ADVANCES IN SOCIAL SCIENCES AND MANAGEMENT

Volume 2, Issue 3, March 2024

Publisher: Head Start Network for Education and Research
Edinburgh – United Kingdom

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 01-05

The Impact of the Ukraine War on the Reaction of the International Community to the Protest Movement of the Iranians

Parmida Pirgourabi

1. Class 12 tajrobi A, Valiullah Ardashiri State model High School, Gilan, Province Education Organization, Ministry of Education of the Islamic Republic of Iran

Abstract:
Background: The impact of the war between Russia and Ukraine and its connection with the support of the international community, especially the Western countries, for the Iranian people's movement, which has not been investigated so far, can create the hypothesis that Iran is used as a tool to put pressure on Russia. Results: In fact, putting pressure on the Islamic Republic through numerous sanctions from around the world to support the movement "Women - Life – freedom "is a means to reduce Russia's economic power. Conclusion: In fact, after examining the 2022 movement and other protests movements of the Iranian people since the beginning of the 1979 revolution, it became clear that the widespread reflection of the protest cry of the Iranian people in the world and the support of the international community for them has a reason beyond the sense of humanity and altruism, which may be under pressure. Giving Russia may not be the only reason, but it is certainly not irrelevant.

Keywords: Iranian people's protest movement, Russia, Ukraine war, international communities, United States, United Kingdom, European Union, Sanctions

INTRODUCTION

How is the 2022 protest movement different from other protest movements of the Iranian people? What has caused the protest movements of 2022, unlike other protest movements of Iranian people, to have many reflections in the world? In this article, we will examine the answers to these questions by examining the conditions of the region, the war in Ukraine, and the relations between Russia and Iran, and you can find their connection by putting these data together like pieces of a puzzle.

BACKGROUND

The connection between the war in Ukraine and the widespread support of the international community for the protest movement of the Iranian people is an issue that has not been investigated by experts, and the purpose of this research is to examine this connection in detail, and this issue is important because the fate of Iran is the fate of the Middle East. It affects the fate of the whole world.

METHODS

During the comparison made in this research between the 2022 protest movement and other protest movements after the 1979 revolution, it was found that there is a clear difference between this movement and other protest movements, the most obvious of which is the support of the west for the people of Iran and the strong and auditory reaction towards the regime is the Islamic Republic. To find the reason for this difference, a comparison has been made between the spark

of this movement and the prevailing atmosphere of international societies. Finally, it became clear that due to Iran's comprehensive support of Russia in the Ukrainian war against Iran, it has declared war on the entire Western world, so putting pressure on Iran and numerous sanctions through supporting the protest movement of "Women - Life – Freedom "is actually to put more pressure to Russia.

DISCUSSION

The issue of the impact of the war in Ukraine on the international community's support for the protest movement of the Iranian people is an issue that has not been investigated by experts, and for the first time I researched the issue, I needed more resources and facilities to study so that I could conduct my research in the best possible way. The tenth; But due to the very low speed of the internet and severe and extensive filtering of Iran, which has been aggravated due to the protest conditions of the people inside the country and is getting worse day by day, I can hardly even access my email page and to do this the research had many limitations.

CONCLUSION

The results of this study show that one of the most important reasons for the widespread support of the international community, especially the United States, the United Kingdom, and the Union European, for the protest movement of the Iranian people is the weakening of Russia. The war in Ukraine, which has been going on for more than a year, has resulted in a lot of costs for the Russian government, and the only country that has provided financial support to Russia throughout this period was Iran. Therefore, putting pressure and sanctions against Iran under the pretext of supporting the "Women-Life-Freedom" movement is a suitable solution to put more pressure on Russia.

MANUSCRIPT

The war between Ukraine and Russia started on February 24, 2022. Russia's attack on Ukraine has been met with strong reactions from other countries, especially the United States, United Kingdom, and the European Union. These reactions include economic and military aid to Ukraine and the imposition of numerous sanctions against Russia, all of which are designed with the aim of weakening the Russia economy, depriving it of vital markets and technologies, and reducing the country's ability to fight. Joe Biden, the President of the United States, says about this "If Russia does not pay a heavy price for its actions, it will send a message to other possible aggressors that they can also seize the territory and subjugate other countries. ""We've learned throughout history that when dictators don't pay for their aggression, they create more chaos and engage in more aggression."

In this context, the European Union has even imposed sanctions against Belarus for its involvement in the attack on Ukraine and Iran for giving its drones to Russia for use in war. Zelensky, the President of Ukraine, said that more than 80 drones of the Russian army were shot down in Ukraine, made by Iran.

According to Emil Avdaliani, director of Middle East intelligence at Geocase, the war in Ukraine changed Russia's attitude towards its relations with Iran; Before the war, bilateral relations were characterized by ambivalence, many negotiations and little content. But the war in Ukraine has completed Russia's turn to Asia, and how Iran's support is vital in the Kremlin. This time, regional experts and American officials say that the deepening of relations between Russia and Iran will prolong the war and kill more people in Ukraine because Iran provides more resources to Russia

and by sending military trainers to teach how to use drones and Advising the Russian Armed Forces Provides military support.

At the same time, the Russian government could endanger US allies in the Middle East if it provides advanced weapons system to Iran. Hanna Notte, a senior researcher at the Vienna Center for Disarmament and Non-Proliferation, said "I think Russia will sit very comfortably to watch Iran move closer to what could be called a nuclear state. That goal is quite enough to keep everyone in the Keeping the Middle East on the sidelines would allow the American to continue to focus bandwidth resources on the Middle East and be able to fully focus on NATO's eastern flank and China."

"I think we are reaching a qualitatively different level in Russia-Iran relations compared to what we have seen in previous years, but the question is, will there be a breaking point?"

After the death of 22-year-old Mahsa Amini after being hit on the head by the moral police, Iran has witnessed the largest protest movement in recent years. For the first time in Iran's 2500- year history, something other than religion has brought people together. A kind of sense of patriotism that has made all Iranians inside and outside of Iran, regardless of their religion and ethnicity, shout one thing with one voice and bravely. The protest of the Iranian people can be clearly seen in the street gatherings, market strike, universities, schools, and sports competitions, especially the Qatar World Cup.

Ramyar Hassani, the spokesperson of Hangau Human Rights Organization, says "The women started the protest, but the others joined, and now the women and men of Iran are together and all of Iran is united."

According to Hassani, the security forces violently suppressed the protesters from the beginning of the rotests. According to the Iranian Human Rights Activities News Agency in Americana, at least 458 people, including 63 children, have been killed, hundreds of people have been injured, and 18000 people, including students, teachers, journalists, photographers, doctors, lawyers, sociologists, and athletes, have been detained.

Since the beginning of the protest movement of the Iranian people, this protest has faced widespread reactions from all over the world, especially the United States, the United Kingdom and the European Union, and these countries tried to offer their support to the Iranian people by imposing various sanctions. sanctioned ten Iranian individuals and one other institution to take more measures to audit and pressure the violation of human rights by the Islamic Republic regime in Iran.

The Maritime Administration of Panama, the largest ship registration body in the world, revoked the right to use this flag for 136 oil tankers related to the National Iranian Oil Company and stopped their registration. Reuters news agency reported on January 18, 2023 that this decision was due to the revelation by the "Alliance Against Iran Nuclear" organization about the Islamic Republic's use of oil tanker registration facilities in Panama to circumvent sanctions. Although this is not the first protest movement in Iran, it is the first time that it has received a lot of feedback from the international community. The most obvious and closest of them was the protest movement of 2019, which happened due to the downing of Ukraine International.

Airlines Flight 752 due to the firing of two missiles by the IRGC. It was a terrorist operation during which 176 people who were on the board this plane lost their lives, and this caused widespread demonstrations by the people of different cities of Iran and even Iranian outside Iran; But it did not receive much response from the international community, the human rights organization to the United Nations, and it was suppressed by the violence of the agents of the Islamic Republic regime. Now the question arises that despite the widespread protest movements that have been taking place since the beginning of the 1979 revolution and the change of government in Iran, why did none of them receive such a response from the international community?

Why did the 2019 movement, which was sparked by the murder of 176 passengers of Ukraine flight 752, not receive a response from the international community, but the 2022 movement, which started with the killing of a 22-year-old girl by the moral police, received widespread reactions not only through politicians but also received from artists, athletes, human rights activists, doctors and others? It seems that this case is not unrelated to the war in Ukraine. Since the beginning of the war, Iran has been the only loyal supporter of Russia and now, like Russia, it is considered a global danger. So, an effective solution to further weaken Russia is to put pressure on Iran. This is the difference between the 2022 protest movement and other protest movements in Iran and can be a good reason for the broad support of the international community, especially the United States, the United Kingdom, and the European Union, for the people of Iran.

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 06-25

Assessment of Spatio-Temporal of the Oyimo Forest Reserve Degradation in Ondo State, Nigeria Towards the Development of Applicable Guidelines

Salami T. Victor, Ahmad H. Shaba, Adepoju O. Matthew. James K. Godstime, Rakiya A. Babamaaji, Jega M. Idris, Oyewumi S. Oyewumi, Aderoju M. Laide, Ajayi O. Oluwasegun, Imhanfidon, O. Justin and Adedeji Oluwatola

1. National Space Research and Development Agency, Abuja, Nigeria

Abstract:
This work assessed the Spatio-Temporal of the Oyimo Forest Reserve Degradation in Ondo State, Nigeria towards the development of applicable guidelines. Forest degradation is a changing process that impacts the values of a forest, reducing its ability to provide products and services. Information derived from land use, land cover change and forest degradation are important to land conservation, sustainable development, and management of forest reserve. To identify land use, land cover changes and degradation; remote sensing data from satellite imagery and image processing techniques was done within three dates of 1998, 2011 and 2021 using Landsat images of 30 m resolution. ERDAS Imagine, IDRISI Selva, QGIS and ArcGIS software were used to classify, identify the changes and degraded area. The classification was done using five land cover classes (forest, settlement, water body, farmland and bare surface). Preprocessing and classification of the images were analyzed carefully and accuracy assessment was tested separately using the kappa coefficient. The results showed that Oyimo forest area was 35,257.22ha in 1998, 22,708.04ha in 2011 and 23, 903.2ha in 2021. Prediction analysis showed that if measures are not put in place in the forest reserves will be seriously degraded and if this happen there would be serious climate change as more carbon are releasing to the atmosphere. The highest carbon loss for this period was 27,660 tons, and the lowest carbon loss was 687 tons in year 2017 and 2003. Land area improved was 11, 978.02184, land area stable was 29,032.919, Land area degraded was 18,727.849 and land area with no data was 19.21016 the correlation between carbon emission and loss of forest is r2 0.8506 and organic carbon and loss of forest is r2 0.9959, which was highly correlated. It was concluded that there was degradation in the Oyimo forest reserve between 1998 and 2011, between 2011 and 2021 there was significant improvement in the forest. In order to address particular problems like carbon loss, habitat degradation, and soil productivity, as well as to propose pathways for improving forest quality, remote sensing and GIS can be used as space quantification tools for forest conservation.

Keywords: forest degradation, LULCC, Trend. Earth, guideline, remote sensing and GIS.

INTRODUCTION

Forest degradation is a changing process that impacts the values of a forest, reducing its ability to provide products and services. These changes are the result of disturbances that vary in size, frequency, origin, quality, and severity. Disturbance can be natural, caused by humans, or a combination of the two. Human-induced disturbance might be purposeful (direct), such as logging or grazing, or unintentional (indirect), such as the spread of an invasive alien species (FAO, 2009).

Deforestation is a major environmental, social, and economic issue. However, quantifying the scope of the problem is challenging since forest degradation has numerous causes, manifests itself in various forms and with varying intensity, and is viewed differently by different stakeholders (ITTO, 2002). To serve different reasons, forest degradation may need to be measured at different scales. Assessment at the scale of a stand or site, for example, is frequently required for effective local-scale corrective intervention. Larger scale assessments, on the other hand, are required for national and international reporting and other objectives. Given the importance of forests to human well-being, the state of the forests is a concern for all of us. We need to know if forests are degrading and, if so, what is causing it so that we can take efforts to stop and reverse the process. Good information on forest condition and the amount of forest degradation would allow for the prioritising of human and financial resources to prevent further degradation, restore and protect the forest.

Restoration goals are increasingly being framed in the context of complex ecosystems with contingent and stochastic dynamics. Precise forest restoration targets are thus rarely achievable, especially in environmental futures with no recent precedents (Hiers et al., 2016). Alternative trajectories driven by process-based dynamics responding to changing environmental conditions are more likely results of restoration initiatives, according to (Hughes et al. 2012).

Statement of the Research Problem

By steadily diminishing the Oyimo forests, we endanger our quality of life, jeopardise climate stability and local weather, endanger the existence of other species, and undermine the vital services supplied by biological diversity. Deforestation can cause tropical diseases to arise, and outbreaks of novel diseases, particularly deadly hemorrhagic fevers like Ebola and Lassa fever, are a subtle but important consequence of forest degradation. Nonetheless, the primary goal of this research is to identify and mitigate the causes of forest degradation in the Oyimo forest reserve. Understanding distinct degradation processes is essential for developing appropriate ways for measuring and monitoring. Various types of degradation will have varying effects on forest carbon storage, and the outcome is determined by the indicators used to measure the degradation, which can be in-situ or by remote sensing approaches. Through the REDD-plus scheme (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries), great work has been made on climate change mitigation measures. Estimating above-ground biomass (AGB) in tropical and subtropical countries with a biophysical environment remains difficult (Lu, & Weng, 2007). As a result, forest conservation strategies based on spatial monitoring that address specific risks such as carbon loss, soil productivity, and habitat degradation may present avenues for improving forest quality. As a result, the ecosystem must be built in a planned manner, and GIS may help with this planning process as a decision support system. Remote sensing satellites are also a good instrument for studying historical land use land cover change (LULCC) and providing data in inaccessible places.

Justification

Accurate estimates of terrestrial carbon storage over an area are essential to address the growing threat to the local climate posed by rising concentrations of greenhouse gases in the Oyimo community's environment. The remote sensing and geographic information system (GIS) provide a more flexible and powerful tool than traditional data processing systems, as it allows for the manipulation and combination of large volumes of different types of data sets into new data sets that can be displayed in the form of thematic maps. The use of GIS permits the creation of models

from which a new thematic map (for example, a forest degradation map) can be created from a collection of thematic maps (Harasheh, 1994).

The study objectives are:

1. Detection and prediction of changes in land use/land cover in the Oyimo forest reserve.
2. Estimation of Oyimo forest reserve total carbon stores for biomass and restoration.
3. Estimation of Oyimo forest soil organic matter for ecological services.
4. To ascertain the relationship between forest loss and carbon emissions in Oyimo forest.

STUDY AREA AND METHODOLOGY

Study Area

Oyimo forest reserve in Supare, Akoko South West Local Government Area of Ondo State, Nigeria is geographical located in Latitude: 7° 22' 17" N to 7° 54' 28" N and 5° 43' 40" E to5° 51' 19" E as in figure 1 It has an area of 226 km² and a population of 239,486 at the 2006 census.

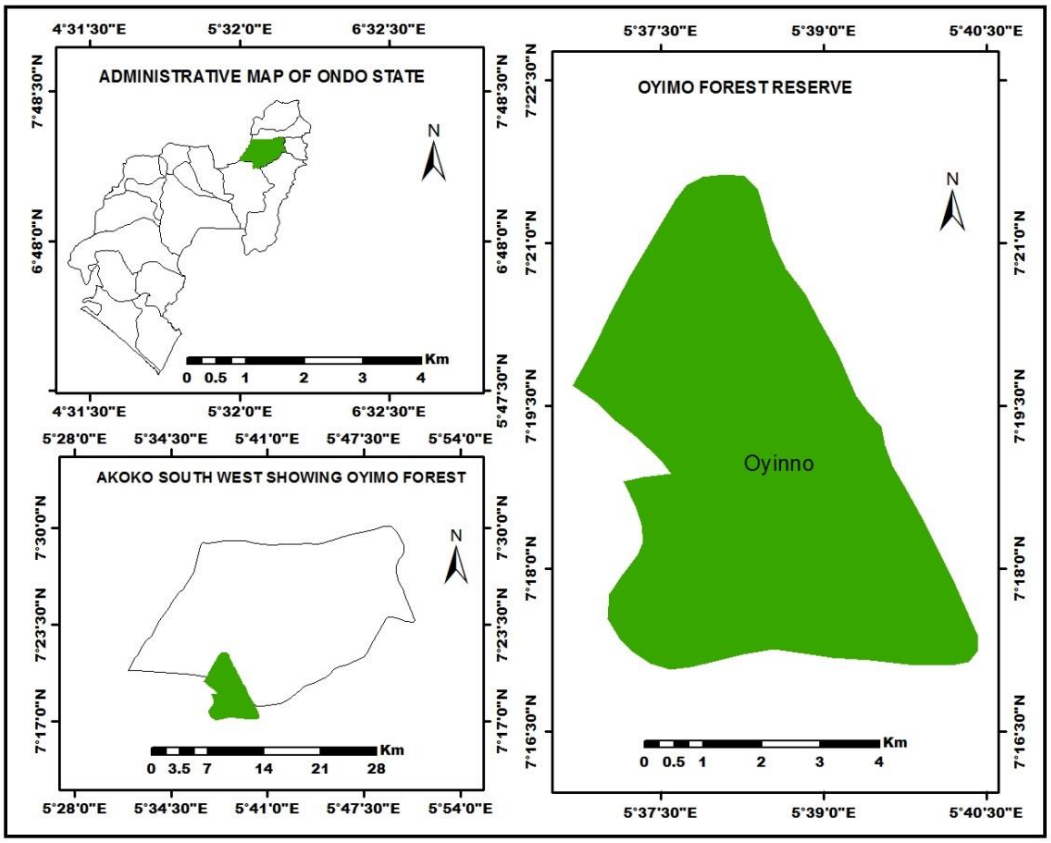

Figure 1: Study area Map

Vegetation

The Oyimo Forest Reserve, is covered an area of 59, 758 hectares at inception (Ezealor, et al, 2013). Their crowns touch one another thus forming a complete cover over the layers below. Their crowns were also draped by various climbers, which tended to bind crowns of many trees together. Some characteristics of the trees observed included tall large trunks, light thin barks (peeling off in some species), buttress roots, stilt roots, leaves with drip tips and some leaves with epiphyllous algae. These characteristics are typical for forest trees and they have been observed elsewhere.

