, specifically in the setting of Myanmar.

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¹ Department of Journalism, National Management Degree College.

The study aims to fill a knowledge gap about how Facebook usage in Myanmar contributes to scrollaholic behavior patterns and how it affects users' digital well-being and online behaviors. While many studies around the world have looked at the larger effects of social media on its users, there has been little study focused on Myanmar, where Facebook serves as a crucial center for both communication and information exchange in Myanmar's society. Analyzing these situations in Myanmar highlights important information on how cultural and regional settings impact digital communications and their effects on emotional well-being. By reflecting the nature of Facebook usage patterns in Myanmar, this study highlight a wider conversation about improving healthy digital habits, enhancing digital well-being, and promoting good online users' behaviors.

Literature Review

The usage of social media has increased dramatically over the last decade, changing the way people connect, communicate, and exchange information. For billions of individuals throughout the world, platforms such as Facebook, Instagram, Twitter, and TikTok have become indispensable. However, with the increase in social media use, worries of addiction have arisen. Researchers have been investigating the consequences of social media use on online behavior, digital well-being, and daily functioning in order to better understand how social media might lead to addictive behaviors (Chou & Edge, 2012).

Social Media Usage and Addiction

Social media platforms were developed to facilitate communication and interaction. They make the users to exchange material, communicate with others, and remain current events happening on world. According to Statista (2023), more than 4.7 billion people use social media worldwide. Many individuals use these platforms to communicate with family and friends, read news, and participate in online communities (Statista, 2023).

Social media usage varies by age and area, although young people are the most active users. This continual availability to social media has altered how individuals connect, making online communication as crucial as in-person encounters (Kaplan & Haenlein , 2022). Social media addiction is a type of digital dependency characterized by excessive worry about social media, a strong want to be online, and an unwillingness to limit usage despite the negative repercussions (Griffiths , 2005).

Excessive social media use might have various negative impacts on the users. One of the primary concerns is the effect on mental health. Several studies have found a clear link between social media addiction and mental health problems such anxiety, despair, and poor self-esteem. Individuals who are obsessed with social media are more likely to suffer from sadness and anxiety than those who use it moderately (Andreassen, Pallesen, & Griffiths, 2017).

People who overuse social media sometimes struggle to focus on activities, resulting in lower productivity at work or school. Individuals who spend too much time on social media are more likely to have issues with time management and tardiness (Przybylski & Weathers , 2017). While social media is intended to improve communication, excessive use can have the opposite impact (Roberts & David, 2020). Digital detoxing is a successful strategy in which people take a break from social media for a predetermined length of time. Reducing time spent on social media can enhance mental health and well-being (Vanden Abeele , 2020).

Facebook Trends and its Influence in the world and Myanmar

Since its establishment in 2004, Facebook has grown into the world's largest social networking site, with over 2.9 billion monthly active members as of 2023. According to Statista (2022), Facebook is the most popular social media network, with more than 65% of internet users globally having an account. The bulk of users are from underdeveloped nations, where the platform acts as the principal gateway to the internet (Statista, 2023). According to studies, approximately 98% of Facebook users access the network using cellphones. In developing countries such as Southeast Asia and Africa, mobile-first usage has enabled Facebook to become associated with internet access (Hossain & Sultana, 2020).

Globally, Facebook has grown as an important tool for corporate promotion. It's used for advertising, consumer involvement, and e-commerce. Facebook's advertising income makes up a significant chunk of its revenues, as businesses increasingly use tailored ads to reach specific audiences. The platform's technologies ensure that information is matched to user preferences, providing a more customized user experience (Hinduja & Patchin, 2019).

In Myanmar, Facebook plays an important role in both social and political life. Since the increasing availability of mobile internet in the early 2010s, the platform has become the primary online area for millions of Myanmar residents. According to data, many people in Myanmar associate Facebook with the internet. More than 90% of Myanmar's internet users use Facebook on a regular basis, for everything from news consumption to communication and pleasure (Tun & Zaw, 2018).

Kim (2020) discovered that a large section of the population uses Facebook as their primary source of news, bypassing established media channels. The term "Facebook internet" has become a common idiom in Myanmar, demonstrating how deeply embedded the site is into daily life. Its prevalence may be linked to a variety of causes, including a lack of diversity in the media environment, limited digital literacy, and the platform's accessibility via low-cost mobile data plans (Kim, 2020).

In Myanmar, Facebook's popularity has transformed how people access the internet, interact socially, and engage in politics, but it has also worsened social tensions and prompted worries about digital well-being. Moving forward, a careful analysis of Facebook's effect, particularly in emerging economies such as Myanmar, is required to grasp its dual function as both a facilitator of advancement and a potential cause of harm (Lee, 2021).

Digital Well-being and Online Behaviour among the Social Media Users

As worldwide social media use grows, digital well-being has emerged as a significant concern. With billions of people consuming longer online, particularly on platforms such as Facebook, Instagram, and Twitter, knowing the link between digital habits and well-being is critical. The term "digital well-being" refers to how using technology and social media affects a person's mental, emotional, and physical health. Digital well-being is being aware of how social media use influences everyday living, emotional stability, and general happiness (Vanden Abeele, 2020).

Excessive social media usage might have a negative impact on well-being. Anxiety, sadness, and social isolation are all possible consequences of excessive usage. These issues frequently occur because social media platforms encourage ongoing participation, which disrupts sleep

habits, reduces face-to-face contacts, and heightens feelings of inadequacy when users compare themselves to others online (Walsh, Fielder, Carey, & Carey, 2018).

Social media's influence on digital well-being is not always beneficial. People prefer to communicate just the highlights of their lives, which results in a false reality. This often results in feelings of inferiority and low confidence in users who believe their lives do not measure up (Chou & Edge, 2012). Another concern is cyberbullying, which has become increasingly frequent since the development of social media. Victims of online harassment frequently feel increased anxiety and sadness, which contributes to a reduction in their overall digital well-being (Hinduja & Patchin, 2019).

Many social media users suffer from obsessive behaviours, such as often checking their accounts, which interfere with other parts of their lives. Social media addiction is associated with low self-esteem, poor sleep quality, and trouble concentrating on key activities (Andreassen, Pallesen, & Griffiths, 2017). Social media users schedule regular digital detoxes, where they take breaks from social media to reconnect with the offline world and reduce the pressure to be constantly online (Roberts & David, 2020). Furthermore, several social media companies are developing tools to assist users regulate their digital well-being (Steers, 2019). Digital well-being and online activities are significantly linked. As social media continues to be an important part in people's lives, encouraging attentive and balanced use is critical to maintaining healthy digital well-being (Ryan, Chester, J, & Xenos, 2014).

Research Methodology

The study focuses on the use of Facebook among Myanmar people and digital well-being and online behaviour of social media users in their daily lives. The main objective of the research is to explore the concept of "Scrollaholic" behavior among Facebook users in Myanmar and examine its influence on their emotional well-being and also provide recommendations for healthier social media usage habits. Therefore, the study figures the research question; **“How does excessive Facebook usage impact the digital well-being and online behavior of users in Myanmar?”**

To fulfill the research objective, this study takes mainly quantitative research method to measure the users' Facebook usage patterns. Survey questionnaires were issued to 200 Facebook users in Yangon as there are some limitations in collecting data from other regions such as internet penetration rate and digital literacy. Moreover, the research goes for open-ended and in-depth interviews to understand more detailed about the users' experiences and those were transcribed for analysis and show as quotations for clear interpretation. For in-depth interviews with 15 participants, the research mainly highlights about the relation between the social media usage and their emotional well-being and its impact on their online behaviour.

Findings and Analysis

The study focuses on the use of social media especially Facebook among Myanmar people and its impact on digital well-being and online behaviour in their daily activities and social media consumption practices. The data is mainly collected from 200 respondents who are residing in different townships of Yangon Region as the sample of Facebook users in Myanmar because

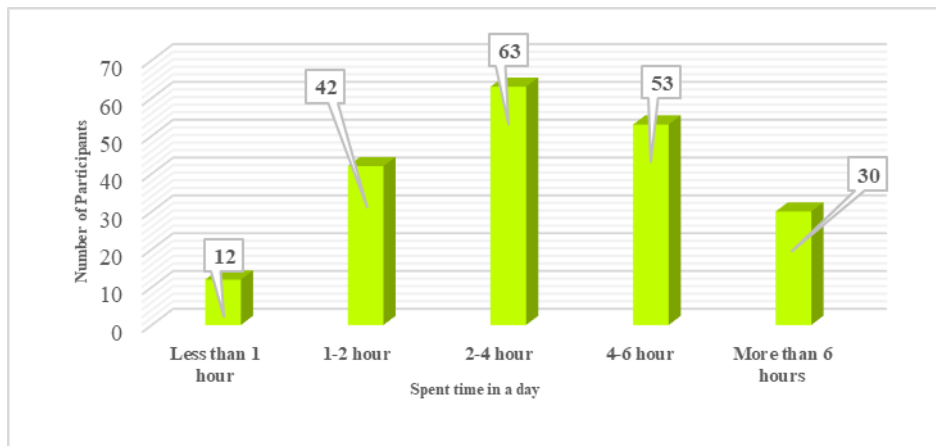
Yangon has the most internet penetration and digital literacy rate in Myanmar. The research had 200 participants, with 95 men (47.5%) and 105 women (52.5%), indicating a well-balanced gender distribution. While females make up the small majority of participants, the roughly equal participation of both genders guarantees that the data give a comprehensive view of Facebook trends in Myanmar.

The age distribution of the 200 participants in the survey indicates that the majority are between the ages of 18 and 24, with 80 (40%), followed by 40 (20%) aged 35 to 44 years. The 25-35 and 45-54 age categories each have 30 members (15%), while the 55 and above category has 20 people (10%). This distribution demonstrates that Facebook usage and digital well-being issues are more common among younger persons, particularly those aged 18-24, who make up the majority of the sample.

For educational background, the participants reveals that 110 (55%) are students, followed by 40 employed people (20%), another 40 self-employed (20%), and 10 retired participants (5%). The presence of students in the sample shows that younger, academically engaged individuals are more involved in Facebook use, which corresponds to the high representation of the 18-24 age group. The large number of employed and self-employed people suggests a larger interest in social media trends among different working-age groups.

Following the demographic information, the study analyzes the time spent on the Facebook among the social media users in Myanmar. The data show that 158 participants (79%) use Facebook multiple times every day, demonstrating a high reliance on the network for regular involvement. Furthermore, 20 people (10%) use Facebook once a day, while 22 users (11%) visit it multiple times each week. The vast majority of users who engage several times each day indicate that Facebook plays an important part in their daily routines. The lower proportion of less regular users implies that while some individuals retain more moderate usage of the site, the overall tendency swings towards habitual and frequent.

Figure 1 shows that people spend various amounts of time on Facebook, with 12 participants (6%) spending less than an hour per day and 42 participants (21%) spending 1-2 hours. A large majority of 63 participants (31.5%) use Facebook for 2-4 hours daily, followed closely by 53 participants (26.5%) who participate for 4-6 hours, and 30 participants (15%) who use the network for more than 6 hours every day. The higher usage times, particularly among a large group of participants spending more than 4 hours, raise potential concerns about the platform's impact on digital well-being, possibly leading to increased exposure to negative online behavior, social comparison, or information overload.



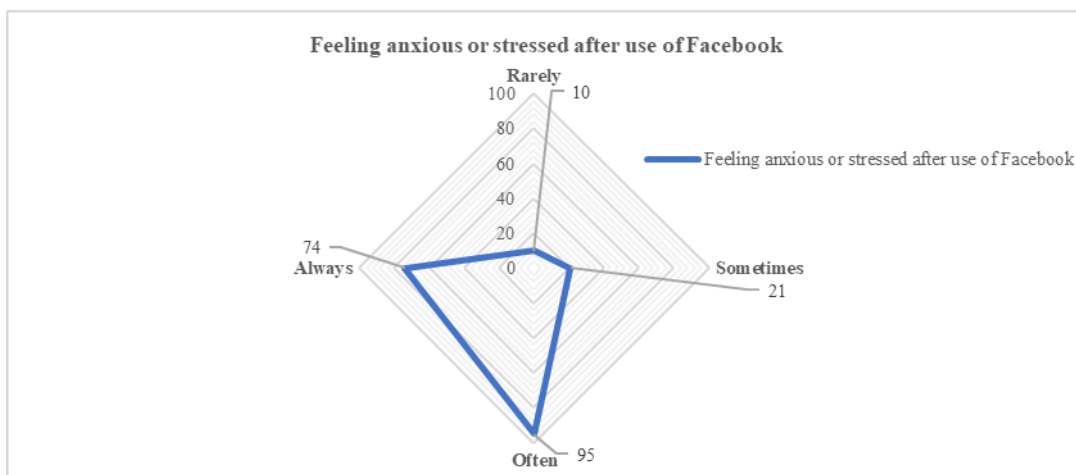
Source: Survey (2024)

Figure 1: Daily spent time on Facebook by participants

Following the Facebook usage data of the participants, the study analyzes the intake of social media among the users in their daily lives and its impact on their scrollaholic habits, digital well-being and online behaviour according to three factors. The first one is the analysis on negative impacts of Facebook usage that the users practically suffering, the second one is analysis on impact of digital well-being on social media users' online behaviour and the last one is the analysis on digital well-being and content interaction on social media.

Analysis on negative impacts of Facebook usage among the social media users practically

This part mainly measures how much the social media users experience the negative impacts of Facebook usage in their daily lives. According to the data on participants' experiences with anxiety and stress as a result of Facebook use shown in Figure 2, 10 persons (5%) seldom feel worried or stressed, whereas 21 participants (10.5%) do so on occasion. A considerable number of people, 95 (47.5%), report feeling nervous or stressed frequently, while 74 (37%) say they constantly feel like that. The high number of respondents who experience worry or stress on a regular or consistent basis implies that Facebook has a significant detrimental influence on users' emotional health. The significant percentage of people expressing regular or continual worry suggests that Facebook usage is a key contributor in their average stress levels.



Source: Survey (2024)

Figure 2: Frequency of feeling anxious or stressed due to the use of Facebook

Moreover, out of 200 participants, 23 participants (11.5%) believe that Facebook never distracts them from critical jobs or duties, whilst 55 participants (27.5%) report that such diversions occur only seldom. A significant 86 participants (43%) admit that Facebook occasionally distracts them from their tasks, while 36 participants (18%) believe that the network frequently causes such diversions. A large majority of respondents, particularly those who face interruptions on a regular basis, are harmed by Facebook's ability to disrupt their attention on vital work.

Measuring about experiencing negative feelings after seeing posts on Facebook, 55 people (27.5%) have never felt unpleasant emotions like jealousy, despair, or annoyance after perusing Facebook posts. There are 78 people (39%) who report having these sensations seldom, whereas 67 (33.5%) have them occasionally. The majority of respondents report experiencing unfavorable emotional responses to Facebook posts on occasion, either seldom or occasionally. This suggests that, while not all users are impacted, a sizable proportion of people feel unpleasant emotions in response to the information they encounter on the site.

Concerning feeling socially isolated as a result of spending too much time on Facebook, 11 participants (5.5%) never feel socially isolated as a result of their Facebook use, but 23 people (11.5%) do so on occasion. A considerable 71 (35.5%) of individuals report feeling socially isolated at times, with 95 (47.5%) experiencing this sensation frequently. The significant proportion of individuals who regularly feel social isolation highlights the possible harmful impact of heavy social media use on in-person social ties and well-being.

By doing in-depth analysis from interviews, the participants mention that they keep using Facebook regardless of negative impacts for many reasons.

“I cannot stop using Facebook though I know there are so many bad impacts. I can communicate with my friends and family members, and I can also watch funny videos there. It is for entertainment.”

(Female participant, Age: 24)

“Facebook has also positive impact on my social media intake. Although I try to take a break from Facebook often, I cannot stop using social media especially Facebook.”

(Female participant, Age: 33)

“Too much news and information on Facebook make me feel confused usually. So, lately, I just use Facebook for online shopping and entertainment programs.”

(Female participant, Age: 26)

“I notice that I have become social media addict because I always check Facebook immediately after receiving a notification there.”

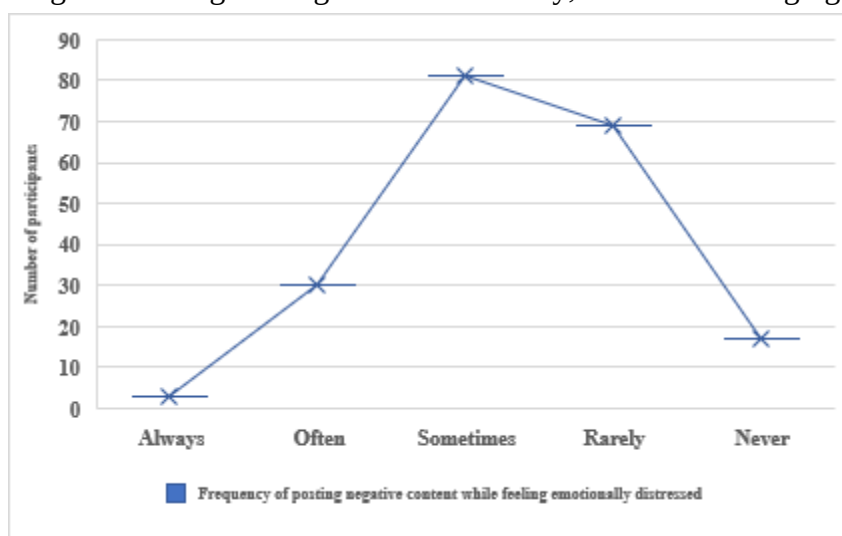
(Male participant, Age: 20)

While the study analyzes the social media users' Facebook usage and digital well-being, most participants mention about they cannot resist taking break from Facebook although they feel stressed and tired after using Facebook for an extended period of time as Facebook is the most popular social media apps in Myanmar. Coping the strategies to reduce Facebook screen time, most participants expressed that they know some but they just cannot do it simply.

Analysis on impact of digital well-being on social media users' online behaviour

The part explores the connection between digital well-being and online behavior among Facebook users in Myanmar. Specifically, it examines how feelings of stress, anxiety, or emotional overwhelm influence behaviors such as posting negative content, engaging in arguments, or reacting aggressively to posts on social media. Concerning the use of Facebook, 8 people (4%) consistently post or remark more on Facebook when they are anxious or agitated, whereas 12 participants (6%) do so frequently. A bigger group of 84 individuals (42%) claim that they occasionally increase their Facebook activity during these emotional states, whereas 73 people (36.5%) do so seldom. Finally, 23 individuals (11.5%) did not increase their exercise in such conditions. This practice might be a coping technique in which people seek social support or share their emotions online during challenging times.

Figure 3 shows that 3 individuals (1.5%) constantly post negative stuff when they are emotionally distraught, 30 people (15%) do so often, and 81 participants (40.5%) post such content occasionally. There are 69 people (34.5%) who publish negative stuff seldom, whereas 17 persons (8.5%) never do. This shows that a considerable proportion of users utilize Facebook to communicate negative feelings during times of difficulty, with often changing by participant.