Climate

The climate of the Oyimo forest reserve, Akoko South west, Ondo states in the southwestern part of Nigeria is that of tropical rain forest type, with distinct wet and dry seasons. The tropical climate of the area is broadly divided into two seasons: the dry season and the rainy season. The dry season comprises the Harmattan season and heat period, while the wet season begins in March, ending in early April, and the wet season ends in October or occasionally early November. The annual average rainfall ranges between 1480 mm and 2500 mm, the relative humidity of 60 to 85%, and the temperature of the area is between 24°C and 32°C (degree Celsius) according to (Ajayi, 2008).

METHODOLOGY

Data Acquisition and Source

Reconnaissance:

The purpose of the survey and ground truth campaign was to verify the classified signatures of the satellite images in Oyimo Forest Reserve and to monitor the rapid changing of the landscapes. A reconnaissance study was conducted to determine the sample points, taking into consideration remote sensing and geographic information system (GIS) work. This was done to help the researcher have an overview of the area under study and to assist in the feasibility and logistics plans for the fieldwork. Fieldwork/Data Collection: One fieldwork project was conducted at the Oyimo Forest Reserve on December 22, 2021. During the field work, the coordinates of land use samples were collected. Some of these samples were used as training sites for the supervised classification and also to interpret the clusters derived during the unsupervised classification. The second set of samples was used for conducting accuracy assessments (user's and producer's accuracies) to test the consistency and reliability of the supervised classification.

Remote Sensing Image:

The Landsat data was acquired from the global land-cover website at the University of Maryland, USA (URL; http://glcfapp.umiacs.umd.edu:8080/esdi/index.jsp). The acquired images were Enhanced thematic mapper (ETM) of 1998, Enhance Thematic Mapper plus (ETM^+) image of 2011 and the Operational land imager (OLI) of 2021 respectively, as shown in Table 1. The satellite data has 30m spatial resolutions, the ETM Plus images have a spectral range of 0.45-2.35 micrometers with bands 1,2,3,4,5,6,7 and 8 while the Operational Land Imager (OLI) extends to band 12.

Table 1: the Characteristics of Landsat Imagery

S/N	Data Type	Year	Spatial Resolution
1	Landsat Enhanced Thematic mapper (TM)	8/4/1998	30 meters
2	Landsat Enhanced Thematic mapper (ETM^+)	8/4/2011	30 meters
3	Landsat Operational Land Imager (OLI)	84/2021	30 meters

Data Pre-Processing:

The satellite images were preprocessed to correct errors that occurred during data scanning, transmission, and recording. The pre-processing steps used were:

- Radiometric correction to compensate for the effects of the atmosphere;
- Geometric correction, i.e., registration of the image to make it usable with other maps or images of the applied reference system; and
- Noise removal to remove any type of unwanted noise due to the limitation of transmission and recording processes.

Data Post Processing

Image Compositing:

A false Colour Composite operation was performed using the ERDARS Imaging software and the Landsat bands were combined in the order of band 4, band 3 and band 2 for Landsat ETM and ETM+ while Landsat OLI was composited in the order of band 5,4 and 3 due to change in sensor.

Image Classification:

The false colour composite was further classified using the maximum likelihood classification technique. A supervised classification was performed by creating a training sample, and based on the spectral signature curve, various land use classes were created, namely, high-density Forested area; low-density forested area; farmland; water body; settlement; and bare surface The classified map was generated for the years 1998, 2011, and 2021, respectively. Ground truthing was carried out to verify the results of the classified maps.

Accuracy Assessment:

Accuracy assessment is essential for individual classifications if the classification data is to be useful in change detection (Owojori and Xie, 2005). For the accuracy assessment of land cover maps extracted from satellite images, a stratified random method was used to represent different land cover classes in the area. The accuracy was assessed using 120 points based on ground truth data and visual interpretation. The comparison of classification results and reference data was carried out statistically using error matrices. In addition, a nonparametric Kappa test was also performed to measure the extent of classification accuracy, as it not only accounts for diagonal elements but for all the elements in the confusion matrix.

Land Use/Land Covers Change Detection and Prediction:

The post-classification change detection technique, performed in Idrisi-Selva, was employed by the study. Post-classification in urban environments has been effectively used by various researchers due to its efficiency in detecting the location, nature, and rate of change (Hardin et al. 2007). Another technique used to obtain the changes in land cover and use during the specified time period was the overlay procedure. For all these tasks, Land Change Modeller (LCM) used the LULC maps generated for the years 1998, 2011, and 2021. The change analysis was performed for two separate periods, one from 1998 to 2011 and another from 2011 to 2021. A two-way cross-matrix obtained by the application of this was used to describe the key change types in the study area. Cross-tabulation analysis was conducted in order to determine the quantitative conversions from a particular category to another land cover category and their corresponding area over the evaluated period on a pixel-by-pixel basis. Thus, a new thematic layer was also produced from the two five-class maps, containing different combinations of "from and to" change classes. The transition probability between 1998 and 2021 was calculated in Markov chain analysis.

Quantification of Carbon Stock and Soil Organic Carbon

The IPCC 2000 embedded in the plugin QGIS was adopted for the analysis of carbon stock and soil organic carbon.

Sustainable Development Goal 15.3 intends to combat desertification, restore degraded land and soil, including land affected by desertification, drought, and floods, and strive to achieve a land degradation-neutral world by 2030. In order to assess the progress towards this goal, the agreed-upon indicator for SDG 15.3 (proportion of land area degraded) is a combination of three sub-indicators: change in land productivity, change in land cover, and change in soil organic carbon.

All these indicators are performed in QGIS. Moreover, soil organic carbon has three sub-indicators: productivity trajectory, productivity state, and productivity performance.

Productivity Trajectory:
A Mann-Kendall non-parametric significance test is then applied, considering only significant changes that show a p-value ≤ 0.05. Positively significant trends in NDVI would indicate potential improvement in land condition, and negatively significant trends would indicate potential degradation.

Productivity State:
For each pixel, use the annual integrals of NDVI for the baseline period to compute a frequency distribution. That expanded frequency distribution curve is then used to define the cut-off values of the 10 percentile classes. Possible values range from 1 (lowest class) to 10 (highest class); assign to the mean NDVI for the comparison period the number corresponding to that percentile class. Determine the difference in class number between the comparison and the baseline period (comparison minus baseline). If the difference in class between the baseline and the comparison period is ≤ 2, then that pixel could potentially be degraded. If the difference is ≥ 2, that pixel would indicate a recent improvement in terms of primary productivity. Pixels with small changes are considered stable.

Productivity Performance:
The indicator is computed as follows:

1. Define the analysis period, and use the time series of the NDVI to compute the mean of the NDVI for each pixel.
2. Define similar ecologically similar units as the unique intersection of land cover and soil type.

For each unit, extract all the mean NDVI values computed in step 1 and create a frequency distribution. From this distribution, determine the value that represents the 90th percentile (we don't recommend using the absolute maximum NDVI value to avoid possible errors due to the presence of outliers). The value representing the 90th percentile will be considered the maximum productivity for that unit. Compute the ratio of the mean NDVI and maximum productivity (in each case, compare the mean observed value to the maximum for its corresponding unit). If the observed mean NDVI is lower than 50% of the maximum productivity, that pixel is considered potentially degraded.

Statistical Analysis of Variable
Linear regression analysis was used in Excel software to carry out correlations between forest loss and carbon stock to determine the level of confidence. As this formula imply,

$$y = ax+b+\varepsilon \quad (1)$$

Where,

- Y = dependent variable
- X = independent variable (explanatory)
- A = intercept
- B = slope
- Ɛ = residual (error)

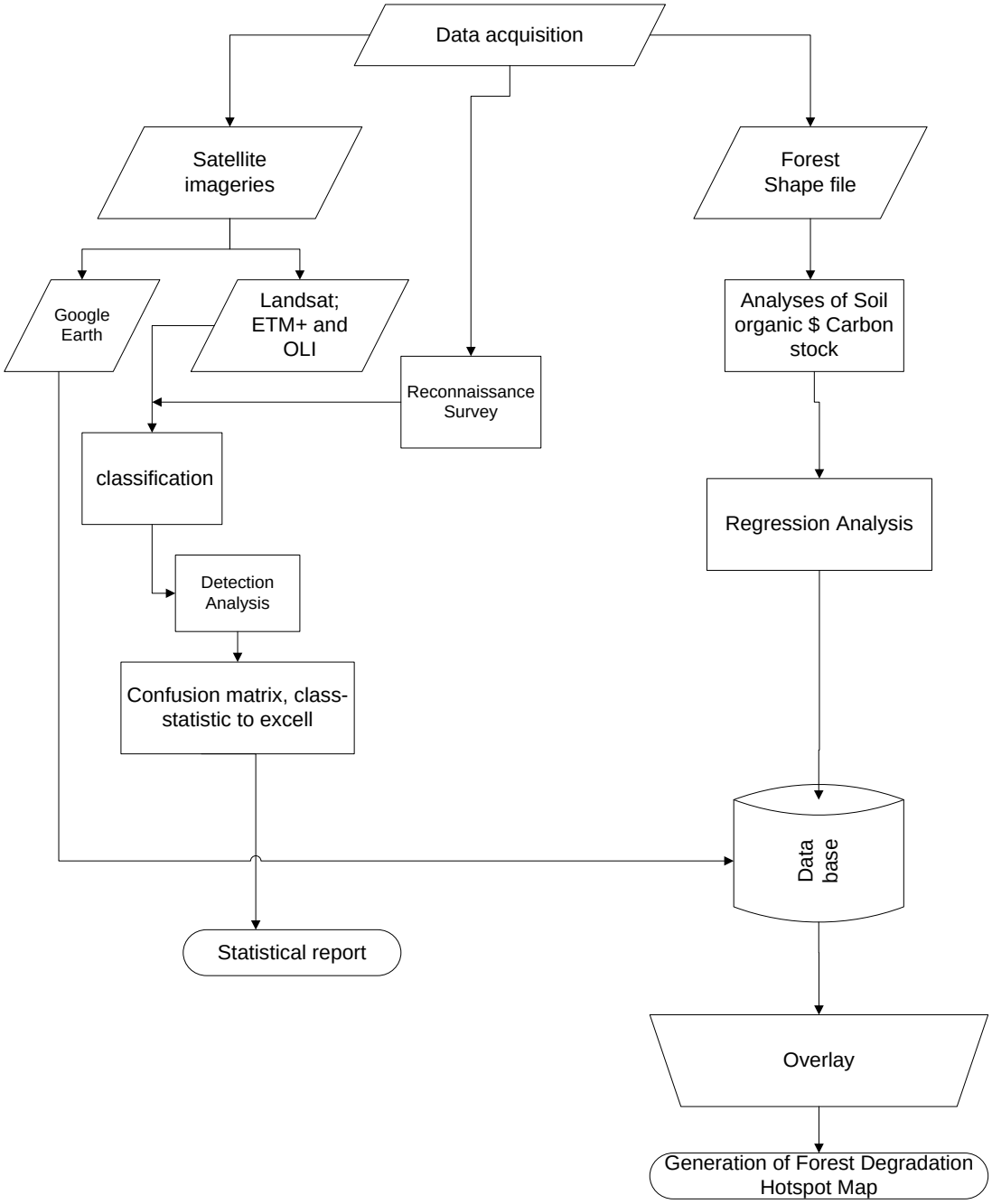

Figure 2: Flowchart methodology

RESULTS AND DISCUSSION

Results

Analysis of Land Use and Land Cover in the Oyimo Forest Reserve From 1998 To 2021:

The results of the image classification of the Oyimo forest reserve in 1998 in Figure 3 showed that the total land area of the Oyimo forest reserve was 59,758 hectares (ha). The accuracy of the assessment of land use and land cover is summarised in Table 2. The forest area is 59%, the settlement is 9%, the water body is 4%, the farmland is 27%, and the bare surface is 1%, respectively. Total accuracy for the 1998 classified image was 82.98%, and Kappa statistics were 0.8725.

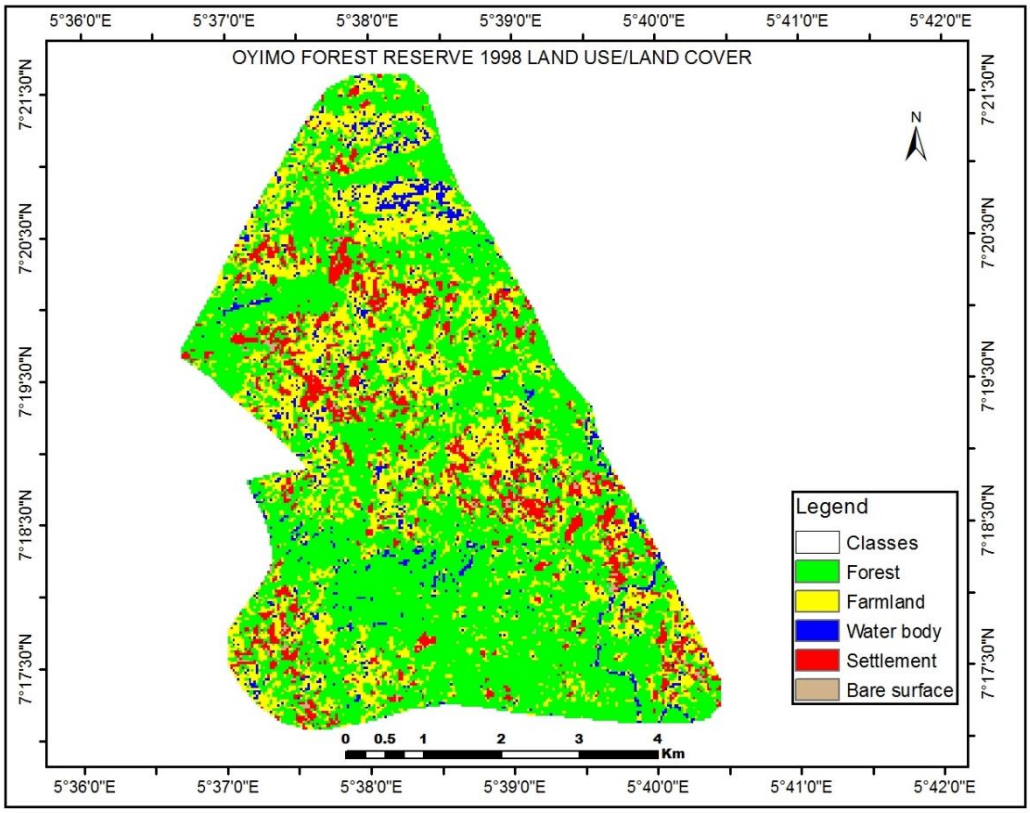

Figure 3: 1998 land use/land cover of Oyimo forest reserve

(Source: fieldwork 2021)

Table 2: Accuracy assessment of 1998 land use/land cover of Oyimo forest

CLASS	Forest	Settlement	Water body	Farmland	Bare surface	Row Total	User Accuracy
Forest	83	14	4	0	0	101	82.18 %
Settlement		87	9	3	0	99	87.77 %
Water body		0	1	0	0	1	63.45 %
Farmland	0	0	6	28	0	34	82.35 %
Bare surface	0	0	0	5	16	21	76.19 %
Total	83	101	20	36	16	256	
Producer Accuracy	84.00 %	86.14 %	65.00 %	77.78 %	86.00 %		Total Accuracy = 82.98 %

Overall Kappa Statistics = 0.8725 (Source: fieldwork 2021)

It was drawn from Table 3 and Figure 4 of the 2011 classification that the forest area is the largest in the study area. The forest area was 22,708.04 ha, or 38%; settlement 9,261.28 ha, or 16%; water body 11,354.02 ha, or 19%; farmland 15,537.08 ha, or 26%; and bare surface 596.58 ha, or 1%, respectively. Its accuracy assessment was 81.14% and Kappa statistics were 0.9000.