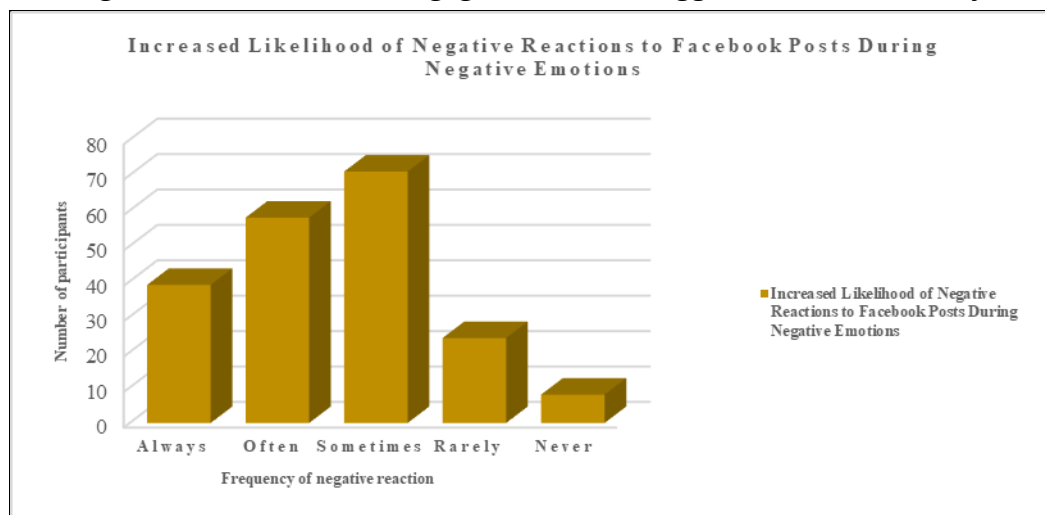
Source: Survey (2024)

Figure 3: Frequency of posting negative content while feeling emotionally distressed

When respondents experience unpleasant feelings, 102 (51%) report that their postings or comments become more negative, such as complaints or criticism. In contrast, 58 people (29%) say their postings or remarks remain same regardless of their emotional condition, while 40 participants (20%) are unsure about any potential changes. This implies that more than half of the participants are aware of a change toward more negative material in their online contacts during times of emotional distress. The large number of users who noticed this change suggests a relationship between emotional states and online activity, implying that unpleasant emotions might lead people to voice displeasure or criticism more often on Facebook.

According to Figure 4, 39 participants (19.5%) always react badly to postings when they are experiencing unpleasant emotions, such as through hostile remarks or arguments, whereas 58

people (29%) do so frequently and 71 people (35.5%) react adversely at times, 24 participants (12%) infrequently, and 8 participants (4%) never react in this way. The frequency of such reactions varies, but a large proportion of individuals demonstrate a strong link between their negative feelings and their motives to engage in violent or aggressive online activity



Source: Survey (2024)

Figure 4: Likelihood of reacting negative reactions to posts during emotional distress

Concerning the impact of digital well-being on online behaviour of social media users, the participants openly discussed the relation between their mental situation and behaviour on social media especially Facebook in in-depth interviews.

“I use Facebook whenever I feel pressured or stressed, but I cannot control my emotions on reacting on Facebook posts at that time.” (*Male participant, Age: 25*)

“I don’t want to admit that I am that kind of person, but frankly speaking, my emotions have impacts on my reaction to Facebook posts and comments.”

(*Female participant, Age: 24*)

“Sometimes, I feel regret about what I posted or commented when I was feeling stressed out. But, nothing I can do. This is like an automatic response for me.”

(*Female participant, Age: 26*)

“I always use Facebook to avoid boredom, but I cannot control my feelings included in posting or commenting especially whenever I have negative feelings.”

(*Female participant, Age: 33*)

Participants also mentioned that their tones often change negatively based on their emotions and also their content interaction on social media. Therefore, digital well-being has great impact on social media users’ online behaviour and even can lead to more heated discussions and arguments on Facebook and other social media apps.

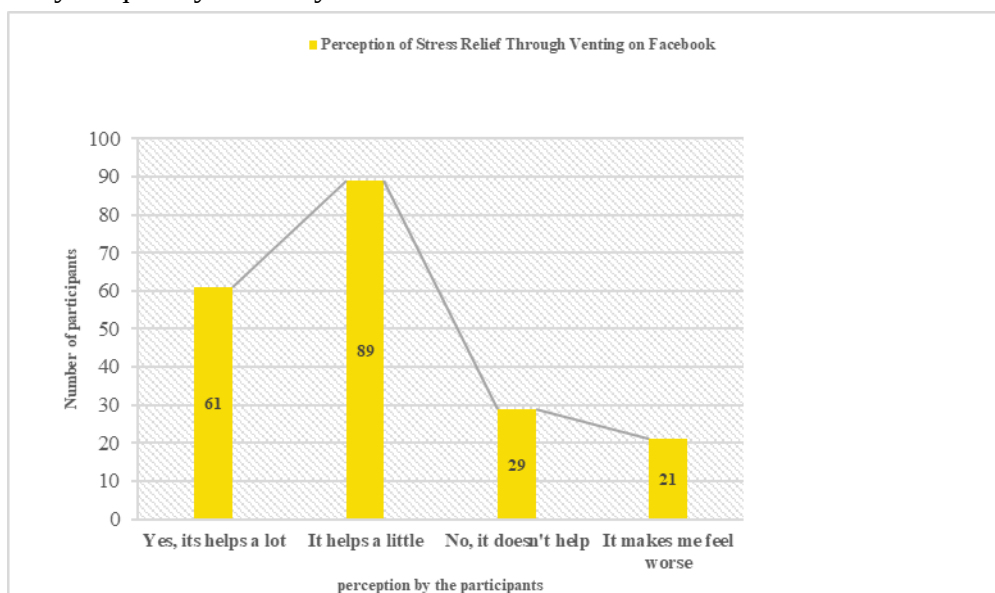
Analysis on digital well-being and content interaction on social media

Measuring the link between digital well-being and content interaction on social media, the study reflects on the users’ emotional state and content consumption on Facebook. According to the findings about the users’ experiencing shift in emotional state after reading negative or controversial content on Facebook, 84 individuals (42%) consistently feel an emotional change,

becoming more worried or irritated after reading unfavorable or controversial information on Facebook. Followed by 91 individuals (45.5%), it describes this happening frequently, 20 participants (10%) occasionally, and 5 participants (2.5%) seldom. This reveals that 87.5% of users have a substantial emotional impact after engaging with unfavorable or controversial information, with many experiencing increased stress or agitation on a regular basis. This shows that Facebook's content has a significant and persistent impact on users' emotional well-being.

Figure 5 shows that 61 individuals (30.5%) believe that venting or expressing unpleasant feelings on Facebook greatly reduces their stress or emotional load, whereas 89 participants (44.5%) believe it just slightly helps. In contrast, 29 people (14.5%) say it doesn't assist at all, and 21 participants (10.5%) say it actually makes their emotional condition worse. This implies that, while a significant fraction of users find comfort in sharing unpleasant feelings on Facebook, a significant proportion continue to have limited or negative effects, demonstrating that the efficiency of this coping method varies greatly between individuals.

Based on the question about the users' consciousness that their posts or commenting negatively on Facebook when stressed or pressured leads to further online conflict or arguments, 104 participants (52%) commonly notice that posting or commenting badly on Facebook when stressed leads to further online disagreement or disputes, whereas 81 participants (40.5%) do so on occasion. Only 9 individuals (4.5%) do not face such issues, while 6 (3%) users are unclear. This suggests that a sizable majority of users (92.5%) see a strong interlink between unpleasant online conduct and greater online disagreement or fights, implying that venting concerns on Facebook may frequently intensify rather than reduce stress.



Source: Survey (2024)

Figure 5: Perceived Effectiveness of Venting on Facebook in Reducing Stress or Emotional Burden

Participants expressed that they engage more with controversial or emotionally charged content when they feel down or stressed out. Sometimes, they use social media as their stress relief tool.

“I often feel pressured whenever I read negative news on social media. But, I can’t help reading the news. Facebook is the main source of information for me.”

(Male participant, Age: 25)

“Sometimes, I comment or share posts on Facebook whenever I feel emotional distress. I use it as one of the stress relieving ways.”

(Male participant, Age: 23)

“My comments writing style on Facebook totally change when I feel stressed out. I engage more in controversial discussions and talks. At that time, I feel like I am using Facebook in an inappropriate way.”

(Female participant, Age: 30)

“For me, whenever I feel emotional distress, I give negative comments on my friends’ Facebook posts. I often regret about that. My friends understand me for that and I always thank to them for that.”

(Female participant, Age: 20)

Digital well-being and content engagement are interconnected because how people interact with materials on social media has a big influence on their mental health. Positive content exchanges can improve overall well-being by building supportive connections and offering helpful knowledge. However, repeated exposure to unpleasant or distressing content can cause worry, tension, and social isolation. Thus, how consumers engage with material has a direct impact on their entire digital wellbeing.

Conclusion

According to the study, a significant proportion of people experience negative feelings associated with their Facebook use, such as fear, tension, and social isolation. On the social side, Facebook has provided a platform for groups to interact, exchange cultural material, and arrange social events. However, the study believes that excessive use of Facebook in Myanmar has led to concerns of social isolation, mental health deterioration, and the propagation of disinformation, particularly among younger people.

A substantial proportion of users believe that when they are upset, their postings and comments become more negative, resulting in increased online disagreement and confrontations. Although some users find temporary relief by raving on the platform, this behavior usually worsens their mental distress and contributes to a negative cycle. The link between bad online interactions and higher mental discomfort emphasizes the importance of a balanced approach to social media use.

Social media users should be informed on the possible harmful consequences of excessive use of Facebook and bad online interactions. Awareness campaigns and educational tools such as media literacy training and digital detoxing programs in high schools and universities can assist users in recognizing the symptoms of digital stress and its impact on mental health. Setting time limits on Facebook and arranging frequent breaks are examples of smart social media usage methods. Furthermore, social media users should be aware of their emotional condition before engaging in online activities and seek alternate stress management strategies.

Various resources should be established to encourage people to seek help when they are troubled. This might include access to mental health specialists, online support groups, or self-help resources for stress and emotional well-being. Social media users should participate in safe, productive, and constructive online interactions. On the other side, social media platforms may include elements that encourage positive involvement, such as suggestions for helpful comments and tools for managing unpleasant content. Users should be encouraged to examine their online conduct and how it affects their emotional state. Tools for monitoring social media usage and its consequences can assist users in making informed choices about their online behavior and addressing any harmful behaviours in their daily lives.

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CHALLENGES AND MENTAL HEALTH PROBLEMS FACED BY THE EMPLOYEES FROM THE TELEVISION SECTOR DURING THE COVID-19

Cho Yi Mon Tun¹

Abstract

Worldwide, coronavirus is a major respiratory disease that causes severe illness and high death rates. Since its 2019 emergence, it has also been known as COVID-19. The impacts of COVID-19 were devastating to the global economy, causing a financial crisis as well as challenges in the fields of education, healthcare, construction, tourism, and even the media. In March 2020, Myanmar reported its initial case of COVID-19, and as a result, the print and broadcast media industries were among the worst affected since they lost all of their advertising opportunities, television programs, and newspaper distribution due to COVID-19. Furthermore, COVID-19 had serious negative impacts on the television industry as a whole as well as its employees in different ways. This study analyzes the specific challenges and mental health problems faced by television industry employees during the pandemic period. It also examines the impact of production halts, job insecurity, remote working constraints, health-related anxieties, and financial instability on television employees. According to the findings, 80% of the employees from the television sector were infected with the disease. As the victims of the COVID-19 pandemic, a number of employees lost their primary jobs and regular income due to the financial crisis in the sector. The findings also point out increased levels of stress, anxiety, depression, and burnout, exacerbated by long working hours, social isolation, and the pressure to meet content demands under restrictive conditions. Therefore, this study suggests raising awareness and promoting actionable strategies for crisis management in the television industry.

Keywords: TV Employees, Television Sector, COVID-19, Financial Crisis, Mental Problems

Introduction

The novel coronavirus disease (COVID-19) outbreak, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is seeing a rapid increase in infected patients all over the world. Anyone can get sick with COVID-19 and become seriously ill or die at any age, depending on their immune system. According to a World Health Organization (WHO) report, the pandemic has impacted more than 190 countries, affecting 60 million people worldwide (World Health Organization, 2020). With the continued and increasing rate of COVID-19 cases, the number of death tolls also continues to rise, and a large number of countries have been forced to do social distancing, lockdown, and stay at home immediately (Yuki & et al., 2020). Within a short period of only several months, the COVID-19 virus has caused an unprecedented global crisis with enormous impacts on the political, social, and economic systems (Carlsson & et al., 2020). Therefore, on March 11, 2020, the World Health Organization (WHO) declared COVID-19 to be a global pandemic due to its immense magnitude and wide range of effects (World Health Organization, 2020).

In Myanmar, coronavirus disease 2019 (COVID-19) was found out in March 2020 when the first laboratory confirmed. Myanmar was hit by the four waves of COVID-19 from 2020 to 2022. During the first wave of the COVID-19 pandemic, there were 379 confirmed cases, 359 recovered cases (94.7%) and 6 deaths (2.4%) (Ministry of Health, Myanmar, 2021). However, these numbers are shifting quickly. In order to flatten the epidemic's peak and prevent the spread

¹ Department of Journalism, National Management Degree College

of the disease as of April 18, 2020, the government and the Ministry of Health implemented containment measures. Social distancing, stay-at home restrictions, school closures, work-from-home policies, and office closures are all parts of the strictly containment measures (Ye Min & et al., 2022). The outbreak of COVID-19 in Myanmar has become a major barrier for the television sector in terms of both occupational hazards in the operation, and the safety and wellbeing of employees. Moreover, television channels in Myanmar are facing more challenges while enhancing the new normal lifestyle with measures for protection.

As the media is the fourth pillar of the country, it is important to note that the media has always played a pivotal role in shaping society and the development of the entire country as well. At the beginning of this health crisis, news had become a valuable resource for citizens (Andreu, 2020). Since the world is facing completely new and dreadful diseases, the media sector has played a very positive and responsible role as a fourth pillar of the country. In the current situation, Myanmar's print media has declined in people's interests due to the influence of social media. But, people cannot rely only on social media because of the numerous fake news stories there. Meanwhile, the television sector continues to contribute to the evolution of traditional media into new media, and there are still television viewers even in the countries that are leading the way with modern digital technology. During the pandemic, the television channels had a significant impact on the way that accurate and up-to-date information about COVID-19 and its infections was communicated both locally and globally. Additionally, the television channels can help people release stress by providing entertainment programs and interesting contents during the difficult time of staying at home.

Research Method

In this study, the perspectives, feelings, and experiences of the participants need to be captured in detail. Therefore, the qualitative method approach through in-depth interviews is chosen for this research paper. Since both of the television sectors are based in Yangon, Myanmar, in-depth interviews with participants from Yangon were conducted for this research paper as part of the qualitative rapid assessment. Specifically, the in-depth interview received responses from 15 participants who work in the private television sector, 5 participants who work for the government-owned television sector, and 5 former employees who lost their jobs during the pandemic. The purposive sampling technique is used in this research paper, and the sample size is focused on the different ages, genders, fields and positions. Besides, the comparative analysis is applied to compare the experiences of the employees in the public and private television sectors.

Table 1 Demographic description of respondents

No	Sector	Gender	Age	Job Positions	Job Status
1	Private Television Sector	Male	18-50	Cameraman	Lost the job during COVID-19
				Presenter	Currently working
		Female	18-50	Production Director	Currently working
				Editor	Lost the job during COVID-19
				Admin	Lost the job during COVID-19

No	Sector	Gender	Age	Job Positions	Job Status
2	Government-owned Television Sector	Male	35-50	Deputy Director	Currently working
				Junior Engineer	Currently working
		Female	35-50	Chief Officer	Currently working
				Staff Officer	Currently working

Source: Survey (2023)

Research Questions

The following research questions are investigated in order to fulfill the study's research objectives.

- What impacts does the COVID-19 pandemic have on the employees from the television sector in Myanmar during the outbreak?
- How have the employees from the television sector in Myanmar reacted to the challenges of the COVID-19 pandemic?

Literature Review

The global outbreak of COVID-19 has brought an unexpected financial and economic crisis that could have a significant impact on both society and the global economy (Miguel & et al., 2021). Additionally, lockdown and other measures to prevent the COVID-19 virus from spreading have had significant health consequences in the normal workings of healthcare organizations all over the world. It has made patients stay away from accident and emergency departments and reach out for urgent medical conditions such as heart and cancer illnesses (Iyengar, 2020). Besides, COVID-19 is having important and profound effects in several spheres of society (Gerald & Mulatu, 2022). Social and mental health issues such as isolation, anxiety attacks, depression, panic states, mental disorders, health risks, and many other issues affect the lives of individuals and society as a whole. Moreover, COVID-19 had a negative impact on the education sector around the world. Over 94% of students worldwide—nearly 1.6 billion students in more than 200 countries—have been impacted by closure of school, institutions, and other learning spaces. With the spread of the coronavirus, the media sector has encountered numerous challenges, like other sectors. The COVID-19 pandemic creates challenges for the media and its employees to contribute to dealing with the crisis (Musfialdy & et al., 2022). The media (both print and broadcast media) is in a dilemma on many levels, such as news gathering, distribution, production, broadcasting, advertising, and financing (Shivaji, 2020).

In addition, the COVID-19 pandemic has significantly impacted television employees, with notable effects on job loss, mental health, and infection risks. The pandemic led to significant disruptions in program production and a sharp decline in advertising revenues, both of which contributed to widespread job losses in the television sector (Binns & Evans, 2021). The authors, Griffiths and Mowen, indicated that the television sector experienced significant layoffs as companies faced reduced revenues from advertising and sponsorships. Many television channels were forced to postpone the television programs, leading to temporary or permanent job losses for the employees, such as production staff, and other related roles (Griffiths & Mowen,

2020). Besides, operational disruptions due to lockdowns and social distancing measures further exacerbated job losses. The inability to conduct in-person programs and the need for remote work arrangements led to a reorganization of workflows and a reduction in the number of employees required for program production (Smith & Johnson, 2021). According to a report by the International Federation of Journalists (IFJ) in 2020, the global media sector, including television, experienced significant job losses due to the pandemic. The IFJ estimated that around 10-20% of workers in the media sector, including television, faced job losses or severe financial distress during the peak of the pandemic.

Moreover, the earlier study showed that the common situations such as job insecurity and disruption of work routines linked to the pandemic, have made mental health issues worse. A study by Smith and co-authors found that television employees experienced increased levels of anxiety, depression, and burnout as a result of the pandemic's pressures and uncertainties. The authors emphasized that the shift to remote work and changes in program production significantly contributed to these mental health challenges (Smith & et al., 2021). Additionally, the authors highlighted the mental health toll on television employees, noting that isolation and financial instability were major factors contributing to psychological distress. The study suggested that the lack of social interaction and the financial issues from postponed programs led to heightened feelings of anxiety and depression among television employees (Adams & Green, 2022). Furthermore, in the research study, "Covering COVID: Journalists' Stress and Perceived Organizational Support While Reporting on the Pandemic," the author discussed the situation of the impacts of the COVID-19 pandemic on employees' stress and the role of industry support in overcoming it. The author, Hoak, found that the industry's support greatly affected the stress and performance of its employees during the pandemic (Hoak, 2021). In response to the increased mental health needs, the industry has also expanded mental health support services. The author, Anderson, highlighted the integration of mental health resources and counseling services into industry practices as a response to the pandemic's psychological impact. The study emphasized that these support mechanisms have been vital in helping television employees manage stress and anxiety during the pandemic (Anderson & et al., 2022).

On the other hand, the television sector, characterized by close physical proximity and frequent interaction, faced significant challenges in managing COVID-19 infection risks. According to a study by the author, Lee, the television sector reported higher infection rates compared to other workplaces. The study attributed this to the inherent difficulty in maintaining social distance and the high level of interaction among third parties and the team members. The implementation of safety measures, such as frequent testing and enhanced sanitation protocols, was crucial in mitigating these risks (Lee, 2021). However, despite all of the challenges and difficulties, the television industry played a crucial role in providing news, information, and entertainment during the COVID-19 global crisis. As lockdowns forced people to stay home, television became a primary source of information, providing awareness of COVID-19 and up-to-date news. Moreover, the television sector served as an essential tool for mental health support during the pandemic.

Findings And Analysis

The consequences of the COVID-19 pandemic brought major disruptions to multiple areas of the television sector in Myanmar. Due to social distancing and stay-at-home policies, TV programs have stopped being produced, and all the television channels have relied on repeating programs to be aired. Additionally, there were also financial problems in the television sector after declining income from TV advertisements as the country's business sector was disrupted by COVID-19. Therefore, salary cuts and decreasing employees have occurred in the private television sector. Moreover, the work activities have changed, and the workload has become a challenge for the television employees with the increase in infected people in the workplace. When analyzing the study, these four main areas of research are found out: infection rate and concerns of employees, financial crisis and salary cut-off, reducing the quantity of employees, and the reactions of the employees to the pandemic.