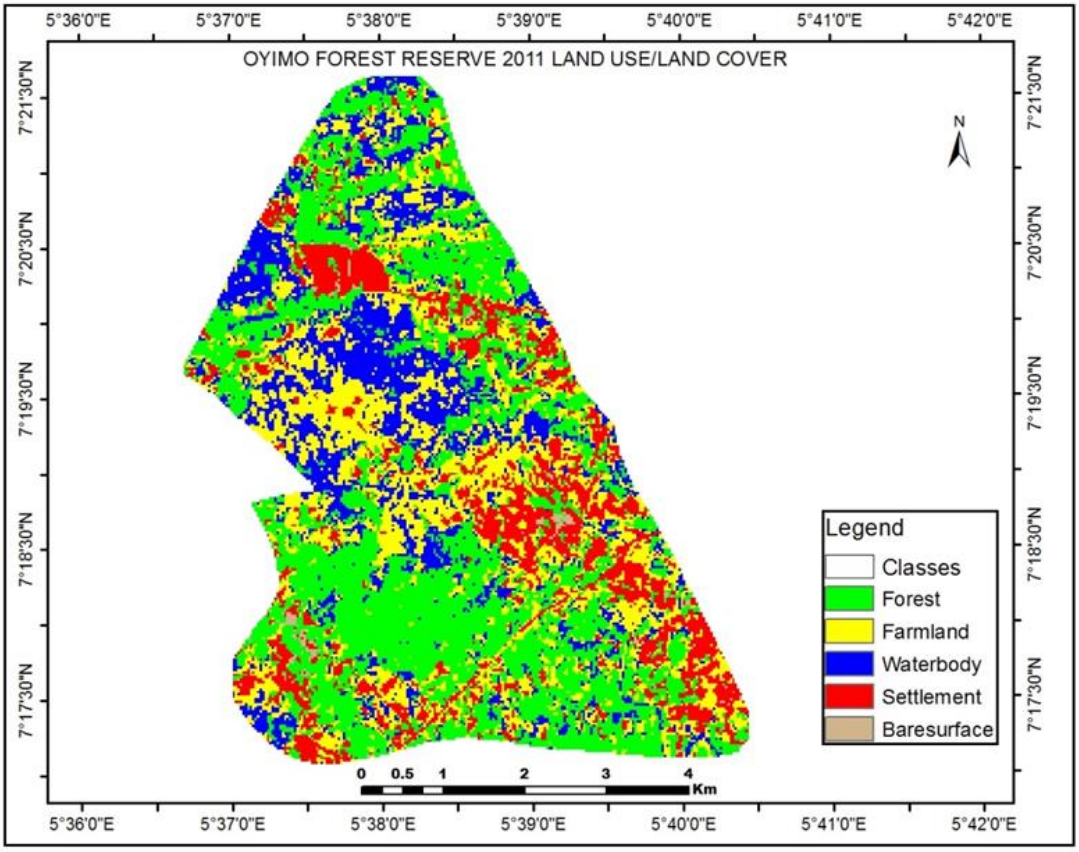

Figure 4 2011 land use/land cover of Oyimo forest reserve
(Source: fieldwork 2021)

Table 3: Accuracy assessment of 2011 land use land cover of Oyimo forest

CLASS	Forest	Built-up	Water body	Rock outcrop	Bare surface	Row Total	User Accuracy
Forest	79	5	2	2	2	90	87.78 %
Settlement	1	4	0	0	0	5	80.00 %
Water body	0	0	1	0	0	1	68.00 %
Farmland	1	1	3	28	3	36	77.78 %
Bare surface	2	2	2	3	31	40	67.50 %
Total	86	12	8	33	36	172	
Producer Accuracy	95.58 %	63.33 %	52.50 %	85.84 %	86.11 %		Total Accuracy = 81.14 %

Kappa Statistics = 0.9000 (Source: fieldwork 2021)

The results of the image classification for 2021 in Figure 5 showed that the total land area of the Oyimo forest reserve was 59,758 hectares (ha). The accuracy of the assessment of land use and land cover is summarised in Table 4. The forest area was 35257.22 ha, the settlement was 597.58 ha, the water body was 3585.48 ha, the farmland was 10159.03 ha, and the bare surface was 4780.64 ha, respectively. Total accuracy for the 2021 image was 84.35%, and Kappa statistics were 0.8375.

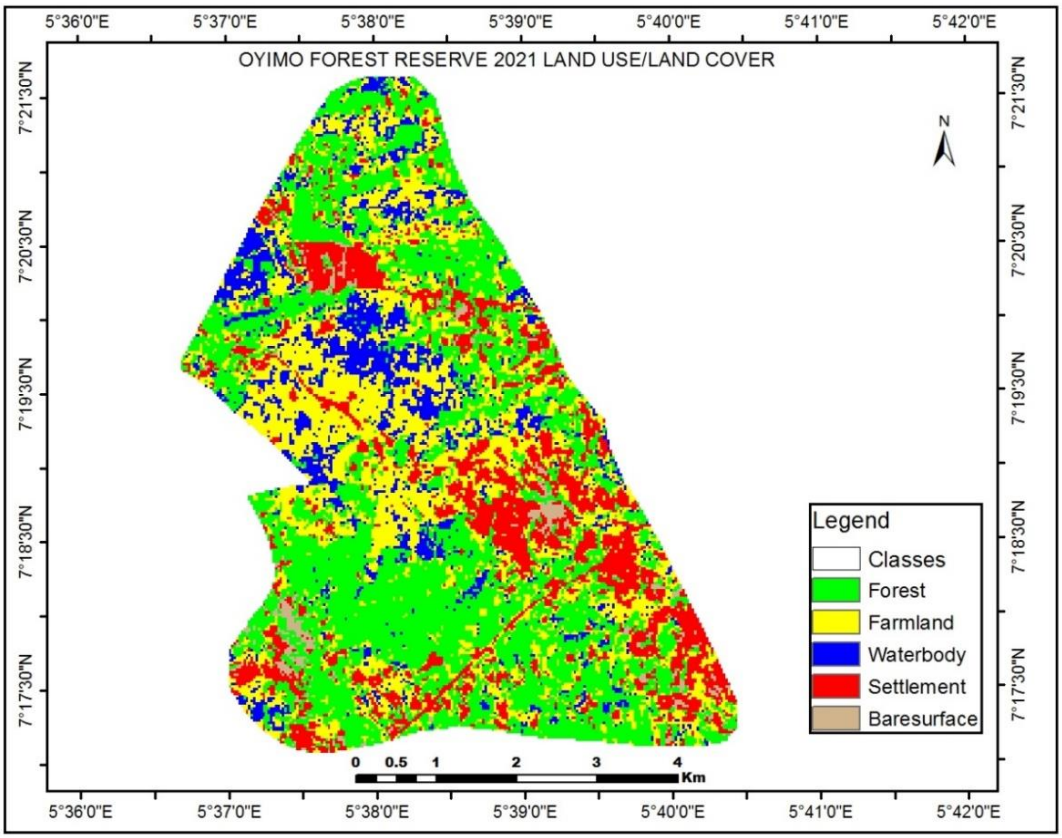

Figure 5: 2021 land use/land cover of Oyimo forest reserve (Source: fieldwork 2021)

Table 4: Accuracy assessment of 2021 land use/land cover of Oyimo forest

CLASS	Forest	Built-up	Water body	Rock outcrop	Bare surface	Row Total	User Accuracy
Forest	21	0	0	0	0	21	91.30%
Settlement	0	18	0	0	0	18	78.26%
Water body	0	0	19	0	0	19	82.61%
Farmland	0	0	0	19	0	19	82.61%
Bare surface	0	0	0	0	20	20	86.96%
Total	21	18	19	19	20	97	
Producer Accuracy	87.50%	90.00%	79.17%	86.36%	83.33%		Total Accuracy = 84.35%

Overall Kappa Statistics = 0.8375 (Source: fieldwork 2021)

Table 5 shows the land mass and percentage of each class from 1998 to 2021

Table 5: Year wise area covered and percent

Land use Land cover class	1998		2011		2021	
	Hectares	(%)	Hectares	(%)	Hectares	(%)
Forest	35,257.22	59	22,708.04	38	23,903.2	40
Settlement	5,378.22	9	9,561.28	16	10.756.44	18
Water body	2,390.32	4	11,354.02	19	6,573.38	11
Farmland	16,134.66	27	15,537.08	23	17,329.82	29
Bare surfaces	597.58	1	597.58	1	1,195.16	2

Land Use Land Cover Change Detection and Prediction

It shows in figure 6 that other classes gain from forests, but water bodies gain more area than the rest of the classes, and water bodies gain close to 600 hectares. The least gained from the forest among the classes was the bare surface, which was about 10 hectares. Similarly, forest loss was approximately -900 hectares, the highest loss class among all classes. Bare surface had the least loss among all the classes, losing about 5 hectares of land.

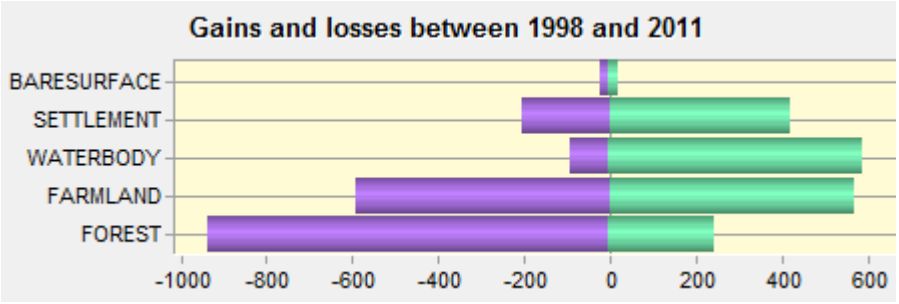

Figure 6: Gains and Losses between 1998 and 2011 Land use/land cover

(Source: Fieldwork 2021)

Analysis in Figure 7 shows that all other classes gain from forest, but farmland gains more area than the rest of the classes, and its gains were close to 280 hectares. The water body, which covered about 10 hectares, benefited the least from the forest. Similarly, water bodies lose about -270 hectares, the highest reduction class among all classes, and farmland loses about -180 hectares. Bare Surface did not lose any classes between 2011 and 2021.

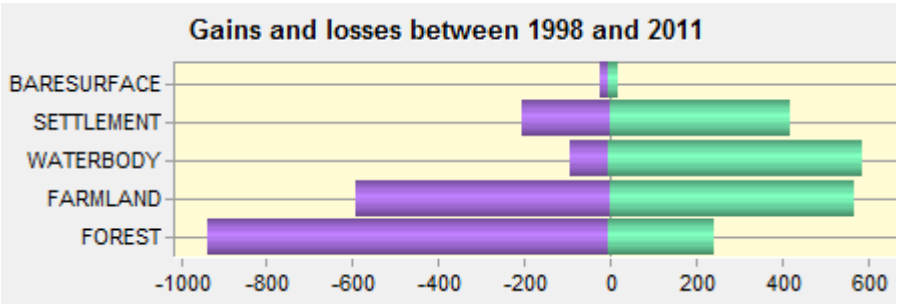

Figure 8: Gains and Losses between 2011 and 2021 Land use/land cover

(Source: Fieldwork 2021)

Predictions of Future Land Use and Land Cover Dynamics

In this work, the Markov chain analysis was implemented over one period: 1998–2021. Thus, the land use area transfer matrix and transition probability matrix were obtained. From Tables 7 and 8, the forest area will change in 2021 and 2030 from 1351.2600000 ha to 1199.1600000 ha. What this means is that if there is further reduction of forest by degradation, it will reduce to 152.1 hectares in the 2030 projection. Table 9 shows various stages of prediction for 2030 land use and land cover change in the Oyimo forest reserve due to forest degradation.

Table 7: Area covered by Oyimo forest 2021 land use land cover before Prediction

Category	Hectares	Legend
0	2411.1900000	Unclassified
1	1351.2600000	FOREST
2	1004.1300000	FARMLAND
3	393.6600000	WATERBODY

4	603.2700000	SETTLEMENT
5	78.4800000	BARESURFACE

Table 8: Area covered by Oyimo forest land use land cover by 2030 Prediction

Category	Hectares	Legend
0	2411.1900000	Unclassified
1	1199.1600000	FOREST
2	1052.7300000	FARMLAND
3	430.5600000	WATERBODY
4	659.0700000	SETTLEMENT
5	89.2800000	BARESURFACE

Table 4.9: Oyimo Forest Probability change of classes from 2021 to 2030

Probability	Cl .1	Cl .2	Cl .3	Cl .4	Cl .5
Class 1	0.6929	0.1616	0.0541	0.0838	0.0104
Class 2	0.1424	0.4777	0.1981	0.1677	0.0140
Class 3	0.2344	0.3844	0.3632	0.0147	0.0033
Class 4	0.0355	0.3116	0.0317	0.5429	0.0783
Class 5	0.0897	0.1915	0.0000	0.5613	0.1575

Analysis of Forest Organic Carbon Stock of Oyimo Forest Reserve

The result of forest organic carbon showed that there was significant forest loss from 2000 to 2020, as observed in Table 9. Estimates show that forests are losing acreage every year between 2001 and 2020. From 2000 to 2020, the forest loss was 1,858 ha; the carbon loss was 127,703 tonnes of CO_2e; and the total carbon emissions were 468,669 tonnes of CO_2e. The highest forest loss was 419 ha in 2017, and the lowest loss during the years was 10 ha, which occurred in 2003 (Salami et al., 2022). The highest carbon loss for this period was 27,660 tonnes, and the lowest carbon loss was 687 tonnes in 2017 and 2003. The lowest carbon emission during the year was 2,521 and the highest was 101,513 (tonnes of CO_2e); this happened in 2003 and 2017, respectively.

Table 4.10 Summary of Oyimo carbon loss due to degradation

Summary of carbon loss due to degradation*					
Baseline land cover					
		Area (hectares)	**Percent of total area**	**Total biomass (tonnes of C):**	
	Initial forest area:	**59,413**	99.4%	3,535,543	
	Initial non-forest land area:	345	0.6%		
	Water area:	0	0.0%		
	Missing data:	0	0.0%		
	Total:	**59,758**	**100.0%**		
Land cover change summary					
		Baseline year:	2000		
		Final year:	2020		
	Forest loss over period (hectares):		**1,858**		
	Loss of carbon over period (tonnes of C)		**127,703**		
	Total carbon emissions over period (tonnes of CO2e):		**468,669**		

Carbon loss by year*					
Year	**Forest Loss During Year (ha)**	**Forest Cover at End of Year (ha)**	**Loss of Carbon During Year (tonnes of C)**	**Total Biomass at End of Year (tonnes of C)**	**Carbon Emissions During Year (tonnes of CO2e)**
2001	93	59,320	7,326	3,528,217	26,886
2002	65	59,255	4,890	3,523,327	17,945
2003	10	59,245	687	3,522,640	2,521
2004	32	59,213	2,442	3,520,198	8,962
2005	39	59,174	2,895	3,517,303	10,626
2006	27	59,147	2,051	3,515,252	7,526
2007	34	59,114	2,487	3,512,765	9,128
2008	50	59,064	3,780	3,508,985	13,873
2009	83	58,981	6,195	3,502,790	22,735
2010	75	58,907	5,546	3,497,243	20,355
2011	53	58,854	3,917	3,493,327	14,374
2012	30	58,824	2,133	3,491,194	7,827
2013	160	58,664	9,772	3,481,422	35,863
2014	109	58,554	7,286	3,474,136	26,738
2015	204	58,351	13,023	3,461,114	47,793
2016	102	58,249	6,978	3,454,136	25,609
2017	419	57,830	27,660	3,426,476	101,513
2018	183	57,647	12,506	3,413,970	45,896
2019	92	57,555	6,130	3,407,840	22,498
2020	0	57,555	0	3,407,840	0

Table 10 shows the change in biomass with restoration for above-ground biomass and below-ground biomass. This analysis revealed the initial biomass, total biomass, and biomass change in the study area compared to pre-restoration levels. The Eucalyptus plantation had the highest level of biomass restoration among the others, with pre-restoration levels of 37883296 and a final total biomass of 48620525 (tonnes of CO_2). Agroforestry had the least amount of biomass

restoration, with pre-restoration levels of 3748068 and a total biomass of 14485297 (tonnes CO_2e).

Table 10: Change in biomass of above and below ground in Oyimo forest

Potential carbon removals from restoration summary table		
	Value	**Units**
Total area of polygon:	59,758	hectares
Time since initiation of restoration:	20	years
Initial biomass:	10,737,229	tonnes CO2e
Change in biomass with restoration		
Restoration approach	**Change in biomass compared to pre-restoration levels (tonnes CO2e)**	**Final total biomass (tonnes CO2e)**
Natural regeneration	10,228,039	20,965,269
Agroforestry	3,748,068	14,485,298
Teak plantation	25,854,827	36,592,056
Eucalyptus plantation	37,883,296	48,620,525
Oak plantation	11,167,998	21,905,227
Other broadleaf plantation	19,321,640	30,058,869
Pine plantation	14,241,579	24,978,808
Conifer plantation	15,362,000	26,099,230

Figures 9, 10, and 11 show the results of soil productivity state degradation, soil productivity performance degradation, and soil productivity trajectory degradation, respectively. The output soil productivity state degradation map generated in Figure 9 is sliced into four density classes and their color ramp: area with no data, improvement, stable, and degradation. Areas with no data mean no information has been acquired from these areas. Improvement areas mean there is recovery from degradation in the area. In stable areas, that is, degradation has not taken place in these areas, and degradation area indicates the area is actually degraded. For soil productivity performance degradation output, the three classes are: no data, no degradation, that is, the areas have never experienced degradation. The degradation area shows there is significant degradation, as shown in Figure 10. Productivity trajectory degradation shows four classes from map output in figure 11, which include: no data; degradation ($P<0.05$), which indicates there is significant degradation; stability, which means degradation has not taken place at all; and improvement ($P<0.05$), which means there is significant improvement in some degraded areas.