Infection Rate and Concerns of Employees

It is not possible for the television employees to prevent the transmission of COVID-19 during the pandemic, especially those who are tasked with collecting information and recording the audio and videos among the crowded people. Specifically, during the second and third waves of COVID-19 in Myanmar, a survey (2023) found that 80% of the workforce in the television industry was infected. Around that time, the remaining 20% of television employees began to experience stress and pressure from their workloads. However, the smaller television channels and some locally located branch offices with a few employees were less infected than the other major and largest television companies. In these circumstances, most of the participants said that their biggest loss was the death of the majority of their family members during the pandemic. However, they did not have a chance to say goodbye and take care of them before they passed away because they were assigned to stay and work in the office at least for three months. Therefore, a few employees who worked as camping in the office shared their opinions and feelings as follows.

“We didn’t want to stay and work in the offices for 24 hours. Because we were feeling worried about our families every day.” (Participant from a private TV channel)

“Actually, we did PCR tests many times when symptoms of COVID-19 were found in team members in the workplace. We were very exhausted from doing this PCR test so many times.” (Participant from the state-owned TV sector)

“There was no basic healthcare, not even medicines, for the employees in the office. When someone is ill or experiencing COVID-19 symptoms, there is no one to take care of them. Only the team members and other employees take care of this person. As unlucky as it is, due to the crowded patients in the hospitals and COVID-19 center, we would not be able to go there if we were infected with this virus. So, the government and the authorities should know and manage effectively this situation in the workplace, which actually happened in the private television sector.”(Participant from a private TV channel)

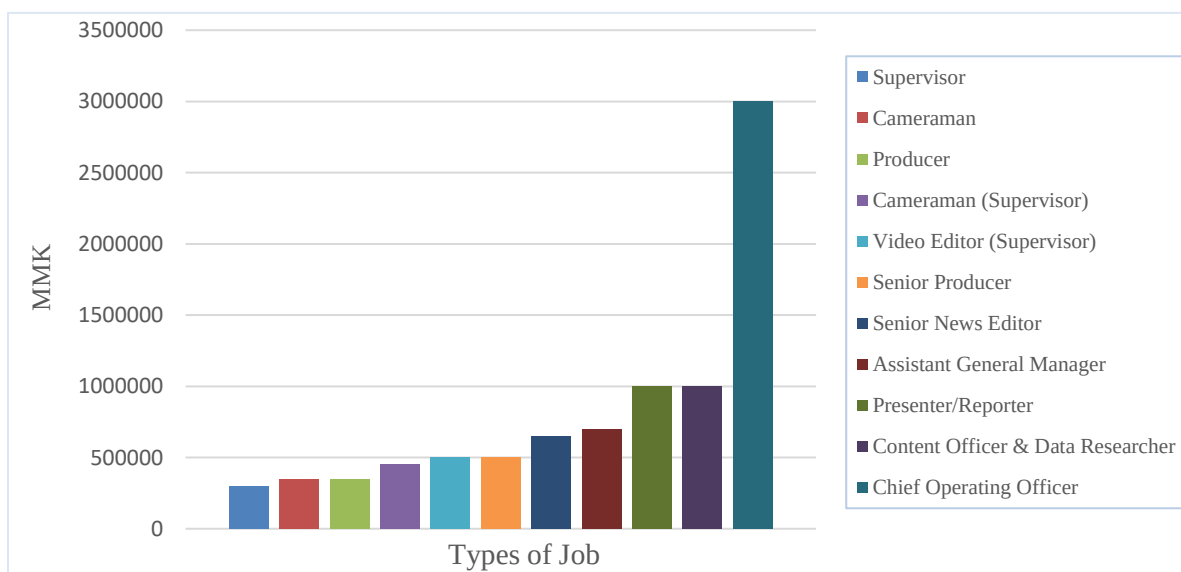
Financial Crisis and Salary Cut-off

Before the outbreak of COVID-19 in Myanmar, the salary of employees in the private television sector was about double that of employees working in the state-owned television sector (Figure 1). Moreover, the salary of employees, those who are working in the private television sector, also varies widely based on their performances and media companies, as illustrated in Figure 2. Because media companies can pay their employees more if they just own only one TV channel. However, if the media companies have more than three channels, they can only pay their employees a slightly lower salary than the other media companies.



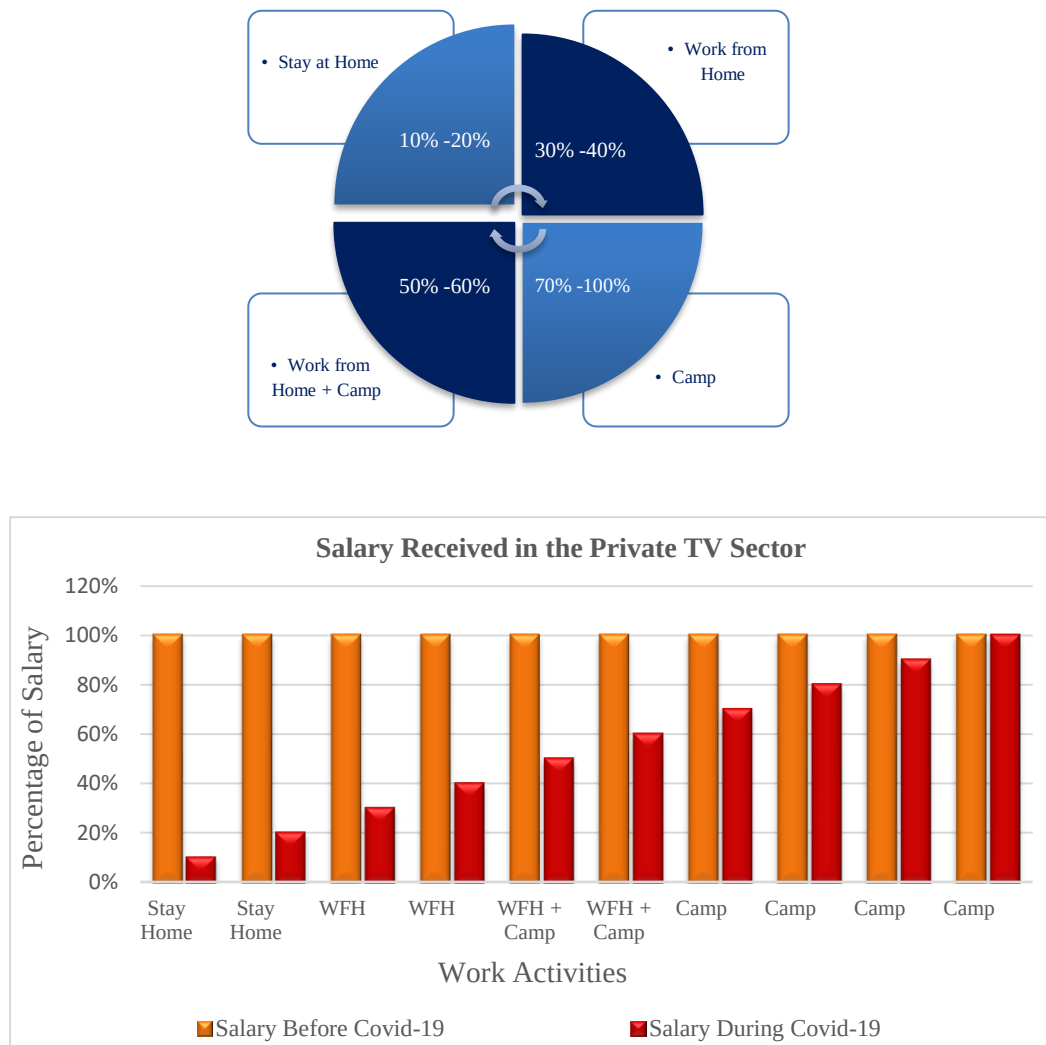
Source: Survey (2023)

Figure 1 Comparison of salaries among employees from the two television sectors



Source: Survey (2023)

Figure 2 Salary of respondents from the private television sector before COVID-19



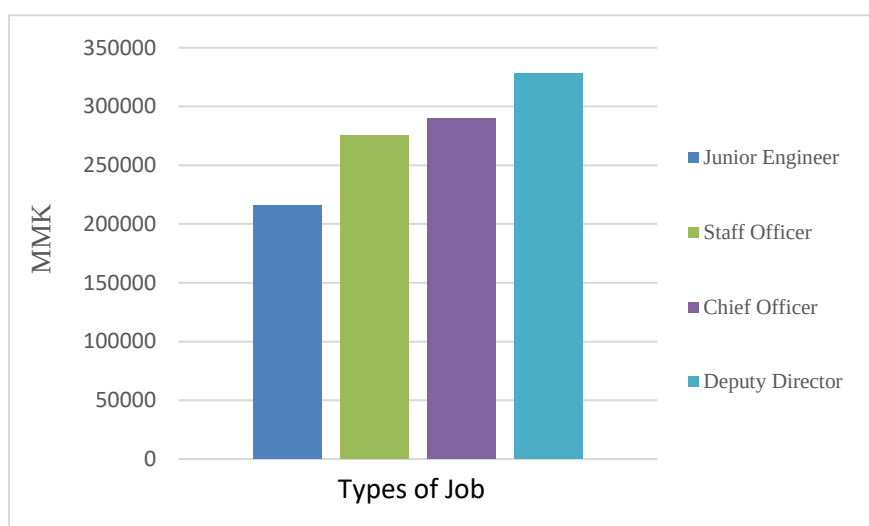
Source: Survey (2023)

Figure 3 Percentage of salary received depending on the employees' working activity

According to Figure 3, during the outbreaks of COVID-19, most of the employees in the private television sector only received 10% to 60% of their salaries, whereas some employees who worked on program productions like camping in the office received 70% to 100% of their salaries. These percentages of salary depended on their work activities, such as staying at home (where they do not need to work), working from home, and camping. (The term "camping" means a temporary living and working arrangement in the office for a certain period of time. In addition, the duration of camping is about a month, or sometimes it can last about three months.)

When the financial crisis was faced in the private television sector, the authorities from the companies managed to cut-off the salaries of their employees after a month of this crisis, and these four categories were described as the reasons for salaries being cut-off. (1) The employees who were under the category of fully staying at home received only 10%–20% of their salaries; (2) the employees who fully worked from home received 30%–40%; (3) the employees from the production team who both worked from home and in the camp received 50%–60%; and (4) the employees who fully stayed and worked at the office received 70%–100% of their salaries.

Due to the cuts in salary mentioned above, some employees were not able to work in the television sector for so long that only 10% to 20% of their salaries were not enough to support their entire family. Moreover, during the pandemic of COVID-19, transportation charges as well as the prices of groceries, medicines, masks, hand sanitizer, and gloves became higher than before COVID-19. With the rising costs, it would be impossible for those who had been fired due to the pandemic and employees who earned only 10% to 20% of their salaries to be self-sufficient or provide for their families. As a result, they left the television industry, which contributes to the increasing unemployment rate in the television sector. Nevertheless, in some television channels, the cuts in salary slightly depended on the actual salary they received before the COVID-19 pandemic. For example, employees with a lower salary received 80% of their actual salary, while those in higher positions or with more authority only received 30% of their actual salary. Therefore, it can be said that in the private television sector, getting a salary during the pandemic actually depended on their companies and their work activities. However, when compared to the private television sector, all of the employees in the state-owned television sector received their salary fully without any cut-wage, whether in any other kind of condition like working at the office, staying at home, or working from home, as illustrated in Figure 4.



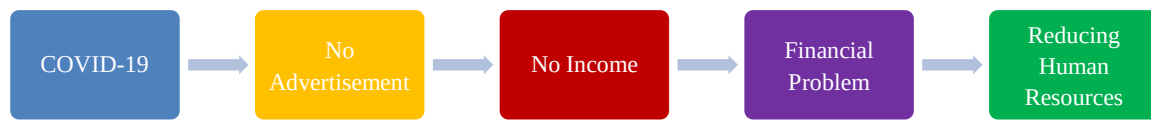
Source: Survey (2023)

Figure 4 Salary of respondents from the state-owned TV sector before and during COVID-19

Reducing the Quantity of Employees

As illustrated in Figure 5, when there was no further income from TV advertisements during the pandemic, most of the television channels faced some financial problems, such as running the company on a low budget. Therefore, they tried to find solutions to this financial problem, and then the best way to manage this difficult situation during the pandemic was to reduce the human resources in their companies. In June 2020, after three months following the first wave of COVID-19 in Myanmar, the private television channels started to fire their employees. Depending on how long the employees had worked for the company and how much experience they had, the dismissed employees received three or six months' pay as compensation. Even though the higher authority level at the media companies fired their

employees by following the Myanmar Labor Law, there are still some conflicts among these dismissed employees.



Source: Survey (2023)

Figure 5 Causes and effects of the high unemployment rate in the private TV sector

Based on the study, half a year after the pandemic hit Myanmar, private television channels made the decision to reduce their workforce, in particular reducing three members from one department and overall reducing the employee count to 20-50. Therefore, in fact, a total of 30% of human resources in private television channels were laid off as a result of the financial crisis. According to Figure 6, the following are the main reasons for firing the employees:

1. The employees who are too old to work for their company
2. The employees who have less than ten years of employment with their company
3. The employees who didn't have good performance on the job
4. The employees who broke the rules and policies of the company at least once and
5. The employees who are not working for both the program production team and technical team and those who are not essential to their work (for example, cleaners, drivers, employees from the setting and lighting department, office staff, and camera crews).

Even though there were a few employees who felt confident about their work performance and never worried about their jobs like the others did, most of the employees were anxious and stressed about their jobs and were unsure of when they would be the next ones to be fired due to the decrease in human resources in the private television sector. In order to solve the financial issues, the reduction in human resources in the private television sector had an impact on the mental health of the dismissed employees, whether they had been fired for one of the reasons listed above or not (as indicated in Figure 6). Half of the dismissed employees are still afraid to apply for other jobs after the trauma of losing their job during the pandemic.

They think they are not qualified to get a job after involving themselves in the reasons listed above for being fired. Thus, even though some dismissed persons are starting a new job and a new opportunity in their lives after being fired from the private television channels, others, especially women and older persons, are still hiding their abilities by relying on the incomes of their family members. Compared to the employees of the private television sector, those who work in the state-owned media under the government sector are guaranteed a job for life. Therefore, the employees of the state-owned television sector do not need to worry about their salary or job like the employees of the private television sector.



Source: Survey (2023)

Figure 6 Main reasons for being involved in the list of dismissed employees

Reactions of the Employees to the Pandemic

In an effort to avoid contracting COVID-19, employees in the television industry strictly adhered to government-mandated pandemic rules and workplace safety protocols. These employees, especially those involved in fieldwork and live production, consistently wore appropriate personal protective equipment (PPE) when venturing into crowded areas for programs. They understood the risks involved and took precautions not just for themselves but also for the safety of their colleagues and team members. Even when some employees were infected with the virus, many acted responsibly by self-isolating and prioritizing their recovery to prevent further transmission within their teams. This sense of duty and consideration highlighted their commitment to maintaining the continuity of television programming despite health risks and operational disruptions.

However, while they managed to follow safety protocols in the workplace, employees struggled with deep and lingering concerns about their personal lives. Many were anxious about the health and well-being of their family members, particularly those who were elderly or medically vulnerable. This emotional burden was compounded by financial insecurity. With the industry facing budget cuts, reduced advertising revenue, and program shutdowns, many workers experienced delayed payments, significantly reduced salaries, or even months of working without compensation.

Some employees were laid off with little to no support, and those who remained often had to shoulder additional responsibilities without any increase in pay or job security. The uncertainty around their employment status, combined with the fear of infection, led to significant psychological distress. Unfortunately, most employees found themselves unequipped to manage the growing mental health challenges brought on by the pandemic. As a result, many workers felt

overwhelmed and powerless. Some chose to endure the harsh conditions and continue working despite the low pay and emotional strain, simply following company policies in order to survive. Others, feeling unsupported and burnt out, decided to resign altogether in search of better opportunities or to protect their well-being. Ultimately, the pandemic exposed the vulnerabilities of employees from the television sector, particularly in terms of health, financial stability, and mental wellness. While their dedication to their work remained commendable, the lack of sufficient institutional support left many feeling isolated, undervalued, and emotionally exhausted.

Discussion

It can be clearly seen that COVID-19 had a very significant impact on the employees from the television sector in Myanmar during the pandemic. To begin with, employees working in sectors such as public healthcare, transportation, and food services received higher salaries during the COVID-19 pandemic. They were considered to be operating in high-risk environments where they faced a serious threat to their lives due to constant exposure to the virus. In contrast, television sector employees in Myanmar did not receive similar financial benefits, despite facing significant health and safety risks while performing their duties throughout the pandemic. Moreover, they also experienced increasing stress after their salaries were cut off.

On the other hand, COVID-19 has led to significant job cuts in the private television sector as companies have to struggle with the economic fall-out of the pandemic. In June 2020, more than half of the employees were fired because of declining incomes from advertisements and financial problems. Regarding the unemployment rates in Myanmar, the International Labor Organization (ILO) also predicted that an estimated 6.9 million to 7.3 million jobs could be disrupted in Myanmar as a result of the pandemic and related containment measures. In the current situation, although the unemployment rate in the private television sector can be controlled with the increasing income and advertisements in the sector, the mental health of the dismissed persons from the private television sector and their financial problems are still problems that need to be solved. Furthermore, there were a lot of requirements for the employees who were camping at the office. They were not provided with basic health care in the camp, and even they needed to buy some medicines by themselves. Moreover, those who had been shown some slight symptoms of illness, still needed to be isolated in the office, and there was no professional care for them during that time. Even when there were serious symptoms, they did not have the opportunity to go to the quarantine centers because, unfortunately, most of the quarantine centers and hospitals were overcrowded during the outbreaks of COVID-19 in Myanmar.

To manage the issue of an increasing infection rate, both of the television sectors provided COVID-19 essential protections, including masks, face shields, gloves, hand gels, and occasionally personal protective equipment (PPE) for special events, to their outdoor and indoor program team members. Furthermore, the Myanmar government and the television sector collaborated to arrange for at least two doses of the COVID-19 vaccination to be given to all of their employees. As a result, in January 2021, after ten months since the first COVID-19 case in

Myanmar was confirmed, all of the media companies managed to provide their employees with the COVID-19 vaccination doses. According to the latest report from the World Health Organization (WHO), a total of 64,549,994 vaccine doses have been administered in Myanmar. Moreover, regarding the COVID-19 vaccination data on the respondents, most of the employees from both the private and state-owned television sectors in Myanmar completed their first and second doses of the COVID-19 vaccine. Besides, a few employees from both sectors got a chance to complete the third dose and booster dose of the COVID-19 vaccine.

Although almost all of the employees from the television sector did not avoid or prevent the infection of COVID-19 during their working hours, they could survive the attack of COVID-19 and fully recover with the complement results of the COVID-19 vaccination. In addition, according to the respondents to the research interviews, there were only 4-6 employee deaths both in the private and state-owned television sectors in Myanmar while they were at work. It is clearly seen that the support of the Myanmar government and the collaboration of the television sector were significant and quite effective for their employees. Thus, it can be said that the television sector has strategically managed the issue of employees' infections. However, some problems are still to be solved in the post-COVID-19 era. Since April 2023, the number of infected cases in Myanmar was reportedly decreasing, and as a consequence, the television sector allowed the employees to come back to the office normally. Now the sector no longer requires to manage these issues of working from home and virtual broadcasting because they are making their indoor and outdoor programs and also broadcasting as usual, just as they did before the pandemic.

Conclusion

The findings of this research study clearly indicate that the COVID-19 pandemic has had profound and far-reaching negative effects on employees in the Myanmar television sector. While certain challenges have been partially addressed by the television sector, many critical issues remain unresolved, delaying the sector's ability to fully recover and return to a stable state in the post-COVID-19 period. The pandemic disrupted the livelihoods of hundreds of workers who rely on this sector for income and professional growth. Among the most challenging was the drastic decline in television advertising, which significantly reduced the revenue streams of private TV channels. As a result, numerous employees faced layoffs, while many others experienced salary reductions and job insecurity. These financial challenges created an effect, impacting not only the employees themselves but also their families and dependents.

Although the government extended support in the form of business loans to private television channels as a means of aiding recovery, this assistance was perceived as being delayed and insufficient in fully addressing the financial hardships that arose during the outbreak of the pandemic. Consequently, the private television sector was left to make difficult decisions, such as reducing their workforce and cutting operational expenses, in an effort to survive the economic downturn. To prevent these issues in future crises, it is imperative that both the government and the television sector work collaboratively to develop a Standard Operating Procedure (SOP) specifically tailored for crisis response and management within the media sector. This SOP should be comprehensive, outlining financial, operational, and health-related protocols to ensure

the sector's resilience during national emergencies or public health crises. It must also emphasize the timely provision of financial aid and policy interventions to prevent long-term damage to the sector. In addition, the government should consider implementing temporary tax relief **or** tax suspension measures for private television channels during times of financial distress. Such policies would ease the financial burden on this sector, allowing them to retain employees and continue operations without resorting to severe cost-cutting strategies such as layoffs or salary reductions.

Beyond financial support, the mental well-being of television sector employees also demand attention. The pandemic intensified stress, anxiety, and uncertainty among workers, many of whom faced not only the fear of infection but also the emotional toll of job insecurity and financial strain. Therefore, it is vital for the government and media organizations to jointly establish mental health support programs, including access to counseling, awareness campaigns, and stress management training. These initiatives would help prevent long-term psychological harm and promote a healthier, more productive workforce.

In conclusion, the COVID-19 pandemic exposed vulnerabilities in the Myanmar television sector that must be addressed through proactive, coordinated efforts. Financial support, mental health services, and strategic policy frameworks are essential to ensuring the long-term sustainability of this vital industry and the well-being of its workforce. By learning from the challenges of the pandemic and preparing for future crises, Myanmar can build a more resilient and adaptive television sector that continues to serve the public and support the professionals who power it.

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DESTINATION SERVICE QUALITY, TOURISTS SATISFACTION AND DESTINATION LOYALTY AT NGWE SAUNG BEACH, MYANMAR*

Shoon Lei Myint Mo¹ , Phu Pwint Nyo Win Aung²

Abstract

The main objectives of the study are to identify destination service quality dimensions at Ngwe Saung Beach, to analyze the effect of destination service quality on tourists satisfaction, and to analyze the effect of tourists satisfaction on destination loyalty. A sample of 384 tourists visiting Ngwe Saung Beach was gathered by using a systematic sampling method on a specific day in May 2024. Both descriptive statistics and regression analysis were employed to analyze the data. The results indicate that human elements, environmental factors, and technical quality have the positive effect on tourists satisfaction. Tourists satisfaction show a strong positive effect on destination loyalty. Therefore, stakeholders at Ngwe Saung Beach should focus on human elements through staff training, strengthening environmental conservation efforts, upgrading technical facilities, improving accessibility and signage, reinforcing safety measures, and diversifying tourists experiences.

Keywords: destination service quality, tourists satisfaction, destination loyalty

Introduction

Tourism is one of the fastest-growing industries globally, providing significant revenue, employment, and economic development for many nations. In Myanmar, the tourism sector has grown, with destinations like Ngwe Ssaung Beach becoming popular among domestic and international tourists (Myanmar Tourism Federation, 2021). Located on Myanmar's western coast, Ngwe Saung Beach is known for its unspoiled sandy shores, clear waters, and relaxed atmosphere, making it a peaceful getaway from busy cities. However, for the destination to continue growing and stay competitive in the regional tourism market, service quality is crucial (Uddin & Hossain, 2020).

The global tourism market is highly competitive, with established destinations in Southeast Asia like Thailand and Vietnam offering strong infrastructures and high standards of service. To remain competitive, Ngwe Saung Beach must ensure that it offers not only beautiful landscapes but also high-quality services that meet or exceed modern travelers' expectations (Bui & Nguyen, 2021). Today's tourists seek satisfying experiences involving elements like accommodation, transport, dining, safety, and customer service.

Service quality is key to tourists satisfaction, directly impacting tourists loyalty. Satisfied tourists are more likely to return, recommend the destination to others, and leave positive reviews, all of which are vital for long-term success. Service quality includes multiple dimensions such as responsiveness, reliability, empathy, and tangibility, contributing to the overall tourists experience (Parasuraman, Zeithaml, & Berry, 1988). Identifying which aspects of service quality impact satisfaction at Ngwe Saung Beach is essential for enhancing its attractiveness and encouraging repeat visits.

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¹ Department of Tourism, National Management Degree College

² Department of Commerce, Yangon University of Economics

Although Ngwe Saung Beach is becoming a significant tourists destination, little research has been done on the factors that specifically drive tourists satisfaction and loyalty. Addressing this gap is crucial for creating strategies to improve the destination service quality, increase satisfaction, and foster loyalty toward Ngwe Saung Beach. Based on this context, the study aims to find the following research questions:

1. What are the key dimensions of destination service quality of Ngwe Saung Beach?
2. How does destination service quality affect on tourist satisfaction of Ngwe Saung Beach?
3. What is the most important effect of destination service quality on tourist satisfaction of Ngwe Saung Beach?
4. Does tourist satisfaction affect on tourist loyalty in Ngwe Saung?

The specific objectives of the study are:

1. To identify destination service quality dimensions of Ngwe Saung Beach
2. To analyze the effect of destination service quality on tourist satisfaction of Ngwe Saung Beach
3. To investigate the most important effect of destination service quality on tourist satisfaction of Ngwe Saung Beach
4. To analyze the effect of tourist satisfaction on loyalty in Ngwe Saung

The importance of this study goes beyond Ngwe Saung Beach, as its findings offer useful insights for tourism stakeholders, including service providers, local businesses, and policymakers. By understanding which service quality factors drive tourists satisfaction and loyalty, these stakeholders can implement focused improvements to ensure the destination remains competitive and continues attracting both new and returning tourists. Improving service quality will help build tourists loyalty, encourage positive word-of-mouth, and contribute to the sustainable growth of the local tourism industry, benefiting the regional economy and Myanmar's overall tourism sector.

Literature Review

Destination Service Quality and Tourists Satisfaction

Service quality is a key factor in understanding tourists satisfaction, with several models developed to assess and enhance it. One of the most widely recognized is the SERVQUAL model, introduced by Parasuraman, Zeithaml, and Berry (1985). This model evaluates five key dimensions—tangibles, responsiveness, assurance, empathy, and reliability—by comparing customer expectations to their actual experience. Although SERVQUAL is used extensively across different industries, its application in tourism has been met with some criticism. For example, Cronin and Taylor (1992) argue that it simplifies the complexity of tourists experiences, particularly when considering cultural, environmental, and personal influences that significantly shape tourists satisfaction.

To overcome these limitations, tourism-specific models have been developed. One such model is TOURQUAL, created by Mondo (2014), which adapts SERVQUAL to better meet the specific demands of tourism destinations. TOURQUAL assesses service quality based on six

dimensions: accessibility, environment, human interaction, safety, experience, and technological aspects. This model highlights how tourists satisfaction is affected by both tangible factors, such as accommodations, dining, and transportation, and intangible aspects like environmental sustainability and cultural authenticity (Lohmann & Netto, 2017; Mondo, 2014). TOURQUAL allows for a more detailed evaluation of service quality by considering elements such as cleanliness, accessibility for disabled individuals, and the emotional impact of cultural experiences on overall tourists satisfaction (Hasan, 2015). TOURQUAL takes a holistic approach, focusing on the broad spectrum of factors that contribute to tourists satisfaction. For example, accessibility is highlighted as a critical element, not only in terms of infrastructure but also in ensuring inclusivity for tourists with disabilities. The environmental aspect emphasizes the physical design and cleanliness of the destination, which significantly influence tourists perceptions. Safety and human aspects are also crucial components, with studies by Bitner (1992) and Nicolaides (2008) stressing the importance of staff behavior and interpersonal interactions in shaping the overall tourists experience.

Tourists satisfaction is strongly influenced by the overall environment of a destination, including its preservation of cultural and natural heritage, safety measures, and service excellence (Pine and Gilmore, 1999). The TOURQUAL framework reflects this, allowing for a more comprehensive evaluation of how destinations meet or exceed tourists expectations. The model has been applied in studies by Khawash and Baksi (2017), who demonstrated its value in assessing destination quality and its impact on tourists loyalty and satisfaction. Furthermore, the concept of Destination Service Quality (DSQ) provides a more focused lens for evaluating tourism services. DSQ measures the extent to which tourists expectations are met in key service areas such as lodging, food, travel, and activities (Tosun, Dedeoğlu, and Fyall, 2015). The United Nations World Tourism Organization (UNWTO, 2016) defines quality tourism destinations as those that prioritize safety, cleanliness, and accessibility while providing value for money. In addition to offering high-quality services, these destinations must maintain ethical standards, preserve cultural authenticity, and minimize environmental impact, all of which contribute to long-term tourists satisfaction (Tosun et al., 2015). Therefore, destination service quality is a complex concept that includes a wide range of factors, from physical facilities to perceptions of safety and cultural significance. Meleddu et al. (2015) emphasized that understanding these factors is essential for destination managers who wish to improve tourists satisfaction and attract repeat tourists. Positive tourists experiences can lead to favorable word-of-mouth recommendations and foster loyalty to the destination, promoting its long-term success.

Tourists Satisfaction and Destination Loyalty

Tourists satisfaction plays an important role in building destination loyalty, as positive experiences enhance both immediate satisfaction and emotional attachment to a destination. Satisfaction is typically determined by comparing tourists' expectations with their actual experiences; when expectations are met or exceeded, satisfaction increases, leading to a higher likelihood of repeat visits and recommendations (Phillips et al., 2011; Truong et al., 2018; Medina-Viruel et al., 2019). Satisfaction directly influences behaviors like returning and sharing experiences, which strengthens a destination's reputation. Key factors influencing satisfaction include service quality, safety, and the overall experience. More comprehensive models like

TOURQUAL and Destination Service Quality (DSQ) integrate factors such as cultural authenticity and environmental sustainability, which are becoming increasingly important for modern tourists (Tosun et al., 2015; Kayat & Hai, 2014).

Destination loyalty is measured by repeat visits (behavioral loyalty) and emotional attachment (attitudinal loyalty), both of which are influenced by tourists satisfaction. Loyal tourists are more likely to return and recommend the destination, acting as informal ambassadors, which enhances reputation and attracts new tourists (Cossío-Silva et al., 2019; Suhartanto et al., 2018; Farooq & Moon, 2020). This loyalty reduces marketing costs and supports long-term sustainability in the competitive tourism industry (Li et al., 2008; Nicolaides, 2008). Therefore, enhancing tourists satisfaction by improving service quality, and overall experience is the key to building destination loyalty, encouraging repeat visits, and boosting a destination's reputation for long-term success. *Research shows that tourist satisfaction plays a pivotal role in forming destination loyalty, even without considering tourist loyalty as an intermediary. Satisfied tourists often form a lasting attachment to the destination, leading to destination loyalty*" (Oliver, 1999; Chi & Qu, 2008).

Based on the literature review, conceptual framework of the study can be presented in Figure 1.



Source: Own Compilation Based on Previous Studies

Figure 1 Conceptual Framework of the Study

Methodology

The study method is quantitative and tourists who come to Ngwe Saung for leisure, sightseeing, and overnight stays are included in the target population. The target population is unknown and according to Cochran's formula (1977), 384 tourists are selected. Primary data is gathered from 384 tourists who visited Ngwe Saung on the specific days of May 2024. Systematic sampling is used to select every 3rd respondent at exit points of three major

destinations: Ngwe Saung Main Beach, Lovers Island, and Ngwe Saung Market, between 10 am and 12 noon. The respondents were invited to voluntarily participate in face-to-face interviews using a structured questionnaire. The sample size was presented as follows:

$$n_0 = \frac{z^2 pq}{e^2} = \frac{1.96^2 (0.5)(1-0.5)}{0.05^2} = 384$$

Where; n_0 = required respondents

e = margin of error based on pilot survey

p = estimated proportion of the population

q = 1-p

z = standard normal deviation set at 95% confidence level

The required sample size of 384 data was collected. Secondary data was collected from the MOHT website, past research papers, textbooks, and other sources. For data analysis, SPSS version 25 was used to run both descriptive and inferential statistics. Pearson correlation analysis was used to measure the relationship between destination service quality, tourists satisfaction and destination loyalty. Multiple linear regression was used to find the effect of destination service quality and tourists satisfaction; and the effect of tourists satisfaction on loyalty. As research instrument, the structured questionnaire was composed of 5-point Likert scales questions, ranging from "1 = strongly disagree" to "5 = strongly agree". The questionnaire was composed of 2 sections. The section (A) included demographic questions like gender, age, education level, occupation, education, marital status and income. Section (B) asked the respondents about their destination service quality at Ngwe Saung, tourists satisfaction and destination loyalty. Items for measuring the destination service quality were taken from Bouarar, and Mouloudji (2021). The modified destination experience scale consists of 37 items: 5 items for accessibility, 6 for environment, 5 for human element, 5 for safety, 6 for experience and 5 for technical quality. Items for measuring the tourists' satisfaction were drawn from previous studies (Millar and Baloglu 2011; Garbarino and Johnson, 1999). The modified customer satisfaction scale consists of 6 items. For the destination loyalty, items were adopted from Brown and Taylor (20016). The modified destination loyalty scale consists of 5 items.

Analysis and Results

Descriptive statistics were run for demographic data of 384 respondents, all tourists at Ngwe Saung Beach, Myanmar, shows an almost equal distribution between genders, with 48.44% males and 51.56% females. Lots of respondents are in younger and middle-aged groups, with 49.7% aged 20-29 years and 30.3% aged 30-39 years. In terms of education, a significant proportion have attained a Bachelor's degree 48.4% and a Master's degree 34.4%. Most respondents are employed 88.8%, while 11.2% are students. In terms of monthly income, the greatest categories are those who make between 200,000 and 400,000 Kyats 34.1% and 600,001 and 800,000 Kyats 30.2%. Marital status is 51.6% single and married is 48.4% respondents. Table 1 of demographic profile indicates a youthful, well-educated, and economically active tourists population primarily visiting for leisure.

Table 1 Demographic Profile of Respondents

Sr.No.	Particular	No. of Respondents	Percentage (%)
	Total	384	100.0
1.	Gender: Male	186	48.44
	Female	198	51.56
2.	Age (Years): Under 20 years	8	2.1
	20-29 years	191	49.7
	30-39 years	100	30.3
	40-49 years	69	12.0
	50-59 years	15	3.8
	60 or over	8	2.1
3.	Education: Lower than Bachelor's Degree	38	9.9
	Bachelor's Degree	186	48.4
	Master's Degree	132	34.4
	Higher than Master's Degree	28	7.3
4.	Occupation: Student	43	16.2
	Employed	301	80.8
	Retired	40	14.0
5.	Monthly Income Level (Kyats): Under 200,000	38	9.9
	200,000-400,000	131	34.1
	400,001-600,000	63	16.4
	600,000-800,000	116	30.2
	800,000-1,000,000	36	9.4
6.	Marital Status: Single	198	51.6
	Married	186	48.4

Source: Survey Data (2024)

Then, descriptive statistics of each of the variables was shown in Table 2 by using mean value of each of them. In breaking down the destination service quality into six dimensions- accessibility, environment, human elements, safety, experience, and technical quality, it was seen that tourists enjoyed Ngwe Saung's environment well with mean value of 3.70. Tourists, however, had relatively low perception on Ngwe Saung's accessibility because its mean value was 3.50 only. However, Ngwe Saung earned quite a good image of technical quality, safety, human elements and experience of its tourists because the mean values of these four were 3.68, 3.66, 3.63 and 3.58. That is why Ngwe Saung got tourists' satisfaction mean score of 3.65 which is quite a high score for agree level. In assessing destination loyalty, it was found that tourists to Ngwe Saung have quite high destination loyalty, with the mean value of 3.63.

Table 2 Tourists' Perception on Destination Service Quality, Tourists Satisfaction and Destination Loyalty

Particular	Mean	Std. Deviation
Accessibility	3.50	0.92
Environment	3.70	0.87
Human Elements	3.63	0.77
Safety	3.66	0.82
Experience	3.58	0.88
Technical Quality	3.68	0.84
Tourists Satisfaction	3.65	0.80
Destination Loyalty	3.63	0.77

Source: Survey Data (2024)

Table 3 presents the reliability and correlation analysis of eight variables related to tourism. All variables show high reliability, with Cronbach's Alpha values above the acceptable threshold of 0.7, indicating strong internal consistency. Then, to test the relationships among the variables, Pearson's correlation analysis was tested and it was found in Table 3 that destination service quality (AC, EN, HE, SA, EX, TQ) is positively and significantly correlated with tourists satisfaction ($r=0.750$, $p = 0.000$). And then, tourists satisfaction is also positively and significantly correlated with tourists loyalty ($r=0.730$, $p=0.000$).

Table 3 Correlation Analysis and Reliability of Variables

Variable	Cronbach's Alpha	AC	EN	HE	SA	EX	TQ	TS	DL
AC	0.83	1							
EN	0.82	.420**	1						
HE	0.85	.590**	.780**	1					
SA	0.84	.600**	.650**	.730**	1				
EX	0.86	.513**	.583**	.557**	.451**	1			
TQ	0.88	.480**	.513**	.570**	.600**	.513**	1		
TS	0.85	.557**	.583**	.600**	.730**	.650**	.750**	1	
DL	0.83	.450**	.500**	.600**	.620**	.569**	.625**	.730**	1

Note: AC= Accessibility, EN=Environment, HE= Human Elements, SA=Safety, EX= Experience, TQ=Technical Quality, TS=Tourists Satisfaction, DL = Destination Loyalty

**p value is significant at 1%.

Source: Survey Data (2024)

Regression modelling is used in this study to determine the effect of destination service quality on tourists satisfaction at Ngwe Saung Beach. The connection is displayed in Table 4 below. The model explains 94.5% of the variance in tourists satisfaction, confirming its

robustness ($R^2 = 0.945$, Adjusted $R^2 = 0.944$). Human elements have the strongest positive effect on satisfaction (Beta = 0.883, $p < 0.001$), followed by technical quality (Beta = 0.063, $p < 0.001$), environment (Beta = 0.061, $p < 0.001$), and accessibility (Beta = 0.025, $p = 0.058$). Safety (Beta = 0.020, $p = 0.187$) and experience (Beta = 0.007, $p = 0.543$) show no significant impact. The overall model is highly significant ($F = 1071.151$, $p < 0.001$). Therefore, key players such as destination management organizations, travel and tour companies, even the public who involved in the supply chain of tourism need to take due care to create positive destination service quality among tourists. With no doubt, what a destination service quality during his trip is very important to have satisfaction on the trip to a destination.