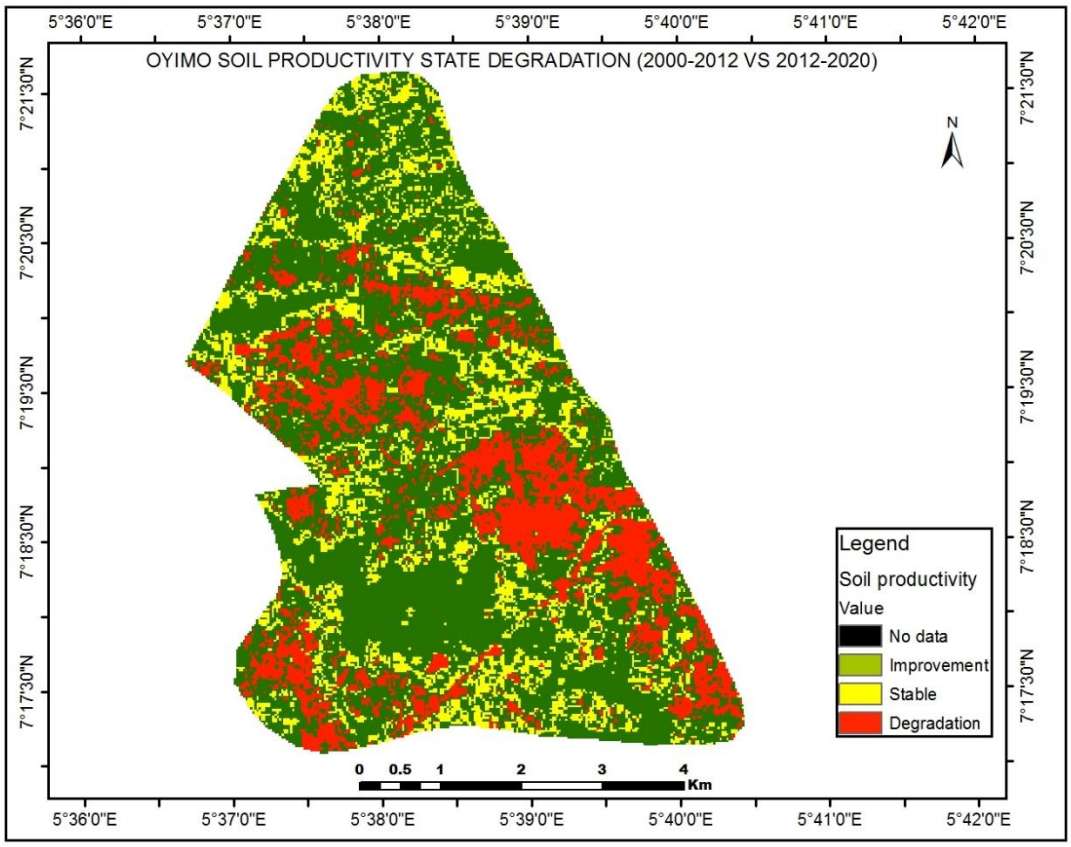

Figure 9: Soil productivity state degradation of Oyimo forest

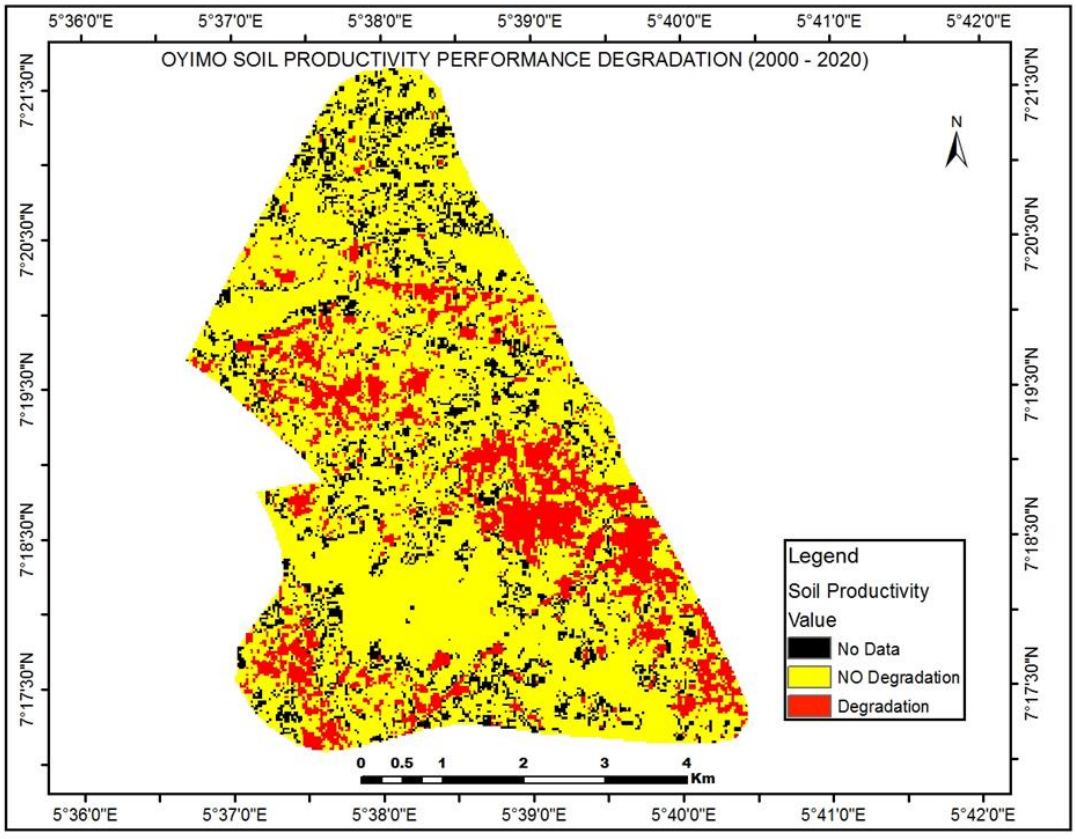

Figure 10: Soil productivity performance degradation of Oyimo forest

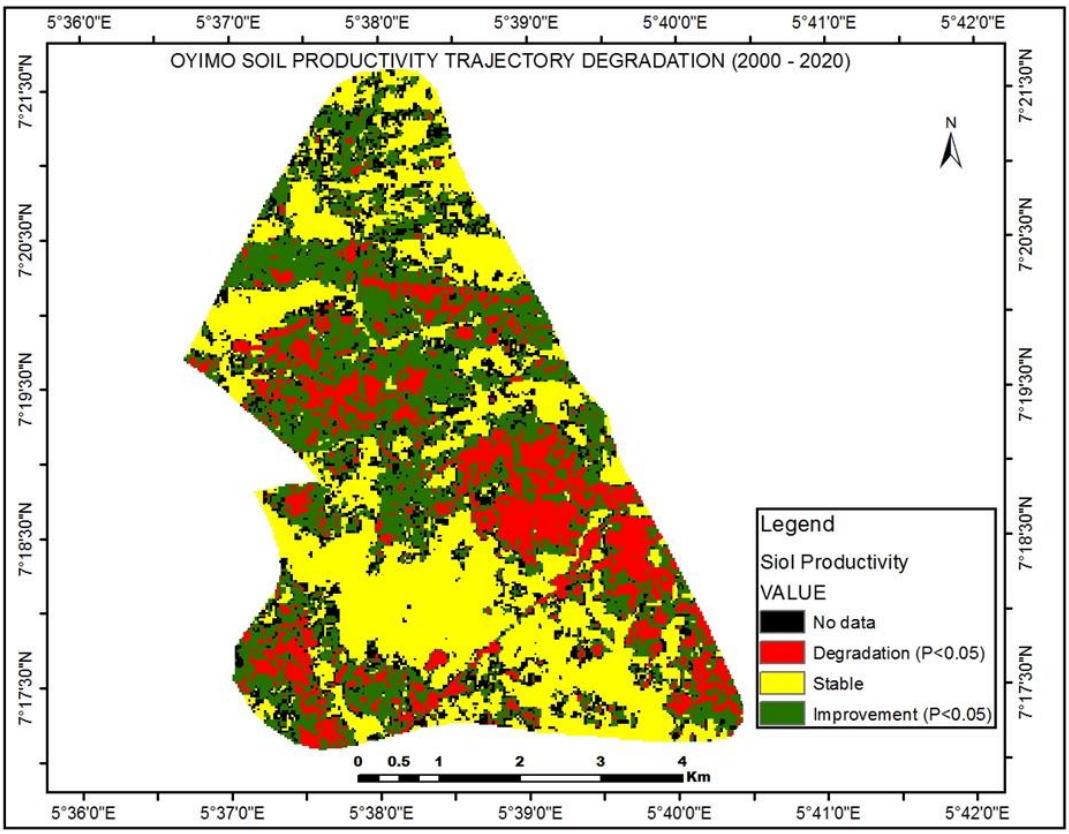

Figure 11: Soil productivity trajectory degradation of Oyimo forest

Table 11 shows the percentages and areas covered by soil productivity: degraded area, stable area, and improvement area. It is well known that organic matter is a key component of soil that affects its physical, chemical, and biological properties, contributing greatly to its proper functioning, on which human societies depend. Benefits of soil organic matter (SOM) include improvement of soil quality through increased retention of water and nutrients, resulting in greater productivity of plants in natural environments and agricultural settings. SOM improves soil structure and reduces erosion, leading to improved water quality in groundwater and surface waters and, ultimately, increased food security and decreased negative impacts on ecosystems.

Table 11: Summary table of soil organic carbon land use cover of Oyimo forest reserve

Summary of SDG 15.3.1 Indicator		
Area (hectares)		Percent of total land area
Total land area:	59,758	100.00%
Land area improved:	11,978.02184	20.045%
Land area stable:	29,032.919	48.584%
Land area degraded:	18,727.849	31.34%
Land area with no data:	19.21016	0.031%

Analysis of Relationship Between the Variables

Figures 12 and 13 showed the relationship between carbon emissions versus forest loss and carbon loss versus forest loss. It shows a positive correlation: as more forest is lost, the greater the increase in carbon emissions to the atmosphere, and the more the forest is lost, the more useful the carbon loss to the surrounding area. These correlation analyses describe the strength of an association between the two variables in figures 12 and 13 and are completely symmetrical; the correlation between carbon emission and loss of forest is the same as the correlation between

loss of organic carbon and loss of forest. Although the first one, r^2, was 0.8506 and the latter was 0.9959, which was highly correlated,

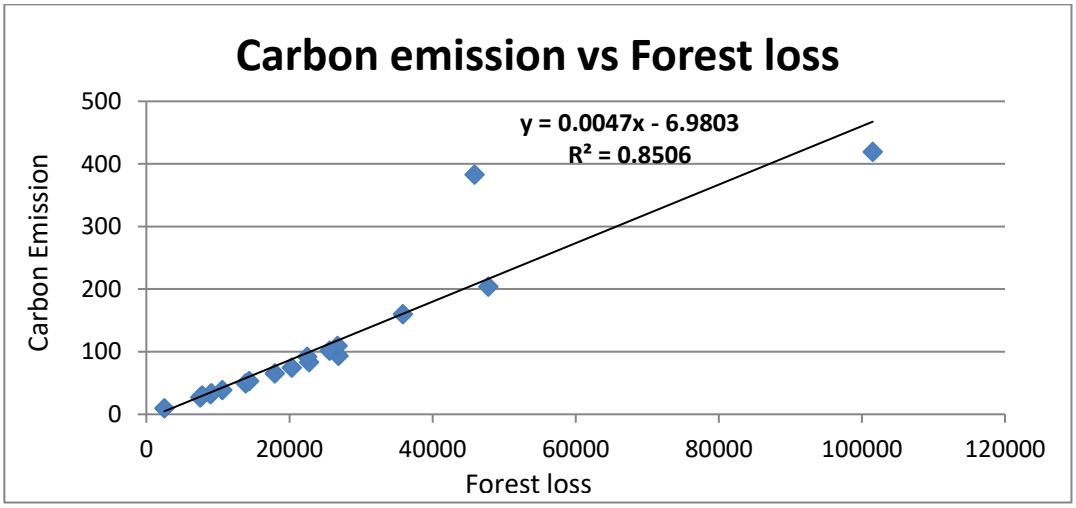

Figure 12: Relationship between Carbon Emission and Forest loss

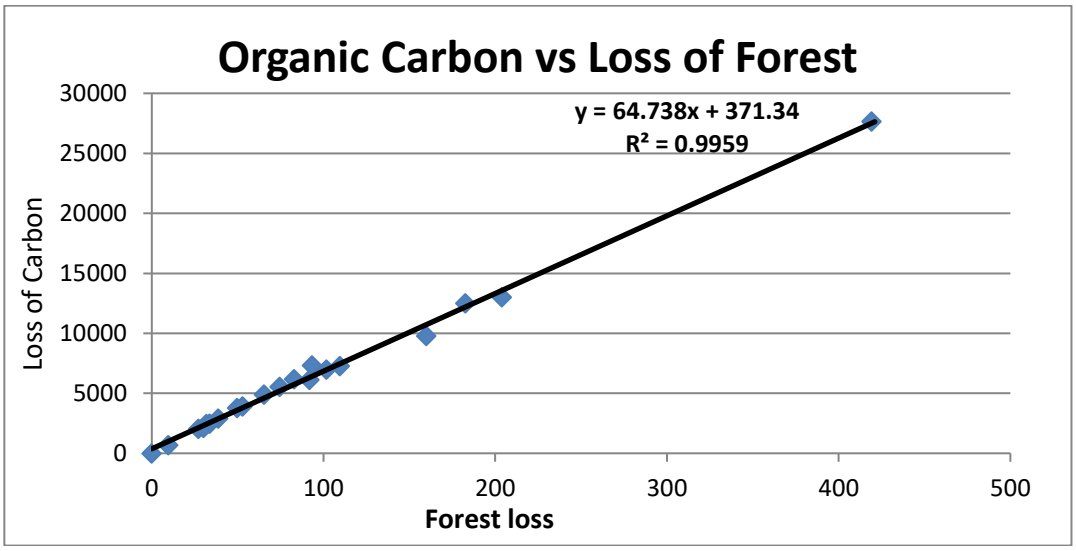

Figure 13: Relationship between Carbon loss and Forest loss

DISCUSSION

The total land use land cover (LULC) for the forest reserve was 59,758 ha. It was found that LULC for the forest between 1998, 2011, and 2021 varied among the various land cover types identified. LULC increased from 1999 to 2021 for bare surface area, settlement area, and areas covered by water. On the other hand, areas covered by cropland and forest decreased (Belay & Mengistu, 2019). What this mean is that there was loss of forest and cropland to settlement area, water, and bare surface area. Some croplands and forests were cleared for dwelling houses and thus changed into settlements. In the same vein, from 2011 to 2021, the forest class gained about 2% of other land as a result of replanting trees by the Ondo State Government programme.

According to Abate (2011), an important aspect of change detection is to determine what is actually changing to what category of land use land cover type (i.e., which LULC type is changed to the other type of LULC class). Forest cover experienced more varied changes than any other land cover type in the Oyimo Forest Reserve. Some of the areas covered by forest became bare

surfaces through bush burning and construction activities. Parts of the forest were also cleared for housing projects, hence the change to a settlement area with an area of hectares (ha). Parts of the forest very close to water bodies were covered by water, including wetland. This was due to the advancement of these water bodies due to erosion and inundation.

The prediction identified the extent to which the land area has the propensity and the right criteria to be altered. While the prediction created only a single realisation of the future LULC status, the prediction was a comprehensive assessment of change potential. This is why the output detected areas with varying degrees of vulnerability instead of identifying what and how much of the LULC area would be changed. From the modelled output, it is evident that most of the southern portion of the Oyimo forest reserve is highly vulnerable to transition under the current set of driver variables and identified individual transitions from one type to another. This is reasonable as this part of Oyimo has a large area of settlement and bare surface, which has exhibited the most significant depletion during the study period. Reasons for this vulnerability may be attributed to the recent intensified logging activity in this area along with land use change derived from agricultural and farming activities. The result of forest organic carbon showed that there was forest and carbon loss during this period. Converting the natural vegetation to agricultural land is likely to change the radiation balance of the given unit of area. In principle, the albedo increases as land is without vegetation for at least part of the year, causing more solar energy to reflect back into space. Other environmental impacts include the decrease in soil water holding capacity. On the other hand, it shows that soil productivity degraded areas, stable areas, and improvement areas where the effort of humans was felt both positively and negatively. It is also well known that organic matter is a key component of soil that affects its physical, chemical, and biological properties, contributing greatly to the proper functioning on which human societies depend. Benefits of soil organic matter (SOM) include improvement of soil quality through increased retention of water and nutrients, resulting in greater productivity of plants in natural environments and agricultural settings.

In this correlation analysis, the magnitude of the correlation coefficient indicates the strength of the relationship. However, the correlation coefficients R^2 = 0.9959 and 0.8506 are strong enough for this study to make a generalisation about the forest degradation of the surrounding area. The positive correlation in this present study means that when forest loss values increase, emissions of carbon dioxide increase. And an increase in forest loss values is also reflected in a decrease in carbon pull. This finding is also consistent with a study conducted by Kundu et al. (2017).

DEVELOPMENT OF APPLICABLE GUIDELINES

Sustainable forest management is essential for reducing the vulnerability of forests to climate change. There is no universally applicable measure for adapting forests to climate change. Forest managers should, therefore, have sufficient flexibility to deploy the adaptation measures most appropriate for their local situations. Flexible approaches to policy design are needed that are sensitive to context and do not rely on a single, one-size-fits-all mechanism. New modes of governance are required that enable meaningful stakeholder participation, provide secure land tenure and forest user rights, and provide sufficient financial incentives.

More research is required to reduce current uncertainties about the impacts of climate change on forests and people and to improve knowledge about management and policy measures for adaptation. Nevertheless, despite the limitations of current knowledge, climate change is progressing too quickly to postpone adaptation action pending the outcomes of future studies. A

broad suite of agro-ecology practices can be used to increase carbon in the soil, including agroforestry, fallows (resting soil for a year or more), and sustainable pasture management through managed herd mobility.