Table 4 Effect of Destination Service Quality on Tourists Satisfaction

Dependent Variable	Unstandardized Coefficient		Beta	t	Sig
	B	Standard Error			
Constant	-.058	.073		-0.799	.425
Accessibility	.022*	.012	.025	1.896	.058
Environment	.060***	.015	.061	4.077	.000
Human Elements	.857***	.019	.883	44.915	.000
Safety	.019	.014	.020	1.323	.187
Experience	.006	.010	.007	0.609	.543
Technical Quality	.055***	.012	.063	0.063	.000
R square	.945				
Adjusted R square	.944				
F Value	1071.151***				

Source: Survey Data (2024)

Note: ***significance at 1% level, **significance at 5% level, *significance at 10% level

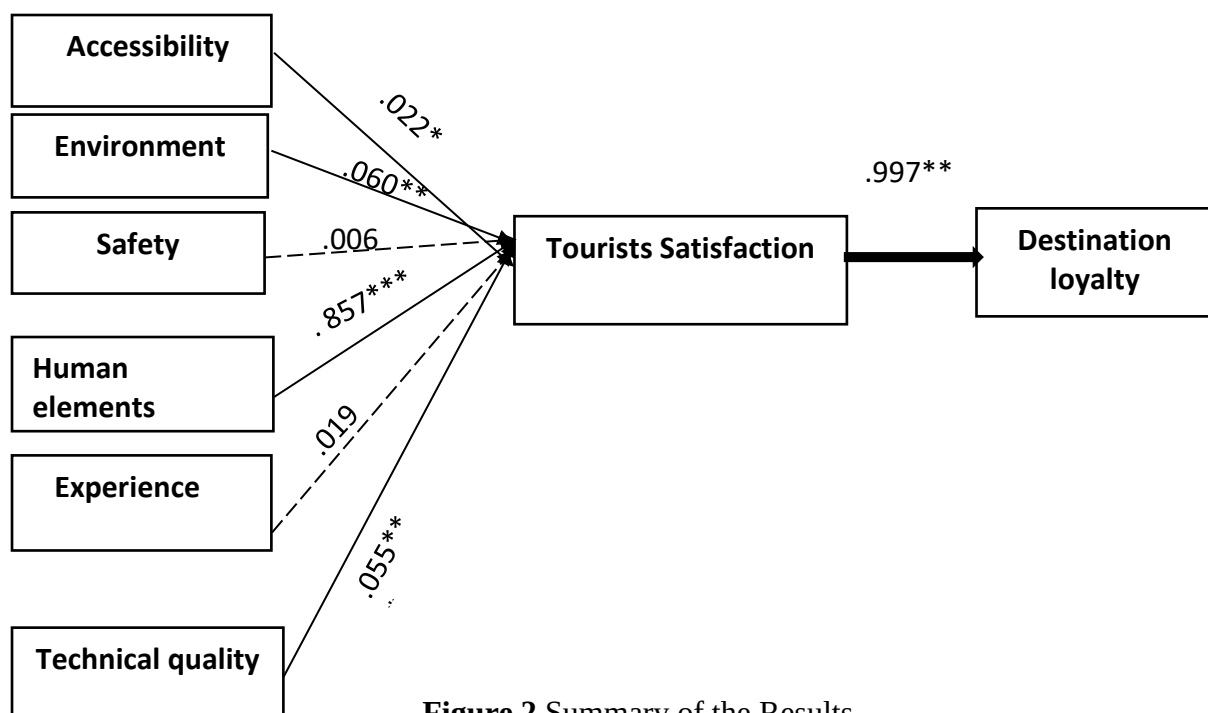
In this study, in order to find out the effect of tourists satisfaction on destination loyalty from Ngwe Saung Beach used in regression model. The relationship can be seen in below Table 5. The analysis shows that tourists satisfaction is a strong predictor of destination loyalty at Ngwe Saung Beach, explaining 93.8% of the variance in loyalty ($R^2 = 0.938$). The standardized coefficient (Beta = 0.969) indicates a highly significant positive relationship between satisfaction and loyalty ($t = 76.091$, $p < 0.001$). This means as satisfaction increases, loyalty almost proportionally rises. The constant term is not significant, implying loyalty depends on satisfaction. The model's overall significance ($F = 578.833$, $p < 0.001$) confirms this strong connection, suggesting that tourists got true satisfaction at a destination, he or she wants to come back again in the future, or recommend that place to others.

Table 5 Effect of Tourists Satisfaction on Destination Loyalty

Dependent Variable	Unstandardized Coefficient		Beta	t	Sig
	B	Standard Error			
Constant	-.004	.048		-.081	.935
Tourists Satisfaction	.997***	.013	.969	76.091	.000
R square	.938				
F Value	578.833***				

Source: Survey Data (2024)

Note: ***significance at 1% level, **significance at 5% level, *significance at 10% level

**Figure 2** Summary of the Results

According to the summary of the results, it can be found that the effect of destination service quality on tourists satisfaction and then this satisfaction can influence destination loyalty to the destination with the case of Ngwe Saung, Myanmar.

Findings and Discussion

Based on the analysis, major findings and discussion were described in this section. The demographic profile of the 384 respondents, consisting entirely of domestic tourists, predominantly youthful demographic. The majority of tourists were between 20-29 years old and 30-39 years old with a near equal distribution of male and female respondents. Educational achievement was high, with nearly half holding Bachelor degrees and a significant proportion having Master degrees. The study also showed that a large majority of tourists were employed,

reflecting an economically active base. Most tourists visited Ngwe Saung Beach for leisure purposes, because of its popularity as a recreational destination among educated, economically active young adults.

The key dimension of destination service quality at Ngwe Saung Beach include human elements, technical quality, environmental factors, accessibility, safety, and experience. Overall, tourists expressed high satisfaction, particularly with the professionalism of local staff, effective waste management, and the distinctive beach experience. However, areas for improvement include clearer direction signs, better opportunities for cultural experiences, and enhanced maintenance of facilities such as showers and changing rooms. These findings indicated the importance of improving service quality and infrastructure to enhance tourists satisfaction at Ngwe Saung Beach.

To analyze the effect of destination service quality on tourists satisfaction at Ngwe Saung Beach, human elements are the most positive significant effect on tourists satisfaction. This suggests that high levels of service-minded and positive human interactions are essential to satisfy tourists. Technical quality also plays a positive significant effect role, pointing to the importance of well-maintained facilities and efficient services. Environmental factors contribute positively a significant effect that reinforcing the importance of a clean and attractive environment. Accessibility although less positive significant role on tourists satisfaction, indicates that improving access can enhance tourists satisfaction. Safety and experience have non-significant effects, suggesting that while these factors are important, their direct impact on satisfaction might be less pronounced compared to human elements and technical quality. Overall, these findings emphasize that focusing on improving service interactions with local staff, infrastructure quality, and environment can significantly raise tourists satisfaction at Ngwe Saung Beach. And then the regression results show that tourists satisfaction has a nearly proportional positive effect on destination loyalty. This finding indicates that higher levels of tourists satisfaction lead to higher destination loyalty, meaning that satisfied tourists are much more likely to revisit Ngwe Saung Beach and recommend it to others. Therefore, this strong link highlights the important role of satisfaction in encouraging loyalty and suggests that efforts to improve tourists satisfaction will directly contribute to building a loyal tourists base.

This study provides insights into the factors influencing destination service quality, tourists satisfaction, and destination loyalty at Ngwe Saung Beach. The findings indicate the significance of accessibility, human elements, environment and technical qualities in shaping positive tourists experiences. And the effect of tourists satisfaction and destination loyalty emphasizes the strategic importance of prioritizing tourists satisfaction as a means to ensure sustainable tourism growth. Moreover, stakeholders and policymakers can use these findings to implement targeted interventions aimed at improving service quality and contribute to a supportive environment for tourism development at Ngwe Saung Beach.

Recommendations

There is a clear need to enhance accessibility services at Ngwe Saung Beach. Improving accessibility can be achieved by introducing clear and multilingual signage throughout the area.

These signs should cater to all tourists, including those with disabilities, ensuring they can navigate the area easily and independently. Implementing accessible transportation options, such as shuttle services with wheelchair access, is essential for promoting convenience and inclusivity. Additionally, maintaining well-maintained roads leading to the beach will reduce transportation challenges, making the area easily accessible for tourists of all abilities.

Efforts to conserve the environment should also be strengthened to maintain the high standards that tourists currently appreciate. Enhancing waste management practices includes expanding recycling facilities and encouraging responsible waste disposal among both tourists and local businesses. Enforcing strict anti-littering regulations and keeping the beach clean are crucial for preserving its pristine condition. Pursuing green certification programs will show the destination's commitment to sustainable practices, attracting environmentally conscious visitors and enhancing its reputation as a responsible travel destination.

Improving the human element is another key area. Positive feedback on the professionalism and customer service of local staff should be built upon by investing in ongoing training programs. These programs should aim to improve hospitality skills, cultural sensitivity, and customer service standards. Encouraging respectful interactions and preserving local traditions will create a welcoming environment, enhancing tourist satisfaction and encouraging repeat visits.

Although safety measures are generally viewed positively, there is room for improvement. Strengthening safety and security protocols at Ngwe Saung Beach will ensure the safety and confidence of tourists. Improvements could include clearly communicating safety rules and emergency procedures through easily visible signage. Ensuring that lifeguards and safety personnel are both highly visible and well-trained to respond to emergencies is also important. Installing sufficient lighting along pathways and in beach areas, especially in the evening, will enhance visibility and create a safer environment for tourists to enjoy their visit.

The range of experiences offered at Ngwe Saung Beach should be expanded to provide unique and memorable activities. Cultural immersion experiences, such as traditional performances, artisan workshops, and food tours showcasing local delicacies, will allow tourists to engage more deeply with the local culture. Introducing adventure and ecotourism activities, such as snorkeling, guided nature walks, and birdwatching tours that highlight the beach's natural beauty and biodiversity, will offer memorable experiences catering to diverse interests.

Upgrading technical facilities is also necessary to meet the expectations of modern tourists. Improving Wi-Fi connectivity, mobile payment options, and digital information services will enhance convenience and connectivity for visitors. Implementing digital platforms that offer real-time information about events, attractions, and local services will improve the overall tourist experience, making it easier for them to navigate and enjoy their stay.

Strategic implementation of these recommendations requires ongoing monitoring and evaluation to measure the effectiveness of the improvements across all areas. Regularly collecting feedback from tourists will help identify areas for further improvement and ensure that high service standards are maintained. Collaboration between local businesses, residents, and non-governmental organizations in sustainable tourism practices and decision-making is

encouraged. This cooperation will make Ngwe Saung Beach a top destination for those seeking sustainable and enriching travel experiences, ensuring that tourism growth benefits the local community and promotes long-term environmental sustainability. By implementing these suggestions, stakeholders can create an environment that supports tourism growth at Ngwe Saung Beach. In addition to benefiting the local economy, increasing tourist satisfaction and fostering destination loyalty will contribute to the beach's long-term success and sustainable development.

Contributions of the Study

This study makes several key contributions to the understanding of destination service quality, tourists satisfaction, and loyalty, particularly in the context of Ngwe Saung Beach, Myanmar. It provides evidence showing the significant effect of different service quality factors such as human interactions, environmental conditions, technical quality, accessibility, safety, and overall experience on tourists satisfaction, which in turn affects destination loyalty. These findings are important for stakeholders, including local businesses, tourism authorities, and policymakers, to implement specific improvements that enhance the destination's attractiveness and competitiveness. The study also provides a thorough analysis of how service quality can be used to encourage return visits and positive word-of-mouth, both of which are important for the sustainable growth of tourism. By concentrating on these factors, the study adds to the broader knowledge of tourism management and offers a practical guide for developing effective service quality strategies that match tourists' changing expectations. Additionally, it highlights the need for ongoing improvements in service quality to maintain a competitive advantage in the tourism sector, especially for emerging destinations like Ngwe Saung Beach.

Suggestions for Future Studies

The study focuses specifically on the TOURQUAL framework for destination service quality. Further research is needed to better understand the different factors that affect tourists' satisfaction and destination loyalty at Ngwe Saung Beach. In Myanmar, there are many other locations where the quality of destination services can be studied. To conduct comparative research, future studies should be explored in different geographic areas or looked at both domestic and international tourists instead of just tourists in general. Findings from these studies could greatly influence the long-term sustainability of Myanmar's tourism industry.

Conclusion

The study conducted at Ngwe Saung Beach, Myanmar, has shown the essential role of service quality in influencing tourists satisfaction and loyalty. Key service quality factors such as human interactions, environmental sustainability, technical quality, and accessibility were identified as significant contributors to tourists satisfaction. The results suggest that improving these aspects can elevate the overall tourists experience, leading to higher satisfaction and increased loyalty to the destination. Satisfied tourists are more likely to return to Ngwe Saung Beach and recommend it to others, contributing to the destination's sustainable development and long-term success. These findings offer valuable insights for tourism industry stakeholders, highlighting the need to uphold high service standards to remain competitive in the tourism market.

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EMPLOYEE INTENTIONS TO ADOPT GREEN PRACTICES AT HOTELS IN YANGON

Su Pyae Thada Htet¹, Aye Thanda Soe²

Abstract

This study investigates the factors influencing employee intention to adopt green practices in hotels in Yangon and examines the moderating effect of management support on perceived behavioral control and employee intentions. A total of 221 respondents from Yangon hotels were surveyed using a two-stage simple random sampling method. Employing a quantitative research approach, the study utilized descriptive statistics and regression analysis to assess environmental knowledge, employee attitudes, social norms, perceived behavioral control, management support, and intention to adopt green practices. The findings reveal that perceived behavioral control and social norms significantly impact employees' intention to adopt green practices, with perceived behavioral control and management support receiving high mean values. Furthermore, management support emerged as a key factor in promoting green practices, demonstrating a stronger moderating effect than perceived behavioral control. However, the interaction between perceived behavioral control and management support did not show a significant effect. Based on these findings, it is recommended that hotels in Yangon align sustainability goals with their strategies, enhance employee training, foster supportive environments, and provide necessary resources to empower employees.

Keywords: employee intention, green practice, hotels

Introduction

In recent years, there has been a clear shift in the business environment towards sustainable green practices, which are now seen as a key way to gain competitive advantages. This shift reflects the growing need for organizations to adapt and succeed in an evolving business landscape. The hospitality sector, like other industries, has increasingly focused on sustainability, with the concept of "green hospitality" emerging in the mid-1990s, particularly in chain-affiliated hotels and resorts (Melissen & Roevens, 2007). As a result, many hotels are making efforts to run their operations in a more environmentally friendly manner by adopting practices that reduce their environmental impact. These green practices include steps such as the 3R approach (reduce, reuse, recycle) for plastic and glass products and the use of energy-saving modes for electricity and water. Adopting these practices is expected to give hotels a competitive edge by improving their reputation and brand image.

To implement the green practices successfully, organizations need to ensure that employees are willing to change their behaviors and attitudes towards sustainability efforts. The Theory of Planned Behavior is often used to understand and influence employees' attitudes and behaviors in relation to adoption of green practices in hotels. Employee attitudes are essential for encouraging sustainable practices, while factors like social norms and perceived behavioral control can also shape employees on their actions and role. Additionally, environmental knowledge is also an important factor in helping employees to understand the value of sustainable actions, especially leading to significant energy and water savings in their daily hotel operations. By creating a culture of sustainability and providing training and resources in the hotel's operation, they can reduce not only their environmental impact but also benefit in financial.

¹ Department of Tourism, National Management Degree College

² Department of Commerce, Yangon University of Economics

The growing focus on sustainability may also aligns with key Sustainable Development Goals (SDGs), which emphasize the need for a green and sustainable future. The hospitality industry in Myanmar has grown rapidly, but it faces challenges such as energy shortages and waste management problems. To tackle these issues, it is crucial for hotels to implement green practices, including energy-saving strategies and waste reduction efforts. As demand for sustainable practices increases, hotels in Yangon are under more pressure to adopt green practices in order to stay competitive and sustainable. While some hotels have started using green practices like recycling a glassware in a decoration process and cutting down on single-use plastics, there is still a need for more active involvement from employees. Although training and raising staff awareness about sustainability are important, understanding the factors that drive the adoption of green practices is essential. This study aims to address this gap by examining how environmental knowledge, employee attitudes, social influences, and perceived control affect the adoption of green practices in Yangon's hotels. The focus is on improving sustainability efforts within the local hospitality sector.

In this study, the downtown areas of Lanmadaw, Alhone, and Dagon were chosen for this study due to their prominence in hosting a significant segment of four-star hotels rather than other area in Yangon. The study of these areas aims to generate effective policies and guidelines for hotel management to support green practices in their operations. Moreover, this study seeks to assist authorities, NGOs, and the hotel management team in promoting the adoption of green practices among employees, thereby fostering their intentions to embrace sustainable practices. The general objective is to provide a comprehensive overview of the current situation regarding green practice adoption in hotels, starting with Yangon and extending its relevance to the broader context of Myanmar. Additionally, this study aims to explore the factors influencing employee intentions to adopt green practices and to examine the role of management support in moderating the relationship between perceived behavioral control (PBC) and employee intentions to adopt sustainable practices in hotels. Beyond this general objectives, the study set two specific objectives as follow;

1. To identify the factors that influence employee intentions to adopt green practices at hotels in Yangon.
2. To analyze the moderating effect of management support upon the relationship between perceived control and employee intentions to adopt green practices at hotels in Yangon.

By addressing these objectives, this study aims to contribute to the development of sustainable practices in the hospitality industry, ensuring both environmental and business success in the future.

Literature Review

Concept of Human Resources Management

Human Resource Management (HRM) plays a crucial role in managing employees within organizations to achieve their goals, particularly in ensuring that employees have the necessary skills to perform optimally. In recent years, there has been a growing emphasis on aligning HR practices with sustainability objectives which equips employees with the knowledge to support eco-friendly practices. Through HRM functions such as recruitment, training, and motivation,

organizations can foster a culture of sustainability, helping to embed eco-friendly practices into the daily operations of the business. Moreover, employees' attitudes and behaviors are vital for integrating sustainability successfully, highlighting HRM's role in fostering this transition. In this context, change management strategies that prioritize employee involvement become essential for embedding sustainability at every level of the organization. As Balogun and Hailey (2004) point out, adopting sustainable practices such as resource conservation is fundamental to achieving long-term organizational success. Employees, therefore, play a central role in aligning with sustainability goals, making a bottom-up approach vital for instilling green practices throughout the organization. The Theory of Planned Behavior (TPB) provides a useful framework for understanding how employee intentions can effectively drive the adoption of these green practices.

Organizational Support Theory (OST)

Organizational Support Theory states that employees are inclined to engage in behaviors aligned with organizational goals and values when they perceive support from the organization (Eisenberger et al., 1986). In the hospitality industry, this theory is particularly relevant in explaining employees' willingness to embrace eco-friendly practices. Research by Rhoades and Eisenberger (2002) highlights the significant impact of perceived organizational support on employee outcomes and behavior, such as job satisfaction and loyalty and overall performance. This suggests that when employees feel supported by their organization, they are more likely to participate in sustainability initiatives. The pivotal role of organizational support in promoting green initiatives within hotels becomes clear when considering that providing employees with appropriate training, rewards, and resources can empower them to actively engage in environmental efforts. Therefore, the connection between organizational support and employee engagement is essential for fostering a sustainable culture and driving the adoption of green practices in the hotel industry.

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) is a well-established psychological framework that analyzes human behavior by considering individuals' attitudes, subjective norms, and perceived behavioral control in relation to a specific action. TPB was developed by Icek Ajzen in 1985 and has been applied in a number of fields, including consumer behavior research, environmental psychology, and health psychology. The theory offers valuable insights into how intentions lead to specific behaviors and how external factors may influence this process,

Ajzen (1985, 1991, 2005) elaborated on the relationship between behavior and intention, highlighting that this relationship can be affected by various factors such as changes in intention, shifts in the importance of beliefs, or the acquisition of new knowledge. According to TPB, behavioral intention which is the motivation that influences behavior, is the primary determinant of an individual's actions. The degree of intention to engage in a particular behavior is shaped by three core elements: attitudes toward the behavior, subjective norms, and perceived behavioral control. These factors not only influence the strength of an individual's intention but also determine the likelihood of successfully carrying out the behavior. TPB, therefore, provides a

comprehensive framework for understanding how employees' attitudes, social norms, and perceived behavioural control affect their willingness to adopt green practices.

Factors Influencing Employee Intentions to Adopt Green Practices at Hotels

Based on the Theory of Planned Behavior (TPB) and Organizational Support Theory (OST), the factors influencing employee intentions to adopt green practices in hotels include employee attitude, environmental knowledge, social norms, perceived behavioral control, and management support as a moderating factor.

Employee Attitude and Intention to Adopt Green Practices

Ajzen (1991) defines attitudes as "the motivation to which an individual has a positive or negative assessment or appraisal of the behavior in question." Attitudes are influenced by a person's beliefs about the outcomes, consequences, and value of the behavior. In the context of green practices, an employee's attitude reflects their positive inclination toward implementing environmentally sustainable initiatives in the workplace. When employees recognize the value and importance of green practices, it can significantly affect their motivation to support sustainability efforts.

Many studies have explored the role of attitude in driving the intention to engage in environmentally friendly behaviors. According to Polonsky et al. (2012), decisions to participate in pro-environmental behaviors are largely driven by favorable attitudes towards environmental conservation. Within the TPB framework, attitudes are crucial as they represent the individual's evaluation which is positive or negative of performing a specific behavior. Environmental knowledge, in particular, plays a fundamental role in shaping employee attitudes and influencing their intention to engage in green practices at work. Research by Fryxell and Lo (2003) and Chan and Hon (2020) highlights that individuals with greater environmental knowledge are more likely to adopt positive attitudes toward sustainable actions, recognizing the importance of such behaviors for promoting sustainability in their workplace.

Understanding key environmental facts and concepts helps employees better perceive the importance of green behaviors. Chan et al. (2014) found that environmental knowledge positively influences employees' perceptions of green behaviors, subjective norms, and perceived behavioral control, all of which directly affect their intentions toward sustainability initiatives. Employees with strong environmental knowledge are more likely to participate in green practices within the tourism and hospitality sectors, as this knowledge serve as a catalyst on their environmental attitudes and commitment to sustainability efforts (Chan, 2013; Han et al., 2010).

Environmental Knowledge and Intention to Adopt Green Practices

According to Fryxell & Lo (2003), environmental knowledge is defined as 'general knowledge of concepts, facts, and interactions related to the natural environment and its primary ecosystems'. This includes understanding the balance between human activities and the natural world, such as recognizing the benefits of recycling in hotel operations or the positive impact of energy and water conservation. Besides, this might include getting the awarness on the effects of

excessive water and electricity usage in hotels as well as how to effectively incorporate green practices into daily job operations to improve one ability to contribute to environmental conservation efforts.

Research by Chan & Hon (2020) express that employee motivation to practice environmental measures can be influenced by a vanumerous factors, including his or her attitude toward greenpractices, subjective standards, perceived behavioral control, and sense of duty. Chan et al. (2014) further emphasized a positive correlation between employees' environmental behavior and their intention to adopt green practices, particularly when they possess strong environmental knowledge, awareness, and concern. Sililarly, Liu et al. (2020), environmental attitudes are strongly influenced by environmental knowledge.

Employees in the tourism and hospitality sectors must be well-informed about environmental issues, as this directly impacts their attitudes and behaviors toward adopting green practices (Chan, 2013). Moreover, greater environmental awareness significantly increases the likelihood that employees will actively support and participate in sustainability initiatives (Han et al., 2010). Research consistently shows that employees with higher environmental awareness are more inclined to use eco-friendly practices, such as adopting sustainable products, recycling, and reducing energy and water consumption (Graci & Dodds, 2008). Additionally, a deeper understanding of environmental issues can further enhance employees' motivation and commitment to sustainability (Chou, 2014).

Social Norms and Intention to Adopt Green Practices

According to Cai et al. (2019), social norms, which are seen as mandatory, represent the constraining influence of social pressure on individuals. This influence often drives people to conform to expected behaviors, particularly in the context of environmental decisions and actions. A growing body of evidence indicates that social norms significantly impact individuals' choices regarding environmental practices. Specifically, in the workplace, social norms shape employees' attitudes toward adopting green initiatives, underscoring the role of organizational culture in these behaviors. For instance, employees who perceive strong organizational support for sustainability efforts are more likely to express positive attitudes toward green practices. They may also demonstrate a willingness to participate in such initiatives, which reflects a broader organizational commitment to environmental conservation. In this sense, social norms not only shape individual perceptions but also create an environment where green practices are valued and encouraged. Matthies et al. (2012) suggest that social norms begin influencing pro-environmental behaviors at an early age. Parents, for example, can instill habits of recycling and reusing paper in children as young as 8 to 10 years old. The study showed that children's recycling habits were greatly shaped by their parents' behaviors, particularly through sharing knowledge about environmental issues. This dynamic of influence can also be observed in organizational settings, where directors, managers, and colleagues play a pivotal role in shaping employees' attitudes toward sustainability. When leadership and coworkers actively support green practices, it creates a culture that encourages environmentally responsible behaviors. Banwo and Du (2019) found that social norms exert a significant direct influence on pro-environmental behavior in the

workplace, further supporting this idea. Additionally, Greaves et al. (2013) demonstrated that employees' intentions to engage in environmentally friendly actions at work are strongly predicted by the prevailing social norms within the organization.

Perceived Behavioral Control (PBC) and Intention to Adopt Green Practices

Perceived Behavioral Control (PBC), as defined by Ajzen (1988), refers to an individual's belief in their ability to successfully perform a particular behavior, considering factors such as past experiences, anticipated challenges, and available resources. PBC is closely linked to one's sense of self-efficacy and the confidence they have in their ability to execute a behavior effectively (Ajzen, 1991). In the context of adopting green practices in the workplace, PBC encompasses employees' perceptions of the ease with which they can implement these practices, their access to resources, and their knowledge about sustainability initiatives. Employees who believe they have the necessary resources and skills to engage in environmentally responsible actions are more likely to view these initiatives favorably. This confidence not only enhances their attitudes toward sustainability but also strengthens their commitment to implementing green practices.

Kollmuss and Agyeman (2002) argue that individuals are more likely to take environmental action when they possess a deep understanding of environmental issues and the behaviors that can lead to ecological problems. This understanding, coupled with the belief that they have the resources and opportunities to act, enhances their sense of control over their environmental impact. Similarly, Holdsworth (2019) emphasized that PBC serves as an indicator of an individual's sense of volition and confidence in their capacity to behave in environmentally responsible ways. The more time, knowledge, and resources individuals believe they have, the more likely they are to adopt green practices. Conversely, a perceived lack of these factors may act as a barrier to sustainable environmental behaviors. In this way, perceived behavioral control plays a critical role in determining whether individuals feel empowered to contribute to sustainability efforts. The time becomes to consider the important of mannagement support in their organization to successfully implement green practices in their daily hotel operations.

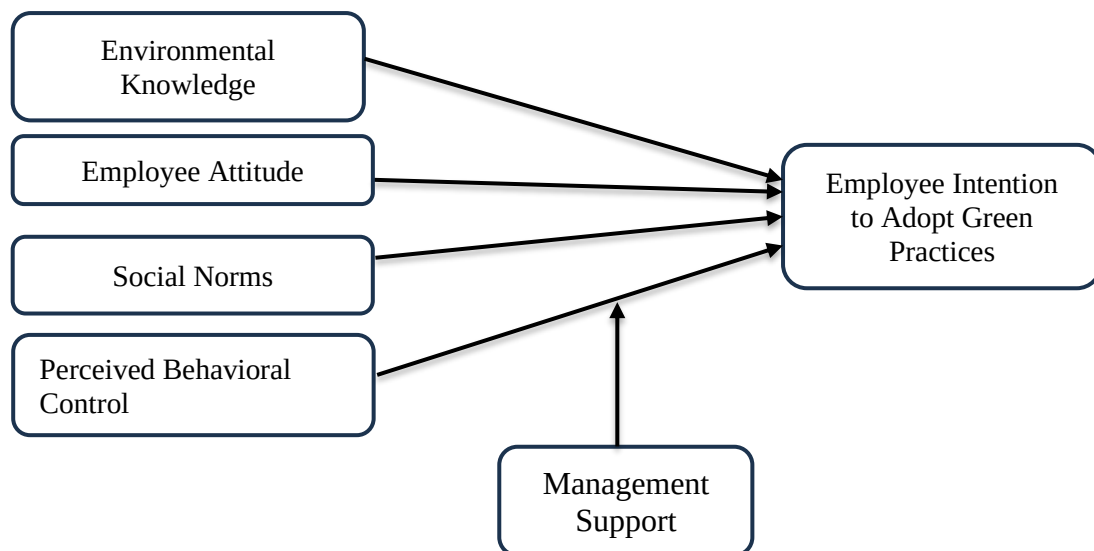
Management Support

A study by Elg, Hultman, and Suomala (2012) in the hotel industry highlighted the importance of organizational backing for green initiatives. Their research found that when employees perceive strong management support for sustainability, they are more inclined to engage in environmentally friendly behaviors and contribute to the organization's sustainability goals. This is particularly important because employees are more likely to adopt green practices when they feel supported by their organization.

Moreover, DiMento and Doughman (2007) suggest that organizational support plays a critical role in shaping employee attitudes and behaviors toward sustainability. When organizations actively demonstrate their commitment to environmental initiatives through policies, resources, and leadership, employees are more likely to align their behaviors with these goals. This alignment not only fosters a culture of sustainability but also encourages long-term

engagement with green practices. Therefore, it is clear that management support is a key driver in promoting sustainability within organizations. By creating an environment that prioritizes sustainability and provides the necessary resources, management can significantly influence employees' pro-environmental behaviors.

As a final point, social norms, perceived behavioral control, and management support are all vital factors in determining employees' intentions to adopt green practices in the workplace. Social norms shape attitudes, perceived behavioral control influences confidence, and management support provides the necessary backing for sustainable actions. Together, these elements create a supportive environment that fosters positive environmental behaviors within organizations. Currently, there is no research that based on management support as a moderating role. Taking this as a research gap and based on the above literature review, conceptual framework of the study can be found in Figure 1.



Source: Own Compilation based on Previous Studies

Figure 1 Conceptual Framework of the Study

Methodology

Quantitative research method was used in this study. Both primary data and secondary data were used. Primary data was collected by interviewing employees in 4-stars hotels collected by using structured questionnaire with 5-point Likert scale. A two-stage simple random sampling method was used to collect a representative sample for the purpose of study. In the first stage, four hotels were selected among 21 hotels which are rated 4-stars and located in the downtown area of Yangon which are Latha, Alhone and Dagon (MOHT, 2022). Therefore, Park Royal Hotel, Summit Park View Hotel, Hotel Grand Vista, and BaLmi Hotel are chosen with total population of 495 employees. In the second stage, the total number of employees from each selected hotels are randomly survey with structured questionnaire. To determine the appropriate sample size, the Taro Yamane (1973) Sampling Formula was utilized.

$$n = \frac{N}{1 + N(e)^2}$$

Where n= sample size

N= Population size

e= Error Margin

$$= 495 / 1 + 495 * (0.05)^2 = 221.2 \approx 221$$

Based on this formula, a sample population of 221 employees was determined to be representative of the larger population. Therefore, the target population for this study comprises employees working in 4 stars hotels within the city of Yangon. To make sure the sample accurately reflects the population distribution across the different hotels, proportional methods were used to determine the sample size. Sample of respondents which was 33% were collected from 74 employees out of total 165 employee from Summit Park View Hotel in Dagon Township, 31% from 69 employees out of total 155 employees from Park Royal Hotel in Dagon Township and 18% from 40 employees out of total 92 employees from BaLMi Hotel in Latha Township and 18% from 38 employees out of total 83 employees from Hotel Grand Vista in Alhone Township. The distribution of the samples is shown in Table (1).

Table (1) Distribution of sample population

No	Hotel' s Name	Location	Total Population	Sample population (in %)	Sample Population
1.	Summit Park View Hotel	Dagon	165	33	74
2.	Park Royal Hotel	Dagon	155	31	69
3.	Hotel BaLmi	Latha	92	18	40
4.	Hotel Grand Vista	Alhone	83	18	38
	Total		495	100	221

Data collection period was from May 1 to May 28, 2024. Data were gathered using a structured questionnaire, and the Likert scale (ranging from one to five, where one represents severe disagreement = 1, disagree = 2, neutral = 3, agree = 4, strongly agree = 5) was employed in this study. The questionnaire is divided into seven sections, encompassing various dimensions crucial to understanding the research objectives: demographics, environmental awareness, employee attitudes, social norms, perceived behavioral control (PBC), management support, and intention to adopt green practices. 6 items each for environmental

awareness, employee attitudes, social norms, perceived behavioral control (PBC) and intention to adopt green practices and 5 items for management support were used in this study.

Items for measuring the environmental knowledge was taken from Roberts and Bacon (1997) and Chen and Tung(2014). For employee attitude, adapted from Bouarar and Mouloudji (2021) , Chen and Taung (2014), and Millar and Baloglu (2011). Social norms questions were adopted from Ajzen (1991), Millar and Baloglu (2011), and Bouarar and Mouloudji (2021). Perceived behavioral control questions were based on Ajzen (2001), Millar and Baloglu (2011), Katz et al. (2022), and Bouarar and Mouloudji (2021). For management support, questions adapted from Jie Li (2020), and Han and Yoon (2015). Employee intention to adopt green practices questions were based on Lee et al. (2010), Ajzen (2001), and Bouarar and Mouloudji (2021).

For data analysis, SPSS version 23 was used. Descriptive statistics such as mean and standard deviation were applied to examine the employee intention to adopt green practices. Pearson Correlation was applied to explore the relationship among the variables. In addition, multiple regression analysis was used to examine the factors influencing employee intention to adopt green practices. In order to analyze the moderation effect of management support on the perceived behavioral control and employee intention to adopt green practices moderated regression analysis was used. Descriptive statistical methods were employed to estimate the respondent's mean value. Secondary data was collected from the sources of ministries especially Ministry of Hotels and Tourism, and from previous literature.

Analysis and Results

In this study, descriptive statistics were conducted on the demographic data of respondents. The results revealed that gender difference among respondents is not so big as the 125 respondents (56.6%) were female, while 96 respondents (43.4%) were male employees. The respondents were categorized into six age groups while the majority of the respondents were falling in the 21-25 age bracket with 65 respondents (29.5%) . Regarding current positions, the respondents were classified into Manager Level, Assistant Manager Level, Supervisor Level, Staff Level, and Others Level. The study showed that 101 respondents (45.7%) were in the Staff Level category, with Managers comprising at least 19 respondents (8.5%) in total. Additionally, the distribution of working service years indicated that 42 respondents (19%) had less than one year of experience which is the least amount of respondents while 103 respondents (46.6%) had four to six years of experience and highlighted that the majority of respondents had four to six years of work experience in the hotel industry. Demographic factors are shown in Table 2.

Table (2) Demographic Characteristics of the Respondents

Sr. No.	Particular	No. of Respondents	Percentage (%)
	Total	221	100.0
1.	Gender		
	Male	96	43.4
	Female	125	56.6

Sr. No.	Particular	No. of Respondents	Percentage (%)
2.	Age (year)		
	16-20	16	7.2
	21-25	65	29.5
	26-30	52	23.5
	31-35	40	18.1
	36-40	29	13.1
	40 and above	19	8.6
3.	Position		
	Manager	19	8.5
	Assistant Manager	24	11
	Supervisor	72	32.5
	Staff	101	45.7
	Other	5	2.3
4.	Service Year		
	Under 1 year	42	19
	1-3 years	58	26.3
	4-6 years	103	46.6
	7 years and above	18	8.1

Source: Survey Data (2024)

Then, descriptive statistics of each of the variables was shown in Table 3 by using mean descriptive value of each of them. Mean value of environmental knowledge received an average score of 3.51, indicating a reasonable level of awareness and understanding among employees regarding environmental issues in the hotel industry. Employee Attitude scored 3.47, demonstrating a generally positive attitude towards embracing green practices. Social Norms garnered an average of 3.60, suggesting that employees perceive some level of social pressure or influence towards adopting environmentally friendly behaviors. Moreover, Perceived Behavioral Control scored 3.71, indicating that employees believe they have the necessary skills and resources to engage in sustainable practices effectively. Finally, Management Support received the highest average score of 3.83, implying that employees feel supported by hotel management in their efforts to implement green initiatives. Overall, the data show a favorable environment for promoting and encouraging the adoption of green practices among hotel employees in Yangon.

Table 3 Employee Perception on Environmental Knowledge, Employee Attitude, Social Norms, Perceived Behavioural Control and Management Support

Sr. No.	Variables	Overall Means
1.	Environmental Knowledge	3.51
2.	Employee Attitude	3.47

3.	Social Norms	3.60
4.	Perceived Behavioral Control	3.71
5.	Management Support	3.83

Source: Survey Data (2024)

After this, reliability was checked for each variable with Cronbach's Alpha value and the result was shown in Table 4. The results indicate that most variables in the study demonstrate good internal consistency, as evidenced by their Cronbach's Alpha values exceeding the commonly above the cut-off criteria 0.7.

Table (4) Reliability Test for Variables of the Study

Variables	Number of Items	Cronbach's Alpha
Environmental Knowledge	6	.813
Employee Attitude	6	.824
Social Norms	6	.814
Perceived Behavioral Control	6	.859
Management Support	5	.782
Intention to adopt Green Practices	6	.738

Source: Survey Data (2024)

Then, to test the relationships among the variables, Pearson's correlation analysis was tested and it was found in Table 5. According to the correlation analysis, environmental knowledge has a weak positive correlation ($r = 0.228$) with the intention to adopt green practices, which is significant at the 5% level. Employee attitude shows a moderate positive correlation ($r = 0.431$) with the intention to adopt green practices, significant at the 1% level. Social norms also have a strong positive correlation ($r = 0.556$) with the intention to adopt green practices, significant at the 1% level. Perceived behavioral control is also strongly positively correlated ($r = 0.530$) with the intention to adopt green practices, significant at the 1% level.

Table (5) Correlation Analysis between influencing factors

Sr.No	Particular	Intention to Adopt Green Practices
1.	Environmental Knowledge	.228 *
2.	Employee Attitude	.431 **
3.	Social Norms	.556 **
4.	Perceived Behavioral Control	.530 **
***, **, * = significant at 1%, 5%, 10% level		

Source: SPSS Output (2024)

To fulfill the first objective, multiple regression analysis was run to find the factors influencing employee intentions to adopt green practices at hotels and the result was shown in Table 6.

Table (6) Multiple Regression Analysis of Influencing Factors

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	B	Std. Error	Beta		
(Constant)	.934	.243		3.841	.000
Environmental Knowledge	.027	.052	.028	.521	.603
Employee Attitude	.107*	.058	.127	1.837	.068
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Social Norms	.296***	.068	.318	4.319	.000
Perceived Behavioral Control	.330***	.049	.374	6.716	.000
R Square	.436				
Adjusted R Square	.426				
F Value	41.790***				

Source: SPSS Output (2024)

*** significant level at 0.01

It was found in table 6 that , environmental knowledge has a coefficient of 0.027 and is not statistically significant, suggesting it does not strongly impact green practice implementation. Employee Attitude has a coefficient of 0.107 and approaches significance, indicating a positive but weak relationship with green practice implementation. Social Norms, with a coefficient of 0.296, are highly significant ($p < 0.001$), indicating that social expectations and peer influence are crucial for green practices. Perceived Behavioral Control has the highest impact, with a coefficient of 0.330 and a high significance ($p < 0.001$), showing that employees' confidence in their ability to implement green practices is a strong predictor. The model explains 43.6% of the variance in green practice implementation (R Square = 0.436), and the F value of 41.790 indicates the model is a good fit. These findings suggest focusing on enhancing social norms and perceived control can effectively encourage green practice adoption.

In order to fulfilled the second objective, the analysis on the moderating effect of management support on the relationship between perceived behavioral control and employee intention to adopt green practices are examined and the result is shown in Table 7.

Table (7) Multiple regression analysis of moderating effect of Management Support

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

	B	Std. Error	Beta		
(Constant)	-.455	.202		-2.249	.026
Perceived Behavioral Control	.223***	.038	.252	5.887	.000
Management Support	.859***	.054	.685	15.924	.000
Interaction Term	.004	.019	.009	.218	.828
R Square	.671				
Adjusted R Square	.666				
F Value	147.423***				

Source: SPSS Output (2024)

*** significant level at 0.01

The results in Table 7 show that perceived behavioral control has a positive and significant influence ($B = 0.223$, $p < 0.001$), suggesting that employees' confidence in their ability to implement green practices strongly affects their intention. Management support also has a strong positive influence ($B = 0.859$, $p < 0.001$), highlighting its crucial role in encouraging green practices. However, the interaction term between PBC and management support is not significant ($B = 0.004$, $p = 0.828$), indicating that management support does not significantly enhance the effect of perceived behavioral control on employees' intention to adopt green practices.

These findings suggest that while perceived behavioral control and management support independently promote green practices, their combined effect does not provide additional benefits. Therefore, focusing on both boosting employees' confidence and ensuring strong management support can effectively encourage the adoption of green practices in the workplace.