CONCLUSION

It was concluded that despite many factors, such as the availability of imagery for specific times of the year and the availability of recent land use land cover maps, that created hurdles in finding change in the study area. The present study proved very effective in fulfilling the objectives that were set for the study. The study rendered the following findings:

The area that is covered by forests first of all decreased and gradually increased. This can be attributed to the increase in planting more trees as directed by the Ondo State Government. It was noted that the increase in forest is almost entirely part of the study area. This is because of the availability of cultivable land in those parts of the study area. It was noted that settlement area increased the most in terms of its proportion to total area. This can be attributed to the increase in agricultural products, which in turn increase economic activities and ultimately human settlements and population in the study area.

The bare surfaces in the study area increased a little bit. This is because the area that was once occupied by the bare surfaces is now covered by vegetation and human settlements. Water bodies in the study area have increased at a very high speed and have decreased by only 0.8% in around 21 years. This is because the area has been experiencing dry spells in recent times. Thus, on the basis of the results rendered by this study, it reveals that the geographic information system is one of the best methods available today for identifying and measuring changes in land use and land cover in a specific area with remote sensing (RS). In order to address particular problems like carbon loss, habitat degradation, and soil productivity, as well as to propose pathways for improving forest quality, remote sensing and GIS can be used as space quantification tools for forest conservation.

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 26-47

Are Co-Curricular Activities Useful for Diversity Management? Evidence From Secondary Schools in Addis Ababa, Ethiopia

Easaw Alemayehu Assefa

1. Addis Ababa University, Ethiopia

Abstract:
Promoting diversity management in educational settings is crucial for creating inclusive environments, and co-curricular activities have emerged as a valuable tool for achieving this goal. This study aimed to investigate the role of co-curricular activities in diversity management specifically in Addis Ababa's secondary schools. The study addressed two primary research questions. To gain a comprehensive understanding of the topic, a mixed-methods approach was employed. This involved integrating quantitative survey data with qualitative insights from interviews. The survey was administered to the research sample, while interviews were conducted to gather in-depth information. This combination of methods allowed for a more robust analysis. The research sample consisted of 375 participants, including 187 males and 188 females. The findings of the study revealed a significant positive impact of co-curricular activities on diversity management. These activities provided opportunities for students to engage with peers from diverse backgrounds, fostering mutual understanding and respect. However, the study also identified several barriers and challenges. This study is unique in its investigation of how co-curricular activities contribute to diversity management in Addis Ababa's secondary schools, offering valuable insights for fostering inclusive environments. Based on the study's findings, it is recommended to address the identified barriers and challenges to enhance the effectiveness of co-curricular activities in promoting diversity management. Strategies and interventions should be developed to increase awareness of diversity management among stakeholders.

Keywords: Co-curricular, Contribution, Challenges, Diversity Management.

INTRODUCTION

Diversity management is a critical aspect of creating inclusive educational environments that value and celebrate the differences among students (Ordu, 2015; Yamada, 2011). It involves implementing strategies and practices that promote positive interactions, intercultural understanding, and the breakdown of stereotypes within school communities (Phantasoot, & Wangthanomsak, 2021). Co-curricular activities, which encompass sports, clubs, cultural events, and community service initiatives, have emerged as a potential strategy for diversity management (Saifi, 2023; Mancha, & Ahmad, 2016). These activities provide students with opportunities to engage in extracurricular pursuits beyond the traditional academic curriculum (Kelbiso, 2019; Ab Ghani et al., 2020).

Ethiopia is a country known for its rich cultural and linguistic diversity, with numerous ethnic groups and languages represented among its population (Mengesha, 2017; Belay, et al., 2005). Ethiopian secondary schools encounter the challenge of effectively managing this diversity to create inclusive and harmonious learning environments (Adugna, 2017; Heugh, 2014). Co-

curricular activities have the potential to play a significant role in addressing this challenge and promoting diversity management (Keser et al., 2014; Charles, 2012). By providing opportunities for students from diverse backgrounds to interact, collaborate, and learn from one another, co-curricular activities can foster inclusivity and intercultural understanding (Clegg, et al., 2009).

One potential benefit of co-curricular activities for diversity management is the opportunity for students to engage in meaningful interactions with peers from different backgrounds (Dumin, 2011). Through participation in sports, clubs, or cultural events, students can develop relationships, build trust, and gain a better understanding of diverse perspectives (Demissie, & Seneshaw, 2013). These interactions can foster empathy, respect, and open-mindedness, which are essential for navigating a diverse society (Milem, 2003). Additionally, co-curricular activities provide platforms for students to showcase and celebrate their cultural heritage, promoting a sense of pride and belonging among diverse student populations (Ratanakarn, 2011).

Co-curricular activities also offer the potential to break down stereotypes and challenge biases (Sims, et al., 2017). By engaging in collaborative projects or team activities, students from different backgrounds can challenge preconceived notions and learn to appreciate each other's strengths and talents (Wilson, 2009). These experiences can help dispel stereotypes and promote a more inclusive and equitable school environment (Woldetsadik et al., 2023). Moreover, co-curricular activities provide opportunities for students to develop leadership skills, teamwork, and effective communication, which are essential for success in diverse communities (Yemini, & Addi-Raccah, 2013).

However, despite the potential benefits, there are challenges associated with implementing co-curricular activities for diversity management in Ethiopian secondary schools (Wondimu, & Gonfa,2019). Limited resources, lack of infrastructure, and logistical constraints pose barriers to offering a diverse range of co-curricular activities (Haydamo & Amdemeskel,2022; Wondemetegegn, 2016). Additionally, cultural norms and expectations within the Ethiopian context may influence the participation and involvement of students from certain backgrounds (Sefisa, & Yuya, 2021). Understanding these challenges and identifying strategies to overcome them is crucial for effective diversity management through co-curricular activities (Dimbie et al., 2021; Rockenbach et al., 2015).

The lack of specific evidence and research on the effectiveness of co-curricular activities for diversity management in Ethiopian secondary schools is a notable issue. Although there is a general understanding of the potential benefits of such activities, it is crucial to explore their impact within the unique context of Ethiopian schools (Assefa, 2016). By examining the experiences, perceptions, and attitudes of respondents from diverse backgrounds in relation to co-curricular activities, valuable insights can be gained regarding the effectiveness of these activities for promoting diversity management.

The absence of studies specifically focused on co-curricular activities and their role in diversity management in Ethiopian secondary schools specifically in the context of Addis Ababa creates a research gap. Existing literature on co-curricular activities primarily originates from Western contexts, highlighting the need to explore the applicability and effectiveness of these activities within the Ethiopian educational landscape. By addressing this research gap, a deeper understanding can be gained regarding the potential benefits and challenges associated with implementing co-curricular activities for diversity management in Ethiopian secondary schools.

By conducting research specifically focused on co-curricular activities and their impact on diversity management in Ethiopian secondary schools, this study aims to fill the research gap and contribute to the existing body of knowledge. The research will involve exploring the experiences, perceptions, and attitudes of students, teachers and administrators from diverse backgrounds in relation to co-curricular activities. By gathering comprehensive data, including quantitative surveys and qualitative interviews, the study aims to provide insights into the effectiveness of these activities for promoting diversity management.

The findings of this research will provide valuable insights into the effectiveness of co-curricular activities for diversity management within the Ethiopian context. The study will shed light on the experiences of students, teachers and principals identify any barriers or challenges faced, and highlight successful practices and strategies. The results will be relevant not only to educators and school administrators but also to policymakers and stakeholders involved in shaping educational policies and practices in Ethiopia. The evidence-based recommendations derived from this research can inform the development of inclusive educational programs and initiatives that effectively utilize co-curricular activities to promote diversity management. The aim of this study was to investigate the contribution of co-curricular activities to diversity management in Ethiopian secondary schools, specifically in the context of Addis Ababa. The study addressed the following two primary research questions

1. To what extent do co-curricular activities contribute to diversity management in in Addis Ababa's secondary schools?
2. What are the potential barriers and challenges faced in implementing co-curricular activities for diversity management in in Addis Ababa's secondary schools?

THEORETICAL FRAME WORK OF THE STUDY

The Social Identity Theory, developed by Henri Tajfel (1974) and John Turner (1986), explores how individuals' sense of self and identity is shaped by their membership in social groups. According to the theory, people strive to maintain a positive self-concept by identifying with and favoring their in-group while exhibiting bias or discrimination towards out-groups (Hogg, 2016). This theory emphasizes the importance of social categorization, social comparison, and the need for positive distinctiveness within a group (Ellemers, & Haslam, 2012). Individuals tend to derive a sense of belonging, self-esteem, and purpose from their group memberships, which can influence their attitudes, behaviors, and interactions with others (Scheepers & Ellemers, 2019).

In the context of the current study, the Social Identity Theory can provide valuable insights. Co-curricular activities have the potential to foster a shared sense of identity and belonging among students from diverse backgrounds (McLeod, 2008). By engaging in activities that promote intergroup contact, cooperation, and collaboration, students can develop a broader and more inclusive social identity that encompasses multiple groups (Williams-Gualandi, 2020). This expanded social identity can positively impact their attitudes towards diversity, reducing prejudice, stereotyping, and discrimination (Borg, 2009). Through participation in co-curricular activities, students may develop a greater appreciation for different cultures, perspectives, and experiences, leading to increased acceptance, understanding, and respect among diverse groups (Martinez et al., 2016).

Furthermore, the Social Identity Theory can help explain how co-curricular activities contribute to diversity management in Ethiopian secondary schools (Stuart et al, 2009). By providing opportunities for students to engage in positive intergroup interactions, co-curricular activities

can challenge and reshape existing social categorizations and intergroup dynamics. (Feldman, & Matjasko, 2005) Through shared goals, common experiences, and collaborative problem-solving, students can develop a sense of common identity that transcends individual differences (Darling et al., 2005). This can create a more inclusive and supportive school environment where diversity is valued and celebrated (Shulruf et al., 2008). The Social Identity Theory suggests that co-curricular activities can play a crucial role in promoting positive intergroup relations, fostering a sense of belonging, and enhancing diversity management efforts in Ethiopian secondary schools (Williams-Gualandi, 2020).

In summary, the Social Identity Theory highlights the significance of social group memberships and their influence on individuals' attitudes and behaviors. Applying this theory to the study on the usefulness of co-curricular activities for diversity management in Ethiopian secondary schools reveals how these activities can promote a shared sense of identity, reduce intergroup biases, and create a more inclusive school environment.

METHODOLOGY

This study utilized a mixed methods research design to investigate the effectiveness of co-curricular activities for diversity management in Addis Ababa's (Ethiopia) secondary schools. By combining quantitative and qualitative approaches, the study aimed to gain a comprehensive understanding of the research questions and generate robust evidence (Gelo et al. 2008). The quantitative phase involved surveys and questionnaires to measure the impact of co-curricular activities on various aspects of diversity management. The qualitative phase included interviews to explore potential barriers and challenges in implementing co-curricular activities for diversity management. By employing this mixed methods design, the study sought to provide a thorough examination of the usefulness of co-curricular activities in promoting diversity management in Addis Ababa's secondary schools.

Sample Selection

To ensure a representative sample, a combination of purposive and random sampling techniques was employed in selecting secondary schools, students, teachers, and school principals for the study. In Addis Ababa there are 11 sub cites. Four secondary schools and four school principals were randomly selected from each of the five sub-cities selected for this study within Addis Ababa, resulting in a total of 20 schools and 20 principals (4 schools and 4 principals multiplied by 5 sub-cities). This random selection of schools and principals aimed to capture a diverse representation of secondary educational institutions and their leadership across the city.

From each selected sub-city, a specific number of participants were randomly selected. This included 4 school principals, 25 teachers, and 46 students, resulting in a total of 75 participants from each sub-city (4 principals + 25 teachers + 46 students = 75 participants). Therefore, the total number of participants for the entire study would be 375 with 187 males and 188 females' participants (75 participants multiplied by 5 sub-cities). By incorporating a combination of purposive and random sampling techniques for schools, principals, and participants, the study aimed to provide a comprehensive understanding of co-curricular activities and diversity management practices within the Addis Ababa secondary school system.

Data Collection

To assess the impact of co-curricular activities on diversity management in Ethiopian secondary schools, both Research Question 1 and Research Question 2 utilized quantitative data collected

through paper-based surveys/questionnaires. The surveys consisted of Likert scale items, employing a five-point scale, to gauge participants' perceptions of how co-curricular activities influenced intergroup relations, cultural understanding, and inclusivity. Additionally, demographic questions were incorporated to gather relevant background information. Research Question 2 specifically aimed to identify barriers and challenges in the implementation of co-curricular activities for diversity management. The surveys were administered in a paper-based format and included clear instructions to ensure consistency in responses. Participants were provided with a specific timeframe to complete the surveys, and reminders were sent to maximize the response rates.

To ensure triangulation and enhance the depth of the study, qualitative data was also collected in addition to the quantitative data. Both Research Question 1 and Research Question 2 were addressed through the use of semi-structured interviews. These interviews involved engaging teachers, administrators, and key stakeholders who had a direct involvement in the planning and implementation of co-curricular activities for diversity management in Addis Ababa's secondary schools. This comprehensive approach allowed for a holistic exploration of their perspectives, experiences, and insights regarding the barriers and challenges encountered in promoting diversity management. Prior consent was obtained from the participants, and to ensure accuracy, the interviews were audio-recorded while detailed notes were taken to capture non-verbal cues and contextual information. The data collection process was conducted in a comfortable and private setting, fostering an environment conducive to open and honest discussions.

Validity of the Tools

The validity of the survey and interview methods used in the study on the usefulness of co-curricular activities for diversity management in secondary schools in Addis Ababa, Ethiopia, is a crucial consideration. To ensure validity, both the survey and interview protocols were carefully designed, incorporating relevant and reliable measures to capture the necessary data. The survey questions were constructed based on established theories and previous research in the field, while the interview guide was designed to elicit rich and detailed responses from participants. Additionally, the survey and interview processes were conducted using standardized procedures to enhance reliability and minimize bias. Overall, the rigorous methodological approach employed in this study enhances the validity of the findings and strengthens the credibility of the conclusions drawn regarding the role of co-curricular activities in diversity management in Addis Ababa's secondary schools. Here is the Cronbach alpha value of the survey tool.

Table 1: The Reliability of the Scales

Instrument	Cronbach Alpha	Number of Items	Acceptability
Contribution	0.853	5	Acceptable
Barriers and Challenges	0.721	5	Acceptable

Data Analysis

The quantitative data collected through surveys/questionnaires was analyzed using descriptive statistics to examine the frequency, distribution, and central tendencies of the participants' responses. Inferential statistical techniques, such as correlation analysis, were used to explore the relationship between co-curricular activities and diversity management outcomes. These statistical analyses provided insights into the extent to which co-curricular activities contributed to diversity management in Addis Ababa's secondary schools.

The qualitative data from interviews and focus group discussions were transcribed, coded, and thematically analyzed. The transcripts were reviewed and coded to identify patterns, themes, and recurring ideas related to the potential barriers and challenges faced in implementing co-curricular activities for diversity management. The codes were then grouped into themes to capture the main findings and recurring patterns across the qualitative data. The thematic analysis provided a deeper understanding of the challenges and barriers faced by various stakeholders, allowing for a comprehensive exploration of the research question.

Integration of Findings

During the interpretation phase, the quantitative and qualitative findings were integrated to provide a comprehensive understanding of the research questions. The results from the quantitative analysis and thematic analysis were compared and contrasted to identify converging or diverging patterns. This integration enhanced the validity and reliability of the findings by providing a comprehensive and nuanced understanding of the usefulness of co-curricular activities for diversity management and the associated barriers and challenges.

The triangulation of findings was conducted by examining the convergence, expansion, or divergence of the quantitative and qualitative findings. This process involved comparing the quantitative results on the extent of the contributions of co-curricular activities to diversity management with the qualitative findings on the barriers and challenges. Triangulation strengthened the overall findings and provided a more comprehensive understanding of the research questions.

Ethical Considerations

Ethical considerations were carefully addressed throughout the study to ensure the protection of participants' rights and maintain the highest standards of research ethics. The study obtained ethical approval from the relevant institutional review board, demonstrating a commitment to conducting the research in an ethical manner. Informed consent was obtained from all participants, and they were provided with detailed information about the study's purpose, procedures, potential risks, and benefits. Participants were assured that their participation was voluntary, and they had the right to withdraw from the study at any time without facing any negative consequences. Confidentiality and privacy of the participants were strictly maintained. All data collected, including survey responses, interview recordings, and focus group discussions, were anonymized and securely stored, with access limited only to the research team. Participants' identities were protected through the use of unique identifiers instead of personal information in any reports or publications. The research team ensured that participants' responses and personal information were treated with the utmost respect and confidentiality.

Furthermore, steps were taken to minimize any potential psychological or emotional harm to the participants. The research team created a safe and comfortable environment for interviews and focus group discussions, ensuring that participants felt at ease and willing to share their perspectives. Participants were informed about the voluntary nature of their participation and were provided with resources for support or counseling if they experienced any distress while discussing sensitive topics.

FINDINGS AND DISCUSSION

The section on findings and discussion presents the results and analysis of the study exploring the extent to which co-curricular activities contribute to diversity management in Addis Ababa's

secondary schools. Additionally, this section addresses the potential barriers and challenges encountered in implementing co-curricular activities for diversity management. By investigating the experiences and perspectives of stakeholders within the Addis Ababa's secondary school system, the findings provide valuable insights into the impact of co-curricular activities on promoting inclusivity and managing diversity. The discussion delves into the implications of these findings, highlighting both the successes and obstacles faced in implementing co-curricular activities for diversity management. By examining these aspects, this section aims to inform educational practices and policies that foster a more inclusive and diverse learning environment in Addis Ababa's secondary schools.