In a summary of multiple regression between variable and their result in significance level, the Figure 2 is developed.

Figure 2 Summary of the Results

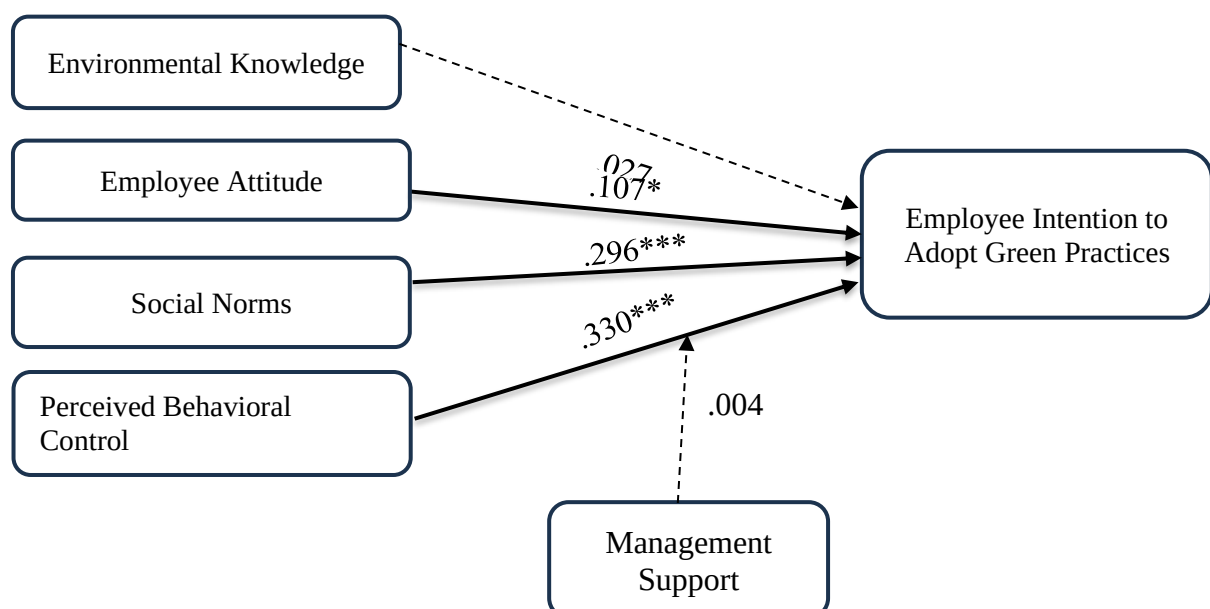


Figure 2 Summary of the Results

According to the summary of the results, it can be found that perceived behavioral control and social norms had the most significant impact on green practice adoption. Additionally, management support was identified as a crucial factor in promoting green practices, showing a stronger influence than perceived behavioral control in moderation the adoption of green practices. However, the interaction term between perceived behavioral control and management support does not show significant effect.

Findings and Discussion

Based on the analysis, major findings and discussion were described in this section. Firstly, descriptive statistics was analyzed to know employee perceptions of environmental knowledge, attitudes, social norms, perceived behavioral control, management support, and the adoption of green practices in hotel operations. In general, employees feel well-supported by the hotel management in their efforts to implement green practices., with the highest mean scores observed. This may be because of providing enough facilities (such as seperated trash bin, energy saving bulb and water saving techonology) for implementing green practices in hotel operations. It may aslo include green activites are frequently carried out such as putting banner or solograns about green environment by the hotel management team.

Follow by this, the perceived behavioural control is the second highest mean score as employees believe they have the necessary skills, resources, and control to engage effectively in sustainable practices. It shows the confidence in their ability to implement green initiatives contributes to their intention to embrace environmentally conscious behaviors and they also notice that the green practices that they provided are beneficial to both hotels and customers. In addition, employees seem to perceive social pressures or influences that encourage the adoption of environmentally friendly behaviors. This could be attributed to colleagues, management team, or industry standards promoting and supporting sustainable practices. Generally, it can be assumed that employees are supportive of green practices and supported by supervisors and colleagues to implement them.

The mean score for environmental knowledge indicates that employees possess a reasonable level of understanding and awareness of environmental issues specific to hotel operations. This possibly due to training programs, organizational initiatives, or personal interest in sustainability. However, there is a need for improved education and awareness regarding the benefits of recycling programs. Although, it is evident that employees exhibit a positive attitude towards embracing green practices, it has the lowest mean score . Positive attitudes may be influenced by the perception of environmental responsibility, personal values, or the belief that green initiatives benefit both the environment and the hotel business. Overall, employees express a willingness to adopt green practices, particularly in waste separation, energy conservation, and

other sustainable measures integrated into hotel operations. Further enhancements in employee adoption of sustainable behaviors could be achieved through improved education, training, and knowledge-sharing initiatives.

According to the first objective, upon factors influencing employee intentions to adopt green practices, the analysis reveals positive correlations between environmental knowledge, employee attitude, social norms, and perceived behavioral control with the intention to adopt green practices. Significant relationships were observed, with perceived behavioral control and social norms showing stronger correlations. Multiple regression analysis highlighted perceived behavioral control as the most impactful factor, followed by social norms, in influencing employee intentions towards green practices. Environmental knowledge has a weak positive correlation, while employee attitude has moderate positive relationship. The findings suggest that focusing on enhancing perceived behavioral control and reinforcing social norms may be more effective in promoting the adoption of green practices in hotel operations.

According to second objective upon the moderation effect of management support on the relationship between perceived behavioral control and employee intentions to adopt green practices, the correlation analysis demonstrated significant positive relationships between these variables, with management support displaying a stronger correlation rather than perceived behavioral control in adoption of green practices. Multiple regression analysis reveals that perceived behavioral control and management support together explain the intention to adopt green practices. Both variables are significant in adoption of green practices however, the interaction term between PBC and management support is not significant, indicating that management support does not significantly enhance the effect of perceived behavioral control on employees' intention to adopt green practices. This highlights the greater importance of management support over perceived behavioral control in promoting sustainable initiatives. Strengthening management support can greatly enhance employees' intentions to engage in environmentally friendly behaviors. Organizations in the hospitality industry seeking to improve their adoption of green practices should focus on increasing management support and enhancing factors related to perceived behavioral control. This approach can lead to more effective and widespread implementation of green practice.

Suggestions

Based on the findings, some recommendations can be made to enhance the adoption of green practices among hotel employees in Yangon. The study highlights the main role of management support in influencing employees' intentions to participate in environmentally friendly behaviors. Therefore, it is vital for hotel management teams to actively advocate for and demonstrate their commitment to sustainability. It was found that most of the researched hotels are still lacking a strong sustainability focus in their vision and mission statements. It would be beneficial for hotels to incorporate green practices and sustainability into their strategic objectives. This can be achieved by integrating environmental goals into the hotel's strategic objectives and may involves consistently communicating the importance of these goals to all staff members. In order to boost employee intentions to adopt green practices, incentives such as

rewards, promotions, certificates, and salary benefits should be provided for the successful implementation of green practices. Moreover, holding regular meetings to track progress, share success stories, and recognize employees who make significant contributions to sustainability efforts can further strengthen support and engagement among organization and employees.

The insights from in-depth interviews reveal a disconnect between hotel management's perceptions of providing adequate training for employees and the employees' perceived need for more support in implementing green practices. Therefore, there is a need to enhance training programs to better educate employees on the benefits and practical execution of green initiatives. Tailored training sessions focusing on specific environmental aspects pertinent to hotel operations, such as efficient waste management, energy conservation methods, indoor planting solutions for limited spaces, and the utilization of solar systems in hotel rooms, can be particularly effective for nurturing green practice adoption. Interactive training sessions with real-world applications can enhance employee understanding and engagement. For example, workshops on reducing single-use plastics can feature demonstrations on setting up refillable water stations, offering practical solutions in regions where plastic waste poses a significant challenge.

The study also underscores the influence of social norms and perceived behavioral control on green practice adoption. Establishing a supportive social environment that encourages and normalizes green practices is essential. This can be facilitated through the formation of green teams or committees comprising employees from various departments. These teams can spearhead sustainability projects, provide support in implementing green practices, and cultivate a culture of environmental consciousness within the hotel. Engaging in team-building activities focused on environmental themes, such as clean-up drives and tree planting events, can further solidify this culture and strengthen employees' collective commitment to sustainability. Furthermore, to enhance the perceived behavioral control, it should provide the employees with the necessary resources and autonomy to adopt green practices effectively. Hotels should ensure that employees have access to tools and materials required for sustainable operations, such as recycling bins, energy-efficient appliances like LED bulbs and low wattage devices, and environmentally friendly cleaning products. Clear guidelines and procedures for green practices, along with consistent feedback and support from supervisors, can empower employees to proactively make sustainable choices in their daily duties. For example, implementing a comprehensive recycling program with easily accessible bins and clear labeling, along with energy efficiency guidelines and environmental signage, can facilitate proper waste segregation and recycling efforts.

These green initiatives can impact the long-term benefits of sustainable practices, not only for the environment but also for the business. For example, reducing energy consumption through efficient lighting and energy control systems can lead to substantial cost savings in daily operations. This can be an incentive for hotels operating on constrained budgets. Furthermore, collaborations with local environmental organizations can offer further assistance and resources to boost the sustainability efforts.

In alignment with these strategies, government stakeholders should also play a significant role in promoting green practices within the hospitality industry. By establishing supportive policies, offering assistance in implementing sustainable measures, and facilitating partnerships between hotels and environmental agencies, the government can accelerate the adoption of green practices in hotel industry. Moreover, by providing financial incentives or tax breaks for hotels that demonstrate commitment to sustainability and green initiatives, the government can encourage broader industry-wide participation in environmental conservation efforts.

Throughout the study, it can be found that employees have willingness to adopt green practices in their daily operations, it will be better approach to combines strong management support, effective training, a supportive social environment, sufficient resources and collaboration with authorities can significantly enhance the adoption of green practices in the hotel industry.

Need for Future Studies

This study only focused on understanding the factors driving employee intentions to adopt green practices at one hotel in Yangon. For future studies, a more comprehensive view should be taken to the broader hospitality industry in Myanmar, like hotels in the Inle and Bagan which destinations are suffering from environmental effects. This study applied only quantitative research methods.

For further research, qualitative methods should be employed to explore employee perceptions of green practices more deeply. While this study emphasized factors such as environmental knowledge, employee attitude, social norms, perceived behavioral control, and management support, future research should also consider other influencing factors. These could include organizational culture, technological advancements, and economic incentives, and cost and competitors which may also significantly impact employees' willingness to engage in sustainable behaviors.

Besides, this study only focuses on intention of the employee to adopt green practices, so it will be better if it can go further with behavior which is a fully theory of planned behavior. By expanding the scope and employing diverse research methods, a more holistic understanding of the factors driving the adoption of green practices can be achieved, leading to more effective and widespread implementation across the industry.

Conclusion

This study makes a contribution to the hotel industry in Myanmar by uncovering employee intentions to adopt green practices, thus raising awareness of the strengths and weaknesses in employees' willingness to engage in sustainable initiatives. The findings offer insights for relevant authorities, hotel management organizations, and employees in the hospitality sector to understand how to implement green practices to enhanced environmental sustainability. It emphasizes that perceived behavioral control, social norms, and management support are important but not enough factors, as it should consider the various supporting industries, like local government and sanitation issues to effectively drive employee adoption of green practices.

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THE EFFECT OF SOCIAL MEDIA INFLUENCERS CREDIBILITY ON THE TRAVEL INTENTIONS OF DOMESTIC TRAVELERS IN MYANMAR

Lei Yee Hnin Oo¹

Abstract

This study investigates the impact of social media influencers' credibility on the travel intentions of domestic travelers in Myanmar. Drawing upon Source Credibility Theory, the research focuses on three key dimensions of influencer credibility: expertise, trustworthiness, and attractiveness. A quantitative approach was employed, utilizing convenience sampling to collect data from 150 domestic travelers across major travel points in Yangon between 4th and 18th August 2024. Descriptive statistics, correlation analysis, and multiple linear regression were conducted to assess the relationships between variables. The findings reveal that all three dimensions significantly influence travel intentions, with expertise emerging as the most influence factor followed by trustworthiness and attractiveness. The study concludes that influencers who provide authentic, knowledgeable, and visually engaging content can strongly shape domestic travelers' behaviors. It recommends that tourism stakeholders collaborate with credible influencers who combine expertise with trust-building strategies to effectively promote domestic destinations.

Keywords: Social media influencers, travel intentions, expertise, trustworthiness and attractiveness

Introduction

Publicity is vital in social media influencer marketing, greatly influencing how consumers perceive brands and products. With their large audiences and trusted reputation, influencers are particularly effective at driving purchasing decisions by promoting products. In recent years, social media has dramatically transformed industries like marketing, communication, and tourism. The rise of social media platforms among internet users has given birth to Social Media Influencers (SMIs), who have become highly effective marketing tools (Xu & Pratt, 2018). These platforms are now central to how consumers discover new products, services, and experiences, with influencers playing a key role in shaping audience preferences. SMIs are everyday people who build large followings by sharing their personal lives and engaging with their audiences on blogs and social media. This connection allows them to seamlessly integrate paid advertisements into their content (Ye et al., 2021). In the tourism industry, influencers are particularly influential, helping shape travel perceptions and intentions by providing followers with authentic experiences, recommendations, and reviews. Their engaging content and relatable, trustworthy personas can significantly impact consumer behavior, especially when it comes to travel decisions.

To better understand the influence of SMIs, Source Credibility theoretical offers a valuable framework. According to this theory, an influencer effectiveness is based on three key dimensions: expertise, trustworthiness, and attractiveness (Ohanian, 1990). Expertise is the perceived level of knowledge or competence an influencer holds in a specific field. Trustworthiness, on the other hand, is tied to the influencer perceived honesty and integrity. Finally, attractiveness goes beyond physical appearance to include likability and the emotional connection the influencer builds with their audience. Together, these factors shape the

¹ Department of Tourism, National Management Degree College

influencer's overall credibility, which in turn impacts their ability to influence audience behavior, including their travel decisions.

In Myanmar, domestic tourism has seen steady growth, with many travelers now using social media for travel inspiration and information. Influencers have become increasingly important in this space, sharing curated content that showcases local destinations, accommodations, and activities. However, how much the credibility of these influencers actually affects the travel intentions of Myanmar domestic travelers is still largely unexplored. Understanding this dynamic is important, especially since the way influencer credibility is perceived may differ across various cultural and social contexts. For instance, domestic travelers in Myanmar might prioritize different factors like expertise, trustworthiness, or attractiveness compared to other audiences.

This study aims to examine the effect of social media influencers credibility on the travel intentions of domestic travelers in Myanmar. By focusing on key dimensions of credibility: expertise, trustworthiness, and attractiveness within the context of the tourism industry, this research seeks to uncover how these factors drive travel behavior in Myanmar unique cultural and social setting. The insights gained from this study will be valuable for both tourism stakeholders and influencers, helping them harness the power of social media to more effectively promote domestic tourism.

Objectives of the study

1. To identify the effect of social media influencers credibility on travel intentions of domestic travelers in Myanmar.
2. To analyze which social media influencers credibility is the most influence on travel intentions of domestic travelers in Myanmar.

Scope and Method of the Study

This study focused on analyzing the effect of social media influencers credibility on the travel intentions of domestic travelers in Myanmar. This study specifically targeted domestic travelers who are residents of Myanmar and actively use social media platforms such as Facebook, Instagram, and TikTok. To achieve objectives of the study, descriptive statistics and regression analysis were utilized. A quantitative research was employed. The sample size consisted of 150 domestic travelers from 4th August to 18th August 2024 were taken by using a convenience sampling method. Secondary data sourced from books, articles, official reports, annual reports, and other scholarly publications was gathered from libraries, online databases, and academic journals.

Literature Review

The rise of social media has fundamentally changed how people engage with brands, particularly in industries like travel and tourism. Social media influencers (SMIs), with their significant followings and established credibility play a crucial role in influencing consumer decisions, including travel preferences and destination choices. This review explores the effect of influencer credibility on the travel intentions of domestic tourists in Myanmar shedding light on how factors shape their travel planning and decision-making processes.

Social Media Influencers (SMIs)

Social media and social media influencers (SMIs) play a crucial role in shaping our everyday experiences, as noted by Fayez et al. in 2022. These influencers are typically online figures who attract substantial followings on platforms such as YouTube, Instagram, Snapchat, and personal blogs, possessing the ability to influence the opinions and actions of their audience (Lou & Yuan, 2019). They are also known by various titles, including social media stars, creators, micro-celebrities, and online personalities (Gaenssle & Budzinski, 2020). Researchers have classified SMIs according to several criteria, including audience size, content type, platform utilized, nature of activities, and level of professional expertise. Such classifications are essential for comprehending the extent and nature of the influence these individuals exert, as examined in studies by Wielki (2020). The travel and tourism sectors have capitalized on the influence of SMIs to bolster their branding efforts and draw in tourists. Major international hotel chains and various destination management organizations have effectively employed SMIs to enhance the perception of travel destinations, resulting in heightened tourist satisfaction, increased repeat visits, and successful word-of-mouth marketing, as evidenced by research conducted by Mokhare et al. (2021).

Source Credibility Theory

Source Credibility Theory originally rooted in communication and psychology has been adapted to assess the credibility of influencers. It suggests that the effectiveness of a communication is largely determined by the perceived credibility of the source which is evaluated based on three key dimensions: expertise, trustworthiness, and attractiveness (Hovland et al., 1953). Credibility is defined as the perceiver judgment of a communicator's believability (Kwiatek et al., 2021). Ohanian (1990) developed the source credibility model to assess the credibility of celebrity endorsers by measuring these three dimensions. More recently, researchers have begun applying the source credibility model to evaluate the credibility of social media influencers (SMIs) (Saima & Khan, 2020; Kalu, 2021). The perceived credibility of SMIs has been shown to positively impact their followers purchase intentions, attitudes toward recommended brands, and brand loyalty (Hussain & Ali, 2021).

Hovland et al. (1953) define expertise as the "extent to which a communicator is perceived to be a source of valid assertions," referring to the knowledge, experience, or skills an endorser possesses. Additionally, the expertise of a celebrity endorser should align with the product they promote (Till & Busler, 1998). Through the internalization process, consumers are more likely to purchase complex and expensive products endorsed by experts. This reflects the endorser's ability to make credible claims in a specific area of knowledge based on their experience, familiarity, and ongoing engagement in that field (Saima & Khan, 2020). Endorsers with a higher level of expertise are found to have a greater impact on consumers buying intentions (Chekima et al., 2020). Social media influencers perceived as experts exert a stronger influence on their followers' behaviors (Lim et al., 2017). Furthermore, both brand attitudes and purchase intentions are positively influenced by an SMI's level of expertise (Hussain & Ali, 2021).

Trustworthiness is a key component of the source credibility model and refers to the perceived honesty, sincerity, and truthfulness of a source as judged by its audience (Lou & Yuan, 2019). Social Media Influencers (SMIs) invest considerable effort in building and maintaining positive relationships with their followers to enhance their perceived trustworthiness (Al Qatami, 2019). Influencers who consistently focus on one primary topic tend to be viewed as more trustworthy by their followers compared to those who cover a wide range of subjects (Rahmah & Ren, 2019). Additionally, the ethnicity of an endorser can influence the perceived trustworthiness of SMIs (Nascimento, 2019). Research has shown that consumers' attitudes toward blogger recommendations are significantly shaped by the perceived trustworthiness of the blogger, which, in turn, affects their intention to purchase the recommended products (Grace & Ming, 2018).

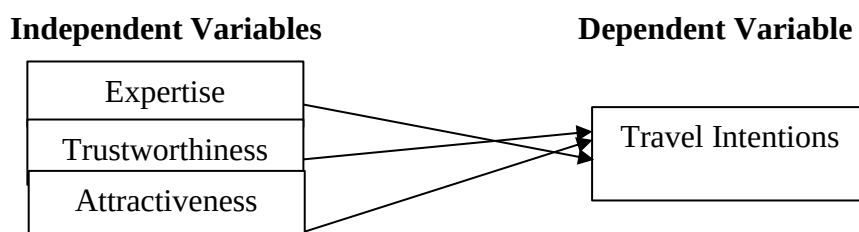
Attractiveness is another key element of the source credibility model encompassing a person's positive traits whether physical, personal, or athletic (Al Qatami, 2019). Attractiveness is considered a significant factor in determining the effectiveness of an endorser (Van der Walldt et al., 2009). For social media influencers (SMIs), maintaining authenticity and posting frequently are two strategies that can enhance their attractiveness and draw more attention from followers (Håkansson et al., 2020). SMI attractiveness plays a crucial role in fostering positive attitudes among consumers (Lim et al., 2017). Additionally, the perceived attractiveness of SMIs has been shown to positively influence audience behaviors, including word-of-mouth promotion, purchasing intentions and attitudes towards the influencers themselves (Taillon et al., 2020).

Travel Intentions

Travel intentions refer to an individual predisposition to travel to a specific destination within a certain timeframe (Ajzen, 1991). Various academic definitions have been offered to describe the term "travel intentions." Luo and Lam (2020) define it simply as an individual desire to travel. Makhdoomi and Baba (2019) further describe travel intentions as the result of a mental process that leads to action translating motivation into behavior. They emphasize that it serves as a critical intermediary between motivation and actual travel behavior. Additionally, Caraka et al. (2022) noted that the travel intentions of potential tourists can be influenced by social media influencers (SMIs) confirming that SMIs can significantly shape travel decisions. Negm and El Halawany (2020) found that both the attractiveness and trustworthiness of SMIs affect consumers intentions to plan vacations. Similarly, the attractiveness of vloggers has been shown to positively influence viewers travel intentions (Chen et al., 2021). Finally, the perceived expertise of influencers in specific areas enhances consumer trust and impacts their behavioral intentions including travel plans (Lou & Yuan, 2019).

Theoretical Framework

The theoretical framework of the study is illustrated in Figure 1, as outlined in the literature review above.



Source: Ohanian, 1990

Figure 1 Theoretical Framework of the Study

Figure 1 was structured base on Ohanian Model of source credibility. The social media influencers credibility included Expertise, Trustworthiness and Attractiveness and Travel Intentions was the dependent variable. Based upon the literature review, regarding the tourism papers, the working definitions in this study are disclosed as follows:

Expertise: Expertise in social media influencers encompasses the combination of perceived knowledge, experience, qualification, and skillfulness.

Trustworthiness: Trustworthiness of a social media influencer refers to the perceived integrity, dependability, and honesty they exhibit, which collectively contribute to their audience's confidence in them.

Attractiveness: Attractiveness of a social media influencer encompasses a broad spectrum of attributes that contribute to the overall appeal and likability of an influencer to their audience. This appeal extends beyond physical appearance to include personality traits and communication style.

Travel Intentions: Travel intentions refer to the measurable likelihood or predisposition of individuals to engage in travel to a specific destination within a defined period. This concept encapsulates the planned or expected future behavior related to travel, influenced by a combination of personal desire and practical feasibility.

Methodology

This study was conducted with the objectives of analyzing the effect of social media influencers credibility on the travel intentions of domestic travelers in Myanmar. The study on domestic travelers in Myanmar had limitations in participant sampling. Although it aimed to gather data from residents of Myanmar from various divisions and states, not all domestic travelers could be included due to logistical constraints. The study was designed to focus on domestic travelers who visit to Yangon from various states across Myanmar, specifically targeting those who are active users of social media. Prior to participation, screening questions were administered to ensure the eligibility of respondents. Since, the target population is unknown, Cochran (1963) formula was used to determine the sample size. After calculated the sample size by substituting the numbers into the Cochran formula, the numbers of sample were 150 persons by using convenience sampling method at five major destination points such as Shwe Dagon Pagoda, Sule, Hledan, Inya Lake and Aung Mingalar Bus Station to obtain reliable of data. Questions were created in easy and simple meanings to understand all level of domestic travelers. This quantitative information was measured by using five-point Likert scale (from one

to five such strongly disagree=1, disagree=2, neutral=3, agree=4, strongly agree=5) and applied by descriptive analysis and regression analysis. Applicable journals, previous research papers and websites were referenced for secondary data.

Cochran's Sample Size Formula,

$$n = \frac{z^2 \times p \times q}{e^2}$$

$$n = \frac{(1.96)^2 \times 0.5 \times 0.5}{(0.08)^2}$$

$$n \cong 150$$

Where,

n = the sample size

z = 95% confidence level, 1.96

e = margin of error, 0.08

p = the estimated proportion of an attribute that is present in the population, 0.5

q = 1-p = 1-0.5 = 0.5

Analysis and Results

Demographic Profile

The demographic characteristics of 150 domestic travelers in Myanmar are analyzed in this survey to analyze the effect of social media influencers credibility on the travel intentions of domestic travelers in Myanmar. This section includes profiles of the respondents such as gender, age, marital status, education, occupation and monthly income. The demographic profile of respondents is shown in following Table (1).

Table 1 Demographic Profile

Sr No.	Particular		No. of Respondents	Percent (%)
Total			150	100
1.	Gender	Male	65	43.4
		Female	85	56.6
2.	Age	Under 20 years	45	30.0
		20 – 29 years old	38	25.4
		30 – 39 years old	27	18.0
		40 – 49 years old	20	13.3
		50 – 59 years old	15	10.0
		60 years old and above	5	3.3
3.	Marital Status	Single	78	52.0
		Married	72	48.0

Sr No.	Particular		No. of Respondents	Percent (%)
Total			150	100
4.	Education	Lower than Bachelor’s degree	53	35.3
		Bachelor’s degree	85	56.6
		Master’s degree	10	6.0
		Ph.D	2	1.3
5.	Occupation	Student	53	35.3
		Unemployed	13	8.6
		Employed	79	52.6
		Retired	5	3.3
6	Income (Monthly)	Under 200,000 Ks	54	36.0
		200,000 – 400,000 Ks	62	41.3
		400,001 - 600,000 Ks	20	13.3
		600,001 – 800,000 Ks	7	4.6
		800,001 – 1,000,000 Ks	5	3.3
		Over 1,000,000 Ks	2	1.3

Source: Survey data (2024)

Table (1) showed the profile of respondents of the study. In terms of gender distribution, 43.4% of respondents were male, while 56.6% were female. The age of respondents was distributed across several groups: 30% were under 20 years old, 25.4% were between 20 and 29, 18% were aged 30 to 39, 13.3% were between 40 and 49, 10% were aged 50 to 59, and 3.3% were 60 years or older. Regarding marital status, 52% of respondents were single, and 48% were married. The respondents also had diverse educational backgrounds: 35.3% had education levels below a bachelor's degree, 56.6% held a bachelor's degree, 6% had a master's degree, and 1.3% held a Ph.D. In terms of occupation, the data revealed that 35.3% of respondents identified as students, 8.6% were unemployed, 52.6% were employed, and 3.3% were retired. When examining monthly income, 36% of respondents earned less than 200,000 Ks, 41.3% earned between 200,000 and 400,000 Ks, 13.3% earned between 400,001 and 600,000 Ks, 4.6% earned between 600,001 and 800,000 Ks, 3.3% earned between 800,001 and 1,000,000 Ks, and 1.3% earned over 1,000,000 Ks.

Social Media Influencers Credibility on Travel Intentions

This study examined the effect of social media influencers credibility on travel intentions of domestic travelers in Myanmar. Descriptive statistics were used to examine the effect of social media influencers credibility on travel intentions of domestic travelers in Myanmar. The perceptions of social media influencers credibility were presented in Table (2).

Table 2 Perceptions of Social Media Influencers Credibility

Sr No.	Items	Mean
1.	Expertise	3.91
2.	Trustworthiness	3.81
3.	Attractiveness	3.83

Source: Survey data (2024)

The findings indicated that among the three dimensions of social media influencers credibility, expertise ranks highest with a mean value of 3.91, suggesting it was the most significant factor influencing respondents' perceptions. Attractiveness followed closely with a mean score of 3.83; although valued, its influence was slightly lower than that of expertise. Trustworthiness, while receiving the lowest mean value of 3.81, continued to play an important role, highlighting that honesty and reliability were crucial elements of an influencer's overall credibility. The mean values regarding to the travel intentions were presented in Table 3.

Table 3 Mean Values of Travel Intentions

Sr No.	Items	Mean
1.	Travel recommendations from social media influencers are used to plan my trips.	3.78
2.	Travel intentions are influenced by the content shared by social media influencers.	3.71
3.	The travel experiences of social media influencers serve as motivation to visit new places.	4.08
4.	Knowing about this influencer's expertise in travel, I am more likely to visit destinations they recommend within Myanmar.	3.92
5.	Trust in an influencer's accurate travel content increases the likelihood of planning a trip based on their suggestions.	3.92
6.	The attractiveness and likability of this influencer make the destinations they visit more appealing to travel.	3.73
Overall Mean		3.86

Source: Survey data (2024)

Table 3 showed the mean values of the travel intentions of domestic travelers in Myanmar. The highest mean score, recorded at 4.08, is attributed to the statement that the travel experiences shared by social media influencers serve as motivation to visit new places. This indicated a strong influence of influencers' experiences in inspiring respondents to explore new destinations, highlighting the inspirational value of such content. The statement that travel intentions were significantly influenced by the content shared by social media influencers received the lowest mean score at 3.71. Although this suggested that such content does impact travel planning, it implies that it may not be the most decisive factor for respondents when forming travel intentions. The overall mean score, derived from averaging these values, would typically indicate the general effectiveness of influencers in shaping travel behaviors and

decisions. The overall mean score for the survey held at 3.86, reflecting a generally positive perception of influencers' effect on travel intentions.

Table 4 Correlation Analysis and Reliability of Variables

Variables	Cronbach's Alpha	Expertise	Trustworthiness	Attractiveness
Expertise	0.85	1		
Trustworthiness	0.82	0.735***	1	
Attractiveness	0.78	0.620***	0.590***	1

**p value is significant at 1%.

Source: Survey Data (2024)

The data revealed strong reliability in the measurement of the variables, with Cronbach's Alpha values indicating excellent internal consistency for expertise (0.85) and trustworthiness (0.82), and acceptable reliability for attractiveness (0.78). The correlation analysis showed a robust positive relationship between expertise and trustworthiness ($r=0.735$, $p=0.000$), suggesting that greater perceived expertise leads to higher trust in influencers. Additionally, a moderate positive correlation existed between expertise and attractiveness ($r=0.620$, $p=0.000$), as well as between trustworthiness and attractiveness ($r=0.590$, $p=0.000$), indicating that these dimensions of influencer credibility were interrelated. Overall, expertise emerged as a pivotal factor that significantly influences perceptions of both trustworthiness and attractiveness, with all correlations being statistically significant at $p < 0.001$.

This study utilized a multiple linear regression in order to analyze the effect of the independent variables (trustworthiness, attractiveness, expertise of social media influencers credibility) on a dependent variable (travel intentions of domestic travelers in Myanmar). The results were shown in table 5.

Table 5 The Effect of Social Media Influencers Credibility on Travel Intentions of Domestic Travelers in Myanmar

Independent Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta (β)		
(Constant)	0.097	0.181		0.534	0.594
Expertise	0.395***	0.070	0.393	5.683	0.000
Trustworthiness	0.347***	0.072	0.338	4.781	0.000
Attractiveness	0.233***	0.069	0.247	3.383	0.001
R	0.895				
R Square	0.801				
Adjusted R Square	0.796				
F-test	152.870***				

***p value is significant at 1%.

Source: Survey Data (2024)

Table 5 showed that the credibility dimensions, including expertise, trustworthiness and attractiveness, significantly affect the travel intentions of domestic travelers in Myanmar. The regression coefficients (B) for expertise and trustworthiness were 0.395 and 0.347, respectively, with p-values of 0.000, indicating statistical significance. Attractiveness also had a significant effect with a regression coefficient (B) of 0.233 and a p-value of 0.001. The model's overall significance is supported by an R-squared value of 0.801 and F-statistic of 152.870, demonstrating the variance in travel intentions of domestic travelers and the model is statistically significant. Following the results illustrate that trustworthiness, attractiveness, and expertise significantly contribute to the dependent variable, with expertise being the most influential factor.

Findings and Discussions

The survey which gathered data from 150 individuals showcases a varied demographic characteristic, characterized by a gender distribution of 43.4% male and 56.6% female, along with a broad spectrum of age groups, marital statuses, educational backgrounds, occupations, and income levels. This diversity provides a comprehensive framework for assessing how social media influencers effect travel intentions in Myanmar. The data highlights an almost balanced marital status ratio and reveals a significant inclination towards respondents with at least a bachelor's degree. Additionally, the income figures show that most respondents earn between 200,000 Ks to 400,000 Ks, positioning the average participant within a moderately sized economic bracket.

The findings show that among the three key dimensions of social media influencer credibility, expertise ranked the highest with a mean score of 3.91, making it the most influential factor in shaping respondents' perceptions. Attractiveness followed with a 3.83 average, indicating its importance but slightly lesser impact than expertise. Trustworthiness, while receiving the lowest score of 3.81, remained crucial, emphasizing the role of honesty and reliability in an influencer's credibility. The overall mean score of 3.86 reflects a generally positive perception of influencers impact on travel intentions.

Regression analysis further quantifies the impact of these attributes, showing significant coefficients for expertise (0.395), trustworthiness (0.347), and attractiveness (0.233), all indicating positive effects on travel intentions with high levels of statistical significance. The model explains a substantial 80.1% of the variance in travel intentions ($R^2 = 0.801$), with an F-statistic of 152.870 affirming the model's robustness. This analysis not only confirms the importance of these attributes in influencing travel intentions but also highlights expertise as the most critical factor, suggesting that influencers who are perceived as knowledgeable and reliable are particularly effective in shaping travel behaviors. This comprehensive analysis reflects the considerable influence of social media influencers in the travel sector, particularly within the context of an increasingly digital and interconnected global travel marketplace.

Recommendations

The survey findings clearly demonstrate that expertise, trustworthiness, and attractiveness collectively shape the travel intentions of domestic travelers in Myanmar with expertise emerging

as the most influential factor. These dimensions are interconnected and should not be viewed in isolation; rather, they should be strategically integrated to enhance the effectiveness of influencer marketing in the tourism sector.

Expertise serves as the foundation for establishing influencer credibility and significantly influences travelers decision-making. Influencers who are perceived as knowledgeable and provide well-researched, practical, and insightful travel information exert a stronger impact on prospective travelers. Therefore, travel brands and tourism organizations should prioritize collaborations with influencers who possess destination-specific knowledge and the ability to function as trusted travel advisors. These influencers should be encouraged to develop content that goes beyond visual inspiration by incorporating comprehensive itineraries, information on hidden attractions, and culturally enriching experiences. Such content enables influencers to position themselves as authoritative sources, thereby enhancing their persuasive power. To support this, tourism stakeholders can implement training programs and workshops aimed at improving influencers' understanding of local destinations, cultural heritage, and sustainable tourism practices. This investment in capacity building will strengthen influencers' expertise and ensure that their recommendations are both credible and valuable.

Trustworthiness acts as a critical reinforcing mechanism that converts interest into actual travel behavior. In an era where audiences increasingly value transparency and authenticity, influencers who share genuine, unfiltered experiences are more likely to cultivate long-term trust with their followers. Rather than focusing exclusively on highly polished or overtly sponsored content, influencers should present balanced narratives that include both positive and realistic aspects of their travel experiences. Travel brands can benefit by establishing long-term partnerships with influencers known for their honesty and integrity. Encouraging influencers to provide detailed cost breakdowns, personal reflections, and information can foster a deeper connection with audiences and strengthen the credibility built through expertise. In this way, trustworthiness complements expertise, ensuring that information is not only accurate but also perceived as sincere and reliable by travelers.

Although attractiveness was found to be less influential than the other two dimensions, it remains a vital supporting factor in capturing initial audience attention. In the visually driven landscape of social media, high-quality and aesthetically pleasing content continues to play a significant role in stimulating travel interest. However, its effectiveness is maximized when it is embedded within meaningful narratives that address the practical and emotional needs of audiences. Influencers should strive to balance striking visual elements with actionable travel guidance, ensuring that aesthetics enhance rather than overshadow their credibility. Furthermore, considering Myanmar's diverse demographic profile including variations in age, education, and income, tourism stakeholders should collaborate with influencers who can effectively resonate with different audience segments. This inclusive approach ensures that influencer content remains accessible, relevant, and impactful across a wide range of domestic travelers.

Finally, to optimize the impact of influencer marketing, a strategic and integrated approach should be adopted. Expertise should serve as the core element, supported by trustworthiness and complemented by attractiveness. Tourism organizations should select

influencers who not only have proven experience and knowledge but also demonstrate authenticity and strong visual storytelling skills. Collaborative campaigns could involve influencers producing verified travel guides, sharing itineraries, or conducting live Q&A sessions to highlight their expertise, while maintaining transparent communication and high production quality. By aligning these three dimensions in a cohesive strategy, travel marketers can maximize influencers' ability to shape travel intentions, inspire trust, and engage diverse audiences.

Contributions of the Study

The study makes significant contributions to understanding the role of social media influencers in shaping travel intentions, particularly within Myanmar's expanding travel market. One of its most notable contributions is the identification of influencer expertise as the most influential factor in shaping travel behavior. By demonstrating that travelers are more likely to be guided by influencers who offer detailed, credible, and practical information, the study directs the travel industry toward selecting influencers who can serve as trusted advisors. This finding underscores the importance for travel brands to prioritize influencers who possess not only visual appeal but also in-depth knowledge, ensuring that their content resonates with audiences in a way that effectively influences travel decisions.

Additionally, the study emphasizes the crucial role of trustworthiness and authenticity in enhancing audience engagement and influencing travel intentions. By revealing that honest and transparent content fosters stronger connections with followers, the study suggests that influencers who share genuine experiences are more likely to inspire tangible travel actions. This insight provides a strategic framework for brands to cultivate long-term relationships with influencers who prioritize authenticity. Furthermore, the study's comprehensive examination of demographic diversity offers valuable insights for creating content tailored to various audience segments, ensuring that influencer marketing campaigns are both inclusive and impactful. This framework enables brands to develop digital marketing strategies that are not only effective but also attuned to the diverse needs of Myanmar's travel market.

Suggestions for Future Studies

Future research should explore how different social media platforms influence travel intentions, as platforms like Instagram, YouTube, and TikTok offer unique content formats and user dynamics. Understanding how influencer effectiveness varies across these platforms could help identify the most effective mediums for promoting travel in Myanmar. Additionally, comparing user-generated content with professional influencer content may provide valuable insights into which type of digital content holds greater influence over travel decisions. Another important area of study would be the long-term effects of influencer marketing on travel behavior, investigating whether influencer content fosters sustained interest or leads to repeat visits. Cross-cultural comparisons between Myanmar and other Southeast Asian countries could further clarify how cultural differences impact influencer effectiveness. Emerging technologies such as augmented reality (AR) and virtual reality (VR) offer promising avenues for influencer marketing, potentially engaging audiences through more immersive and interactive experiences that shape travel decisions.

Conclusion

The study demonstrates that social media influencers have a strong effect on the travel intentions of domestic tourists in Myanmar, with expertise emerging as the most influential factor. Influencers who provide accurate, credible, and practical travel advice significantly shape travelers' decisions. While trustworthiness and attractiveness also contribute, they are slightly less influential compared to expertise. This highlights the need for travel brands to collaborate with influencers who not only create visually appealing content but also deliver reliable and helpful information, boosting the overall efficiency of social media as a marketing tool in the tourism sector.

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Presentation: Manuscripts (MS) should be typed on one side of quarto or A4 size paper. Typing should be single spaced, with a one-inch margin all around. A CD of the paper should be submitted together with two print-outs. In general, the text should be organized according to the following outline:

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The body of the text should be printed in font size 12, and those of the Abstract, Acknowledgement and References should be printed in font size 10. The relative importance of the **headings** in the text should be indicated as follows:

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