- RQ1: To what extent do co-curricular activities contribute to diversity management in Addis Ababa's secondary schools?

Table 2: The co-curricular activities contribution to diversity management

No	Items	N	Mean	SD
1	Co-curricular activities play a significant role in promoting diversity management in Addis Ababa's secondary schools.	375	3.98	0.72
2	Co-curricular activities provide opportunities for students from diverse backgrounds to interact and learn from each other.	375	3.75	0.68
3	Co-curricular activities help foster a sense of inclusivity and acceptance among students in Addis Ababa's secondary schools.	375	3.99	0.93
4	Co-curricular activities contribute to breaking down stereotypes and promoting understanding among students from different cultural backgrounds.	375	4.2	0.74
5	Co-curricular activities enhance students' appreciation for diversity and cultural differences.	375	4.1	0.82
	Overall Average	375		

Co-curricular Activities for Diversity

The finding from item number 1 highlights that the integration of co-curricular activities is essential for effectively managing diversity within Addis Ababa's secondary schools. This aligns with the Social Identity Theory as it acknowledges the significance of group dynamics and intergroup interactions in shaping individuals' attitudes and behaviors. By engaging in co-curricular activities that promote diversity, students have the opportunity to interact with peers from different cultural backgrounds, which can challenge stereotypes, biases, and prejudices that may exist within the school community.

Co-curricular activities are also presented as a means to create an inclusive and harmonious learning environment. This resonates with the Social Identity Theory, which emphasizes the importance of positive intergroup contact in reducing prejudice and promoting positive attitudes towards outgroup members. By participating in diverse co-curricular activities such as cultural events, clubs, and community service initiatives, students have the chance to develop a deeper understanding, appreciation, and empathy for different cultures, traditions, and perspectives. These experiences can foster respect and acceptance among students from various backgrounds, promoting a sense of unity and shared values. Moreover, the finding suggests that co-curricular activities enable students to challenge stereotypes, biases, and prejudices within the school community. This aligns with the Social Identity Theory's proposition that positive intergroup contact can lead to the reduction of prejudice and the development of a more inclusive mindset.

By actively engaging with diverse peers, students are more likely to overcome prejudices and develop a greater appreciation for diversity. This, in turn, can contribute to the creation of a school culture that celebrates diversity and values the contributions of all students. Similarly, one of the interviewees said:

> *I believe co-curricular activities play a significant role in promoting diversity management in Addis Ababa's secondary schools. These activities provide students with opportunities to interact with peers from different backgrounds, cultures, and social groups. By participating in co-curricular activities, students can develop a greater appreciation for diversity and learn to respect and value different perspectives. It creates a more inclusive environment where students can collaborate, learn from one another, and celebrate their unique identities. Overall, co-curricular activities help foster a sense of unity and prepare students to thrive in a diverse society.*
>
> (Interviewee number 2, December 2022)

Additionally, the finding highlights those co-curricular activities serve as vehicles for developing skills and competencies related to diversity management. This relates to the Social Identity Theory's emphasis on the role of intergroup contact in promoting cross-cultural communication, conflict resolution, and the appreciation of diverse perspectives. Through collaborative projects and teamwork in co-curricular activities, students learn to communicate effectively across cultural boundaries, resolve conflicts peacefully, and appreciate the value of diverse perspectives. These skills are crucial in today's interconnected and multicultural society, where individuals must navigate diverse environments and work collaboratively with people from different backgrounds.

Interacting and Learning through Co-curricular Activities

The finding from item number 2 emphasizes that co-curricular activities offer valuable platforms for students from diverse backgrounds to engage in meaningful interactions and mutual learning. This aligns with the Social Identity Theory as it recognizes the importance of positive intergroup contact in shaping individuals' attitudes and behaviors. By participating in co-curricular activities such as clubs, sports teams, cultural events, and community service initiatives, students have the opportunity to come together, share experiences, and gain insights from one another. These interactions go beyond the confines of the traditional academic curriculum and facilitate a sense of inclusivity, understanding, and appreciation for diversity among the student body.

Furthermore, the finding highlights those co-curricular activities provide opportunities for students to broaden their horizons, challenge stereotypes, and expand their knowledge and understanding of the world. This relates to the Social Identity Theory's proposition that positive intergroup contact can lead to the reduction of prejudice and the development of a broader worldview. By interacting with peers from different backgrounds, students have the chance to gain a deeper understanding of different cultures, challenge stereotypes, and develop empathy and cultural sensitivity. These experiences enable students to navigate diverse environments and develop essential skills for success in an interconnected global society. Similar to the quantitative data, one of the interviewees said:

> *In my opinion, co-curricular activities serve as a valuable platform for students from diverse backgrounds to come together, interact, and mutually learn. Through these activities, students have the chance to collaborate, exchange ideas, and gain*

> *insights from peers with different perspectives and experiences. This interaction not only promotes a deeper understanding and appreciation for diversity but also enables personal growth by fostering important interpersonal skills and preparing students to thrive in a multicultural society.*
>
> (Interviewee number 4, December 2022)

Moreover, the finding emphasizes that co-curricular activities create spaces for students to learn from each other's unique experiences and perspectives. This aligns with the Social Identity Theory's recognition of the significance of intergroup interactions in fostering mutual respect and celebration of diversity. By sharing their cultural traditions, languages, and customs, students contribute to an environment of mutual respect and appreciation. These interactions allow students to gain a deeper understanding of different cultures and develop a broader worldview.

Additionally, the finding highlights those co-curricular activities promote collaboration and teamwork among students from diverse backgrounds. This aligns with the Social Identity Theory's emphasis on the role of intergroup contact in enhancing interpersonal skills, cross-cultural communication, problem-solving, and cooperation. By working together towards common goals in co-curricular activities, students develop important skills for navigating diverse environments and fostering positive intergroup relations.

Fostering Inclusivity with Co-curricular Activities

The finding from number 3 highlights those co-curricular activities help foster a sense of inclusivity and acceptance among students in Addis Ababa's secondary schools. This aligns with the Social Identity Theory as it recognizes the importance of positive intergroup contact in shaping individuals' attitudes and behaviors. By providing opportunities for students to engage in diverse activities and interact with one another, co-curricular activities contribute to the development of an inclusive school environment. The collaborative aspect of these activities promotes a sense of unity and acceptance among students from different backgrounds.

Moreover, the finding suggests that co-curricular activities provide a platform for students to learn about and appreciate the diversity present in their school community. This relates to the Social Identity Theory's emphasis on positive intergroup contact leading to the reduction of prejudice and the development of a greater understanding and acceptance of others. By engaging in activities that celebrate different cultures, traditions, and perspectives, students have the opportunity to break down barriers, develop empathy, and cultivate respect for one another.one of the interviewee said similar to the numeric data as follows:

> *Co-curricular activities have a powerful impact on fostering a sense of inclusivity and acceptance among students in Addis Ababa's secondary schools. Through my participation in these activities, I have witnessed firsthand how they create a supportive environment where students from diverse backgrounds can come together and form meaningful connections. By engaging in co-curricular activities, I have had the opportunity to collaborate with my peers, work towards common goals, and build strong relationships. These interactions have taught me the value of teamwork, empathy, and understanding. Whether it's through sports teams, clubs, or other extracurricular programs, I have seen how students learn to appreciate and respect each other's differences, ultimately fostering a culture of acceptance within the school community. Furthermore, co-curricular activities*

> *provide a platform for me to showcase my unique talents and abilities, regardless of my background or academic performance. This has given me a sense of belonging and acceptance, knowing that my contributions are valued and celebrated. It has also allowed me to learn from others who bring different perspectives and experiences to the table, expanding my understanding of diversity and creating a more inclusive mindset.*
>
> (Interviewee number 6, December 2022)

The finding implies that co-curricular activities create spaces where students can challenge stereotypes and prejudices. This aligns with the Social Identity Theory's proposition that positive intergroup contact can lead to the reduction of prejudice and the development of empathy and respect. By interacting with peers from diverse backgrounds, students have the chance to break down stereotypes, develop a deeper understanding of different cultures, and foster a more inclusive mindset.

Furthermore, the presence of co-curricular activities in Addis Ababa's secondary schools indicates that schools recognize the importance of fostering inclusivity and acceptance among their students. This aligns with the Social Identity Theory's recognition of the role of the school environment in shaping individuals' attitudes and behaviors. Co-curricular activities serve as catalysts for promoting positive interactions, cultural exchange, and the development of a welcoming and inclusive school environment.

Breaking Stereotypes with Co-curricular Activities

The finding from item number 4 emphasizes that co-curricular activities play a crucial role in breaking down stereotypes and promoting understanding among students from diverse cultural backgrounds. This aligns with the Social Identity Theory as it recognizes the importance of positive intergroup contact in shaping individuals' attitudes and behaviors. By providing opportunities for students to engage in meaningful interactions and challenge preconceived notions about different cultures, co-curricular activities create a space for students to interact, collaborate, and learn from one another. Through these interactions, stereotypes can be dismantled, and a more accurate and nuanced understanding of different cultures can emerge.

Moreover, the finding suggests that co-curricular activities allow students to experience firsthand the richness and diversity of various cultures. This relates to the Social Identity Theory's emphasis on positive intergroup contact as a means to counter stereotypes and misconceptions. By engaging in collaborative projects, cultural events, or intercultural clubs, students have the chance to immerse themselves in different cultural practices and gain a deeper understanding of the diversity within their school community. These experiences help replace stereotypes and misconceptions with a more informed and empathetic perspective. One of the interviewees stated:

> *As I have witnessed, co-curricular activities have been instrumental in breaking down stereotypes and promoting understanding among students from different cultural backgrounds. These activities provide a unique platform where students can come together, interact, and develop a deeper appreciation for each other's cultures. Through my active involvement in co-curricular activities, I have witnessed the power of firsthand interactions in challenging stereotypes. By engaging with students from diverse cultural backgrounds, I have been able to go beyond surface-*

> *level assumptions and truly understand the richness and diversity of their cultures. This direct engagement has helped break down barriers and foster a more inclusive and accepting environment. Furthermore, co-curricular activities often offer opportunities for cultural exchange and celebration. Whether through cultural festivals, performances, or workshops, students have the chance to share and showcase their traditions, customs, and values. These experiences not only promote dialogue and understanding but also allow for the recognition and appreciation of the unique contributions that each culture brings. By participating in co-curricular activities, I have had the privilege of learning from my peers and gaining a broader perspective on different cultural practices and perspectives. This exposure has helped me develop empathy, respect, and a genuine curiosity to learn more about the experiences and backgrounds of others.*
>
> (Interviewee number 8, December 2022)

The finding highlights those co-curricular activities foster empathy and promote intercultural understanding. This aligns with the Social Identity Theory's recognition of the role of positive intergroup contact in developing empathy, respect, and acceptance. By engaging in collaborative projects and working alongside students from different cultural backgrounds, students gain insights into the unique perspectives and experiences of their peers. This firsthand understanding of different cultures can lead to increased empathy, respect, and acceptance as students recognize and appreciate the challenges and strengths associated with different cultures.

Furthermore, co-curricular activities provide a platform for students to share their cultural traditions, customs, and values with their peers. This aligns with the Social Identity Theory's recognition of the importance of cultural exchange in shaping individuals' attitudes and behaviors. By actively engaging in cultural exchange within co-curricular activities, students can deepen their understanding of different cultural practices and develop a greater appreciation for the diversity within their school community.

Appreciating Diversity with Co-curricular Activities

The finding from question number 5 emphasizes that co-curricular activities have a positive impact on enhancing students' appreciation for diversity and cultural differences. This aligns with the Social Identity Theory as it recognizes the importance of positive intergroup contact in shaping individuals' attitudes and behaviors. By providing valuable opportunities for students to engage with diverse perspectives, traditions, and experiences, co-curricular activities foster a deeper understanding and respect for cultural diversity. The exposure to different cultural backgrounds and traditions within these activities allows students to actively engage with different cultures, breaking down barriers and promoting a sense of curiosity and appreciation for the richness of diversity.

Moreover, the finding suggests that through their involvement in co-curricular activities, students have the chance to explore and celebrate various cultural differences. This relates to the Social Identity Theory's emphasis on positive intergroup contact as a means to foster a greater appreciation for diversity. By participating in activities such as international clubs, cultural festivals, or language exchanges, students gain firsthand experiences and insights into different cultural practices and beliefs. These experiences enable students to develop a deeper

appreciation for the diversity that exists within their school community. Similarly, one interviewee said:

> *To the best of my understanding, co-curricular activities have played a significant role in enhancing my appreciation for diversity and cultural differences. Through my active participation in these activities, I have had the opportunity to engage with students from various cultural backgrounds, which has deeply enriched my understanding of different traditions and perspectives. By actively collaborating with peers from diverse cultural backgrounds in co-curricular activities, I have gained firsthand insights into their unique experiences and values. These interactions have broadened my perspective, challenged my assumptions, and fostered a genuine appreciation for the diverse tapestry of our world. Additionally, co-curricular activities often provide platforms for cultural showcases and exchanges. Through events, performances, and workshops, I have been able to immerse myself in the richness of different cultures, learning about their art, music, cuisine, and customs. These experiences have not only deepened my understanding of cultural diversity but also ignited a sense of curiosity and admiration for the uniqueness of each culture. Moreover, engaging with peers from diverse backgrounds in co-curricular activities has helped me break down stereotypes and overcome biases. By working together towards shared goals, I have come to appreciate the diverse strengths, talents, and perspectives that individuals from different cultures bring to the table. This has fostered an environment of mutual respect, empathy, and understanding.*
>
> (Interviewee number 10, December 2022)

The finding implies that co-curricular activities provide platforms for students to interact with peers from different cultural backgrounds. This aligns with the Social Identity Theory's recognition of the role of intergroup interactions in fostering empathy and cultural sensitivity. By collaborating on projects, participating in discussions, and sharing personal stories, students develop a broader perspective and a deeper understanding of cultural differences. This engagement promotes empathy and cultural sensitivity as students learn to recognize and value the unique contributions and perspectives of individuals from diverse backgrounds.

Furthermore, co-curricular activities often involve the exploration of art, music, literature, or cuisine from different cultures. This aligns with the Social Identity Theory's recognition of the role of cultural expressions in shaping individuals' attitudes and behaviors. The exposure to various forms of cultural expression within co-curricular activities cultivates a sense of wonder and appreciation for the diversity of human creativity. Students develop a broader worldview and a more nuanced understanding of the interconnectedness of cultures, fostering a sense of respect and admiration for cultural differences.

- RQ2: What are the potential barriers and challenges faced in implementing co-curricular activities for diversity management in Addis Ababa's secondary schools?

Table 3: Barriers and challenges faced in implementing co-curricular activities for diversity management

No	Items	N	Mean	SD
1	Lack of financial resources hinders the implementation of co-curricular activities for diversity management.	375	3.93	0.72

2	Limited availability of trained staff or facilitators poses a challenge to implementing co-curricular activities for diversity management.	375	4.11	0.61
3	Insufficient support or recognition from school administration and stakeholders is a barrier to the successful implementation of co-curricular activities for diversity management.	375	3.76	0.88
4	Cultural and societal norms create obstacles for implementing co-curricular activities that promote diversity management.	375	4.05	0.89
5	Limited awareness and understanding of the importance of diversity management among students, teachers, and parents present challenges to the implementation of co-curricular activities.	375	3.92	1.02
	Overall Average	375		

Financial Constraints

The finding from item number 1 suggests that a lack of financial resources can create disparities between different groups of students. Students from marginalized or economically disadvantaged backgrounds may face additional barriers in accessing or participating in these activities due to financial limitations. This can perpetuate existing inequalities and impact students' sense of group identity and inclusion within the school community, as outlined by the Social Identity Theory.

Moreover, the Social Identity Theory highlights the importance of positive intergroup contact in reducing prejudice and improving intergroup relations. Co-curricular activities for diversity management provide opportunities for students from different backgrounds to interact, collaborate, and learn from one another. However, the finding indicates that limited financial resources can restrict the scope and quality of these activities, reducing the opportunities for positive intergroup contact. This limitation hinders the potential of co-curricular activities to promote understanding, appreciation for diversity, and the development of inclusive attitudes among students, as suggested by the Social Identity Theory. One exemplary response is given by an interviewee as follows:

> *I have encountered the challenges posed by the lack of financial resources in implementing co-curricular activities for diversity management. As someone who values and appreciates diversity, I strongly believe in the power of these activities to foster inclusivity and understanding. However, the availability of adequate funding plays a crucial role in their successful execution. I have personally witnessed how limited financial resources can hamper the range and quality of co-curricular activities aimed at promoting diversity. Without sufficient funding, I have seen my school struggle to provide the necessary resources, such as materials, equipment, transportation, and venue rentals. This lack of resources significantly limits the types of activities that can be organized, thereby restricting students' exposure to diverse cultures and perspectives. Furthermore, the financial constraints often hinder the involvement of external speakers, performers, or experts who could contribute valuable insights and experiences to enhance diversity management efforts. I have seen instances where the school was unable to bring in these external contributors due to the associated costs, depriving students of valuable learning opportunities that could have deepened their understanding of different cultures. Moreover, the lack of financial resources can adversely affect the accessibility of co-curricular activities for students from marginalized backgrounds, including myself. I have personally experienced barriers to participation due to costs such as event fees,*

> *required uniforms, or specialized equipment. These financial challenges created obstacles that prevented me and others facing similar hardships from fully engaging in the activities, limiting our ability to benefit from the diversity management initiatives.*
>
> (Interviewee number 1, December 2022)

The Social Identity Theory recognizes that individuals derive their sense of self and identity from the groups they belong to. Co-curricular activities for diversity management aim to create an inclusive environment where individuals from different backgrounds feel valued, respected, and included. However, the finding suggests that the lack of financial resources hampers the implementation of these activities, resulting in limited or under-resourced programs. This limitation restricts the opportunities for students to engage in meaningful interactions with diverse peers and experiences, impacting their sense of group identity and inclusion, as emphasized by the Social Identity Theory.

To address this challenge, it is crucial for educational institutions, policymakers, and stakeholders to recognize the importance of allocating sufficient financial resources to support the implementation of co-curricular activities for diversity management, in line with the principles of the Social Identity Theory. By overcoming financial constraints and ensuring equitable access to diverse co-curricular activities, schools can promote inclusivity, reduce prejudice, and foster positive intergroup relations, as advocated by the Social Identity Theory.

Staff Shortage

The finding from item number 2 suggests that the limited availability of trained staff or facilitators poses a significant challenge to the implementation of co-curricular activities for diversity management. This challenge can be understood within the framework of the Social Identity Theory, which emphasizes the role of group dynamics in shaping individuals' attitudes and behaviors.

According to the Social Identity Theory, individuals derive their sense of self and identity from the groups they belong to. In the context of co-curricular activities for diversity management, the presence of trained staff or facilitators is crucial for creating an inclusive environment where students from different backgrounds can come together, learn from one another, and develop a sense of respect and appreciation for diversity. These trained professionals possess the knowledge and skills necessary to guide discussions, foster dialogue, and navigate potentially sensitive topics related to diversity, thereby promoting positive intergroup relations and reducing prejudice. The following is an exemplary finding from one of the interviewees:

> *The limited availability of trained staff or facilitators has posed a significant challenge in implementing co-curricular activities for diversity management. As someone who values the importance of fostering inclusivity and understanding, I have observed firsthand how the success of these activities depends on the expertise and guidance provided by trained professionals. However, I have often encountered a shortage of staff or facilitators who possess the necessary knowledge and skills to effectively lead these initiatives. This scarcity has hindered the organization and sustainability of impactful activities that promote appreciation for diversity. Without the support and guidance of trained staff or facilitators, I have found that the full potential of co-curricular activities for diversity management may not be realized,*

> *limiting students' opportunities to engage meaningfully with diverse perspectives and cultures.*
>
> (Interviewee number 3, December 2022)

The finding suggests that the scarcity of trained staff or facilitators hampers the successful implementation of co-curricular activities. Without their expertise, the activities may lack the necessary guidance and facilitation to address the complexities of diversity management effectively. This limitation can undermine the development of inclusive attitudes and the promotion of intergroup understanding and appreciation, as advocated by the Social Identity Theory.

Furthermore, the Social Identity Theory highlights the importance of positive intergroup contact in reducing prejudice and improving intergroup relations. Trained staff or facilitators play a crucial role in facilitating meaningful interactions between students from diverse backgrounds during co-curricular activities. Their presence and guidance can create a safe and inclusive environment where students feel comfortable expressing themselves, sharing their experiences, and engaging in critical conversations about diversity. However, the finding indicates that the limited availability of trained personnel restricts the opportunities for positive intergroup contact, potentially hindering the goals of diversity management.

To address this challenge, it is essential to invest in training programs and professional development opportunities for staff and facilitators, aligning with the principles of the Social Identity Theory. By equipping them with the necessary knowledge, skills, and tools, educational institutions can enhance the effectiveness of co-curricular activities in promoting understanding, respect, and appreciation for diversity. Additionally, collaborations with external organizations, partnerships with community leaders, or utilizing existing resources within the school community can help expand the pool of trained staff or facilitators, facilitating a more comprehensive approach to diversity management.

Support Challenges

The finding from number 3 suggests that insufficient support or recognition from school administration and stakeholders poses a significant barrier to the successful implementation of co-curricular activities for diversity management. This challenge can be understood within the framework of the Social Identity Theory. In the context of co-curricular activities for diversity management, the support and recognition from school administration and stakeholders are crucial for creating an inclusive environment where students can develop a positive social identity that values diversity. Diversity management involves creating an environment that values and celebrates the diversity of individuals and cultures. Co-curricular activities serve as a means to achieve this by providing opportunities for students to engage with diverse perspectives, experiences, and backgrounds. However, the finding indicates that without adequate support or recognition from school administration and stakeholders, the potential impact of these activities may be hindered.

According to the Social Identity Theory, individuals derive their sense of self and identity from the groups they belong to. When individuals perceive that their social group's identity is valued and supported, they are more likely to engage in behaviors that align with that identity. In the context of co-curricular activities, the support and recognition from school administration and

stakeholders signal that diversity management is an important aspect of the school's identity, encouraging students to actively participate and support these activities. Similarly, one of the interviewees said:

> *There is the barrier of insufficient support or recognition from school administration and stakeholders when it comes to implementing co-curricular activities for diversity management. I have witnessed how the success of these activities heavily relies on the backing and involvement of key decision-makers and influential stakeholders within the school community. However, I have often faced challenges in receiving the necessary resources, attention, and support for these initiatives. The lack of support may manifest in limited funding, inadequate time allocation, or a lack of prioritization within the school's overall agenda. This lack of recognition and support has hindered the planning, organization, and execution of co-curricular activities aimed at promoting diversity and fostering inclusion. Without the commitment and endorsement of school administration and stakeholders, I have found that these activities struggle to gain momentum and may not have the desired impact on enhancing students' understanding, appreciation, and celebration of diverse cultures and perspectives.*
>
> (Interviewee number 5, December 2022)

The finding suggests that the lack of support or recognition may lead to a mismatch between the school's espoused identity and the perceived identity by students. If diversity management and co-curricular activities are not seen as priorities by school administration and stakeholders, students may perceive them as less important or optional, reducing their motivation to participate. To address this challenge, it is crucial for school administration and stakeholders to recognize the significance of diversity management and its integration into co-curricular activities, aligning with the principles of the Social Identity Theory. This can be achieved through awareness campaigns, professional development opportunities, and ongoing dialogue to foster a shared understanding of the benefits of promoting diversity and inclusion. Additionally, involving students in the decision-making process and seeking their input can help create a sense of ownership and increase their motivation to engage in co-curricular activities for diversity management.

Cultural Obstacles

The finding from item number 4 suggests that cultural and societal norms create obstacles for implementing co-curricular activities that promote diversity management in secondary schools in Ethiopia. These cultural and societal norms, which encompass traditions, beliefs, and values held within the Ethiopian context, may pose challenges to the successful integration of co-curricular activities aimed at fostering diversity, inclusion, and understanding.

In the context of the Social Identity Theory, cultural and societal norms play a significant role in shaping individuals' social identities and behaviors. These norms provide a framework for how individuals perceive themselves and others within their social groups. In the case of co-curricular activities for diversity management, cultural and societal norms influence the formation of students' social identities and their attitudes towards engaging in activities that promote diversity.

One potential challenge is the prevalence of traditional gender roles and expectations in Ethiopian society. Cultural norms may assign specific roles and responsibilities based on gender, which can limit opportunities for students to engage in co-curricular activities that promote diversity management. Certain activities may be perceived as more suitable for boys or girls, leading to gender disparities in access and participation.

Religious and cultural practices also shape the implementation of co-curricular activities. Ethiopia's diverse religious landscape, with Christianity and Islam as major religions, influences the norms and boundaries of certain activities. Cultural and religious norms may restrict the scope or content of diversity management initiatives, hindering the exploration of diverse perspectives and challenging societal norms.

Moreover, social hierarchies and power dynamics within Ethiopian society can impact students' willingness and ability to engage in co-curricular activities that promote diversity management. Students may face pressure to conform to prevailing societal expectations, limiting their motivation to explore diverse perspectives or engage in conversations that challenge the status quo. The following qualitative interview response is exemplary:

> *I have seen challenges in implementing co-curricular activities that promote diversity management due to cultural and societal norms. These norms often reinforce stereotypes, biases, and resistance to change, making it challenging to introduce and sustain activities that challenge the status quo. Cultural and societal expectations can limit the topics that can be discussed and restrict open dialogue about sensitive subjects related to diversity. Moreover, these norms discourage individuals from stepping out of their comfort zones and engaging with people from different backgrounds, hindering participation and genuine exchange of ideas. Overcoming these obstacles requires a deliberate effort to challenge cultural and societal norms, promote inclusivity, and educate individuals about the benefits of diversity. By fostering a culture of acceptance and respect, co-curricular activities can play a crucial role in breaking down these barriers and promoting effective diversity management.*
>
> (Interviewee number 7, December 2022)

The finding implies that, according to Social Identity Theory, the cultural and societal norms significantly impact the implementation of co-curricular activities aimed at promoting diversity management. Social Identity Theory posits that individuals derive a sense of identity and self-esteem from their membership in social groups, and these groups are guided by established norms and expectations. In the context of diversity-focused co-curricular activities, the prevailing cultural and societal norms act as barriers by influencing individuals' perceptions of their own group and other groups.

These norms can reinforce ingroup biases and stereotypes, making it challenging for individuals to engage in activities that challenge or deviate from the established norms. The fear of social identity threat or the risk of being seen as disloyal to their cultural or societal group can discourage individuals from actively participating in such activities. Furthermore, cultural and societal norms often promote conformity, resulting in individuals feeling pressure to align with the dominant norms and values of their culture or society. This conformity can discourage exploration of diverse perspectives and limit engagement in activities promoting diversity management.

Limited Awareness

The finding from number 5 suggests that limited awareness and understanding of the importance of diversity management among students, teachers, and parents present challenges to the implementation of co-curricular activities in the secondary schools of Ethiopia. The lack of awareness and understanding about the significance of diversity management can hinder the successful integration of co-curricular activities aimed at fostering inclusivity, understanding, and appreciation for diversity.

When examining these challenges through the lens of the Social Identity Theory, it becomes evident that individuals' social identities and group memberships influence their attitudes and behaviors. In this case, limited awareness and understanding of diversity management among students, teachers, and parents can affect their social identities and, consequently, their engagement with co-curricular activities promoting diversity.

Limited awareness among students can result in a lack of interest or motivation to participate in co-curricular activities that promote diversity management. Without a clear understanding of the benefits of engaging with diverse perspectives and addressing issues such as discrimination, bias, or exclusion, students may not recognize the value of these activities. As a result, they may be less inclined to actively engage in initiatives that aim to foster inclusivity and understanding.

Similarly, teachers may face challenges in implementing co-curricular activities for diversity management due to limited awareness and understanding. Teachers play a crucial role in guiding and facilitating these activities, but if they lack awareness of the importance of diversity management, they may not prioritize or effectively integrate them into their teaching practices. This can lead to missed opportunities for creating inclusive learning environments and promoting cross-cultural understanding among students.

Moreover, limited awareness and understanding among parents can pose obstacles to the successful implementation of co-curricular activities. Parents significantly influence their children's educational experiences, and if they are not aware of the importance of diversity management or fail to understand its benefits, they may not actively support or encourage their children's participation. This lack of support can limit the resources, engagement, and overall impact of co-curricular activities. Similarly, one of the interviewees said,

> *There are obstacles in implementing co-curricular activities that promote diversity management due to the limited awareness and understanding of its importance among students, teachers, and parents. When individuals are not fully aware of the significance of diversity management, they may not prioritize or actively engage in these activities. This lack of awareness can result in reduced enthusiasm, limited participation, and a diminished impact of the co-curricular initiatives. To address these challenges, I have taken proactive measures to raise awareness and enhance understanding among all stakeholders. By organizing informational sessions, workshops, and discussions, I aim to educate students, teachers, and parents about the benefits of diversity management. Through these efforts, I hope to foster a more inclusive environment and encourage active participation in co-curricular activities that promote diversity management.*
>
> (Interviewee number 9, December 2022)

To address these challenges using the Social Identity Theory, it is crucial to enhance awareness and understanding of diversity management among students, teachers, and parents. By providing targeted educational campaigns, workshops, and awareness programs, schools can highlight the benefits of diversity, inclusivity, and understanding. These initiatives can help shape students' social identities by fostering a sense of belonging and appreciation for diversity, leading to increased motivation to participate in co-curricular activities promoting diversity management.

Engaging with parents and the wider community through open dialogues, cultural events, and collaborative initiatives is also essential. By involving parents in discussions and activities related to diversity management, schools can create a supportive environment that encourages their active involvement and support for co-curricular initiatives. This can help shape parents' social identities by emphasizing the importance of diversity and its positive impact on their children's education.

Additionally, integrating diversity management into the curriculum and providing professional development opportunities for teachers can enhance their understanding and capacity to implement co-curricular activities effectively. By equipping teachers with the necessary knowledge and skills, they can serve as advocates for diversity management and provide guidance and support to students, further strengthening their social identities aligned with the value of promoting diversity.

CONCLUSION

The aim of this study was to investigate the contribution of co-curricular activities to diversity management in Ethiopian secondary schools, specifically in the context of Addis Ababa. The study addressed the following two primary research questions: 1) To what extent do co-curricular activities contribute to diversity management in Addis Ababa's secondary schools? and 2) What are the potential barriers and challenges faced in implementing co-curricular activities for diversity management in Addis Ababa's secondary schools?

The evidence from secondary schools in Addis Ababa, Ethiopia suggests that co-curricular activities were useful for diversity management. These activities contributed to fostering diversity, inclusion, and understanding among students, aligning with the principles of social identity theory. The extent to which co-curricular activities contributed to diversity management in Ethiopian secondary schools depended on various factors, including the design, implementation, and engagement levels of these activities.

When properly planned and executed, these activities provided opportunities for students to interact with peers from diverse backgrounds, engage in dialogue, and develop empathy and respect for different cultures, values, and perspectives. This aligns with social identity theory, which posits that individuals derive a sense of identity and self-esteem from the groups they belong to. By engaging in co-curricular activities that facilitate positive intergroup contact, students had the opportunity to transcend their in-group biases, form cross-cultural friendships, and build a shared identity that encompasses diversity.

However, the implementation of co-curricular activities for diversity management in Ethiopian secondary schools faced potential barriers and challenges. Limited awareness and understanding of the importance of diversity management among students, teachers, and parents hindered the

effectiveness of these initiatives. Additionally, cultural and societal norms reinforced stereotypes, biases, and resistance to change, making it challenging to introduce and sustain activities that challenged the status quo. These barriers can be understood through the lens of social identity theory, which highlights the role of social categorization, in-group favoritism, and intergroup conflict in shaping attitudes and behaviors.

To address these obstacles, efforts were made to raise awareness, challenge norms, promote inclusivity, and educate stakeholders about the benefits of diversity. By acknowledging and addressing the social identity processes at play, such as the need for positive distinctiveness and the role of social comparison, interventions were designed to foster a sense of shared identity that transcended individual group affiliations. This approach aimed to reduce intergroup biases and promote a collective recognition of the value of diversity.

By addressing these challenges and promoting a culture of inclusivity and understanding, co-curricular activities played a significant role in fostering diversity management in Ethiopian secondary schools, leading to more inclusive and harmonious educational environments. The findings of this study provide valuable insights into the potential of co-curricular activities as a tool for managing diversity in educational settings, aligning with the principles of social identity theory.

One gap that could be explored further by future researchers is the long-term impact and sustainability of co-curricular activities for diversity management in Addis Ababa's secondary schools. While this report highlights the positive contributions of such activities, it would be valuable to examine the lasting effects on students' attitudes, behaviors, and perceptions over an extended period. Additionally, investigating the factors that facilitate or hinder the sustained implementation of these activities, such as institutional support, teacher training, and community involvement, would provide insights for designing effective and enduring diversity management programs. Understanding the long-term impact and sustainability of co-curricular activities would enhance our knowledge of their effectiveness and guide the development of evidence-based practices in promoting diversity and inclusion in educational settings, taking into account the complex dynamics of social identity processes.

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 48-75

Problems and Challenges of Quality Education in Ethiopian Higher Education Entrance Exams: A Case Study in Dire Dawa

B. S. Goshu[1], E. Abas[2], Tewodros Misganaw[1], & Melaku Woldeamanuel[3]

1. Department of Physics Dire Dawa University
2. Dire Dawa Education Bureau
3. Department of Chemistry Dire Dawa University

Abstract:
This study aims to investigate the problems and challenges of quality education in the Ethiopian higher education entrance exam in Dire Dawa. The National Educational Entrance Examination results from the past six years were used in administrative secondary schools located in rural areas to illustrate the trend in academic achievement in science and mathematics. Data from student and teacher surveys and a trend analysis of academic performance on entrance exams between 2017 and 2022 are the foundation of this study. The study utilized structured questionnaires and a random sample method to gather basic information. The results revealed that science and mathematics performance in secondary schools under the Dire Dawa administration is primarily due to inadequate quality teaching, inadequate resources and methods for learning and teaching students, and their negative attitudes towards science and mathematics. The data indicated that the most common causes of insufficient performance were the science and mathematics teaching techniques employed by instructors, a scarcity of reference materials, and well-equipped laboratories. Instructors must receive frequent in-service training to become acquainted with the latest digital and contemporary pedagogical strategies for teaching science and math. Based on the slant investigation, there's anticipated to be an advancement in scholarly accomplishment between 2017 and 2022. The most significant impediments to students' academic admission to the institution were school attendance (71.4%), self-study hours per week (70.9%), and language (68.8%). Seventy-six percent of those polled stated that their ability to succeed on the admission exam was hampered by the educational setting. Cheating is widespread from elementary through high school, according to 92% of those polled. The teachers were not assigned according to their specialization. For example, you may have an engineering degree but teach math, physics, or chemistry. To improve the quality of education, we can build school communities in which all stakeholders come together to share ideas, challenges, and solutions within a cross-sectional learning framework.

Keywords: academic, achievement, entrance examination, school, science, mathematics, cheating.

INTRODUCTION

The aim of education is to prepare children for the talents, attitudes, and skills they will need throughout their lives. Teachers must be able to fully utilize students' intelligence, emotional attitudes, and abilities during the learning process in order for these traits to develop [1, 2]. Therefore, instilling values like honesty, integrity, respect for others, and hard effort is one of the objectives of education and training. In this respect, quality education contributes to quality labor production as opposed to all kinds of discipline, such as academic misconduct. According to [1,

3], unethical behavior can occur before, during, and after testing. It is made possible with the help of teachers and supervisors, the smuggling of illegal materials, and the cooperation of candidates through photocopying [1].

Exam design, preparation, security, and administration help promote social cohesion. These characteristics have been utilized to ensure fair talent selection, promote trust in government institutions, and improve the overall functioning of the school system. The Ministry of Education issued a curriculum overhaul in December 2010, emphasizing the change from objectives to competency-based education. Even if the national curriculum switches on a competency-based approach, the examination system will still measure cognitive skills exclusively. Consequently, it is problematic to connect national exams with the curriculum. However, in the Ethiopian education system, quality control is mainly concerned with reviewing, monitoring, and regulating schools. These indicators are valuable for gathering data on policy execution, strategic planning, and accountability. However**,** there are limits **to** adapting teaching and learning processes to meet specific goals. In 2022, the government altered its approach to grade 12 admission examinations. The Ministry assumed the burden of transporting and feeding all students to the nearest institution to take exams. The 2022 Ministry of Education's measures were insufficient to address these issues. It was merely a temporary treatment for a limited time. In partnership with higher education, the government should study the root cause of this problem. Every effort has been made to highlight this discrepancy in this study**.**

Statement of the Problem

Over the past two decades, performance in science and mathematics subjects in secondary schools in Ethiopia has worsened; this pattern implies a rapid decline in academic accomplishment in science and mathematics topics, particularly in secondary schools. The Ministry of Education is committed to adhering to the procedures in place to combat fraud in 2022. The first chief step was to relocate the examination centers. According to a report by the Ministry of Education, only 8.6%, or 22,936 students, scored 50% or above of the 340,00 students who took the exams in six subjects from the natural science stream. On the other hand, many studies on quality education in Ethiopia have found that poor student performance is due to a lack of enthusiasm, motivation, and support. Similarly, substandard education is observed at all school levels in the country [4, 5]. However, these studies do not show challenges beyond students' misconduct experiences. Failures in science subjects may result in a shortage of science experts such as doctors, engineers, and teachers. As a result, there is a need to investigate the root causes of poor performance in science and mathematics and possible solutions. This study explores the factors that influence students' science and mathematics performance**.** They addressed middle school cheating on national entrance exams under the Dire Dawa Administration.

Objectives of the Study

The present study has two main objectives. First, we investigated academic achievements from 2017 to 2022 in the Ethiopian National Higher Education Entrance Examination in the Dire Dawa administration. Secondly, to analyze the leading causes of students diverting to cheating and their failures in national higher education entrance exams.

The specific objectives of this study are:

- What is the trend in high school academic performance in science and mathematics under the Dire Dawa administration from 2017 to 2022?

- What factors contributed to poor science and mathematics performance in secondary school national entrance exams during 2017–2022 academic year?
- What are the proposed possible measures for improving students' science and mathematics performance in the Dire Dawa administration?

Research Questions

The research questions in this study are listed below:

- What has been the trend in high school academic performance in science and mathematics under the Dire Dawa administration from the 2017 - 2022?
- What factors contributed to poor science and mathematics performance in secondary school national entrance exams during 2017 - 2022 academic years?
- What are the proposed potential measures to improve students' science and mathematics performance in the Dire Dawa administration?

Significance of the Study

The findings of this study may benefit the Dire Dawa City Education Bureau and the Federal Ministry of Education in developing various strategies for teaching and learning science subjects in secondary schools. Moreover, these findings are helpful to the Education Bureau, managers, administrators, and teachers because they highlight the factors influencing poor performance in secondary school science and mathematics. Individuals, students, researchers, organizations, and institutions use the study's findings because they provide information on potential variables influencing low performance in the science and mathematics disciplines.

Operational Definition of Terms

- Academic achievements are the outcome of education on the extent to which a student, teacher, or institution has achieved their grades.
- Extraneous variables are those that can alter or change academic performance. When these variables come between the independent and dependent variables, they can be the dependent variables.
- Influencing factors: A lack of qualified teachers, a lack of teaching materials, inappropriate teaching methods, lack of motivation, tradition, and customs, and the difficulty of science subjects.
- School education is divided into four sections. There are two academic years in pre-primary, four academic years in primary (forms 1-6), two academic years in middle (forms 7-8), and four academic years in secondary school (from 9–12).
- Science subjects deal with the structure of the natural and physical worlds based on facts discovered through experimentation, observation, and theory development. Physics (Phy), chemistry (Che), biology (Bio), and mathematics for the natural science stream (NMa) are among the science subjects taught in Ethiopia.
- Performance: An academic certificate is always issued to show that the performer has attained the stated grades [6].
- Poor performance: It is an unsatisfactory examination result. The letter F, which ranges from 50 to 0, denotes poor performance.
- Qualifications: Teacher qualifications are a collection of requirements that employers look for when hiring for teaching publish, such as a diploma, BA/BSc, or MA/MSc

- School environment: It includes physical surroundings such as classrooms, class size, temperature, how dark or light it is, the arrangement of chairs, noise, and the school compound and its neatness.
- Teaching method refers to general ideas, pedagogy, and managerial tactics utilized in classroom instruction.

LITERATURE REVIEW

According to [7], students, teachers, government officials, testing bodies, and parents are all caught up in the network of corruption. Students who prepare for exams and want to get good grades at any cost are offenders. Some provide monetary incentives to invigilators in exchange for allowing them to enter the examination hall with programmed or web-based mobile tablets and phones.

Academic achievement or performance, according to [8], is a component of a student's entire conduct. It is the outcome of the student`s interactions with his surroundings, including his school, teachers, parents, and peers. Academic performance shapes a student's notions by informing him of how others view him and how he perceives himself in comparison to others [8]. Contextual, emotional, and motivational factors are among the theoretical factors that influence student achievement in national educational assessments and examinations [9-10, 11]. These factors include both external and internal factors of school. Internal school factors include socioeconomic status and parental involvement, while external factors include the availability of school resources and the quality of teachers. You can learn science and mathematics both inside and outside the classroom because they are human activities involving the study and interpretation of the natural world. The role of parents in providing tutoring and materials, encouraging students to study science and mathematics, and emphasizing the application of science and mathematics in everyday life helps students achieve higher levels of achievement. Parents significantly affect their children's science learning [11–13]

School is essential for all aspects of child development [14]. Many educational reformers believe that improving schools is vital to improving student achievement. Therefore, many school reform efforts focus on material resources, expanding access to textbooks, technology, and support materials, and establishing equitable funding methods.

According to education researchers and policymakers, teacher quality varies and is significant for student achievement [11, 15]. Education is a teacher-driven industry. Improving the quality of teachers is therefore an important tool for improving the academic performance of students. According to [16], improving teacher quality can be an imperative tool for improving student performance [11].

According to [17], trainer quality indicators fall into four categories. The qualifications, characteristics, practices, and effectiveness of teachers as evidenced by the academic success of their students. According to [18], teachers' professional qualifications influence the performance of secondary school students.

According to the definition of education, it is a never-ending process that aims to effectively bring desired changes in students [19]. [20-21] argue that in order to affect the desired change in students, a teacher's teaching strategy must be subject-appropriate.

Academic fraud is also known as cheating [22]. Furthermore, academic misconduct entails deceiving or harming others through trickery, fraud, deception, or deception [23]. Academic misconduct is defined as a student's behavior that deceive misleads, or causes a teacher to doubt the literary work presented by the student [24]. It characterizes a student's attempt to exist the academic work of others as his own. Examples include cheating on a test (asking a colleague for help), copying other students' work, collaborating with other students, and using unauthorized materials during an exam [25–26].

A leaked exam question can be copied numerous times in trustworthy copy shops and distributed to a wide range of organizations that are willing to provide answers. In our case, a few moderators immediately if copies of the tests. Several different actors are involved in this task. Candidates had to covertly bring their cell phones into the room and reproduce their answers while avoiding surveillance. When the students entered the exam room, they already had a scattered response in their hands. No one double-checked if the answers were correct. Teacher collaboration includes creating conditions for meetings and providing opportunities for communication, sharing ideas, joint planning, and peer support. These are necessary to reach a consensus on important educational and organizational issues [26–30]. Finally, school ethos refers to the norms, values, and beliefs that permeate schools and manifest in how teachers and students interact with and relate to each other [26, 31–32].

MATERIALS AND METHODOLOGY

Study Design

The study was conducted in the Dire-Dawa administration from March to May 2023. In the study, a cross-sectional survey was used. The dependent variable in this study was students' performance in science and mathematics, collected from national higher education entrance examination results from 2017–2022 and a questionnaire to supplement the required data, according to [33]. The questionnaire provides information such as student background such as gender, age, mother and father's education level, average score, and factors in science subjects (biology, chemistry, and physics) on the 2022 National Entrance Examination that affect their academic performance.

Sample Size

394 students from Dire Dawa's first year were chosen for the study using a targeted sample. The sample size was calculated using [34-36].

$$n = \frac{z^2 p(1-p)}{\sigma^2} \quad (1)$$

where n is the sample size, $z = 1.96$ is the 95% confidence interval critical value, 0.05 is the marginal error, and p is the sample proportion. Thus, data were collected from 200 first-year students and 194 remedial students from the 2023 batch. Data were collected from 88 secondary school science teachers from 12 high schools under the Dire Dawa administration.

Data Source and Instrument

The following data sources and data collection instruments were used to collect relevant information about students' science and mathematical performance:

- The Dire Dawa Education Bureau provided the results of students' National Educational Assessment and Examinations (N.E.A.E.R.) 2017-2022.

- Two sets of well-structured and self-administered questionnaires were used: one for students to assess their attitude toward science and mathematics. and
- The other teachers to learn about the difficulties they faced in their classrooms regarding to the student's achievement in these subjects [37].

Procedure for Data Collection

Participants who agreed to participate in the study were given a summary of the research objectives. The researchers collaborated with some subject teachers to plan 15-20 minutes of class time for students to complete the survey questionnaire.

Methods of Data Analysis

Tables, charts, scatter plots, and line graphs were used to arrange and display quantitative data. On the other hand, qualitative information gathered from open-ended questions was documented while taking into account the most pertinent and frequently forwarded inquiries. Students and teachers completed the questionnaires in separate sessions using S.P.S.S. Version 22. Trends in student academic performance are examined using Python 3.10.

RESULTS AND DISCUSSIONS

The research was aimed at examining the causes of poor performance in the National Higher Education Entrance Examination (NHEEE) results of secondary school students in the Dire Dawa administration. This chapter focuses on evaluating, presenting, and interpreting data collected from respondents through surveys, interviews, trends, and document analysis.

Results

Trend Analysis:

Males made up 58.0%, 55.64%, 50.69%, 57.32%, 50.56%, and 50.03% of natural science students who took the National Higher Education Entrance Examination in 2017, 2018, 2019, 2020, 2021, and 2022, according to Table 1. In 2017, 2018, 2019, 2020, 2021, and 2022, the proportion of female students was 42.0%, 49.63%, 49.31%, 42.68%, 49.44%, and 49.97%, respectively.

Table 1: The total number of students who sat the National Higher Education Entrance Examination in the natural science stream from 2017-2022 in terms of gender.

Years	Male	Female	Total
2017	790	372	1162
2018	528	471	999
2019	589	573	1162
2020	560	417	977
2021	636	622	1258
2022.	722	721	1443

Figure 1 depicts the total number of the students who took national education entrance examinations in the Dire Dawa administration between 2017 and 2022. These statistics show that 53.9% of students were male and 46.1% were female.

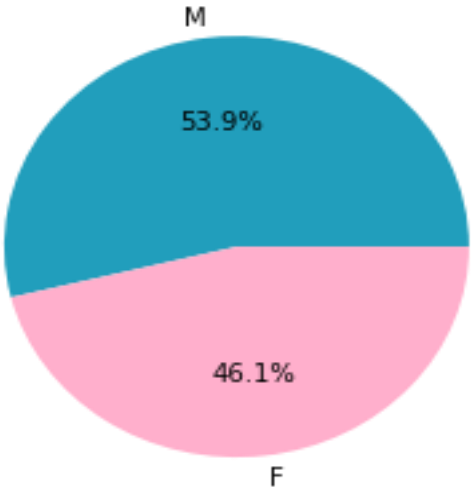

Figure 1: Gender distribution of students who sat the National Higher Education Entrance Examination in natural science from 2017 to 2022.

Table 2 shows the highest, lowest, average, and standard deviation of national college entrance exams from 2017 to 2022. It shows the overall results of 90 scores in biology, chemistry, mathematics, and physics from 2019 to 2022. The highest score in Physics in 2022 was 87. In 2017-2018, Biology received the highest marks and mathematics received the lowest marks in 2017-2022,

Table 2: displays the academic performance of students taking the National Higher Education Entrance Examination in the natural science stream from 2017 to 2022.

Items	Years	Mathematics	Biology	Chemistry	Physics
Max	2017	77	92	81	72
	2018	80	89	88	86
	2019	94	91	85	92
	2020	90	90	90	96
	2021	94	94	90	93
	2022	94	90	91	87
Min	2017	9	0	0	10
	2018	14	0	0	0
	2019	11	12	15	9
	2020	0	14	0	0
	2021	11	15	0	10
	2022	9	0	0	0
Mean	2017	37.74	59.04	48.21	36.98
	2018	41.33	52.69	48.36	43.55
	2019	36.34	35.96	45.2	51.72
	2020	50.39	52.7	52.84	47.36
	2021	44.91	60.14	62.45	51.54
	2022	33.35	31.49	35.94	28.96
Std	2017	13.56	16.80	13.50	10.89
	2018	14.23	14.92	13.76	15.17
	2019	12.64	15.88	11.6	11.42
	2020	16.99	16.95	16.67	15.55
	2021	17.32	18.2	18.13	17.68
	2022	13.43	10.94	14.00	9.63

In 2017 and 2018, the minimum score in biology and chemistry was zero, whereas it was higher in mathematics and physics. The average grade was less than 50 in mathematics, biology, and chemistry. On the other hand, the score in physics were greater than 50. The average in mathematics, biology, and chemistry was greater than 50 in 2020. It was less than 50 in physics. Biology, chemistry, and physics scored higher in 2021, whereas mathematics was lowest. In 2022, the average in mathematics, biology, chemistry, and physics was less than 40.

Table 3 shows the overall academic performance of science students in NHEEE from 2017 to 2022. Chemistry, Mathematics, and Physics averaged less than 50 points. However, Biology scored over 50 points. The passing grades in science and math were all zeros. Physics and Mathematics scored similar percentiles of 25%. Chemistry and Biology had the same 25th percentile as Math and physics. Additionally, the 75th percentile for mathematics and physics was lower than for chemistry and biology. The best score over six years was 91 or higher, with an overall average of 91.8% in science and mathematics.

Table 3: The overall academic performance of students in the NHEEE in science and mathematics subjects from 2017–2022

Items	NMa	Phy	Che	Bio	total score (%)
mean	40.13	40.17	48.36	50.77	44.86
Std	15.63	15.62	17.01	18.74	13.93
min	0	0	0	0	0
25%	28	28	34	34	33.5
50%	37	36	48	51	44.2
75%	51	50	61	66	54.5
max	95	94	91	96	91.8

Figure 2 illustrates the mathematics grades received by natural science students in the NHEEE from 2017 to 2022. It highlights each year's achievements in mathematics subject scores for pupils. The lowest score was recorded in 2022, according to the density curve illustrated in Figure 2. Furthermore, the pattern indicates that students fared better in math in 2021 than in 2022. The trend analysis of students' mathematics grades from the National Education Certificate test, presented in Figure 3, shows that most students scored below the passing mark line of 50 points.

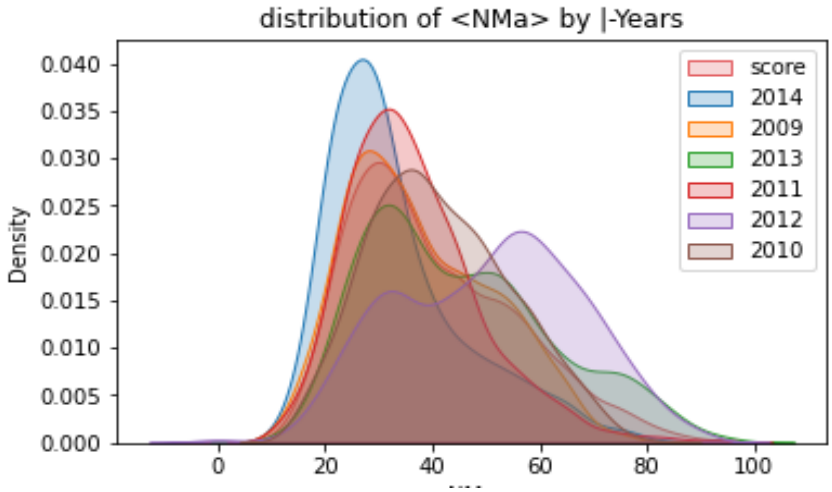

Figure 3: Natural science students achieved the density curve of mathematics grades from 2017 to 2022.

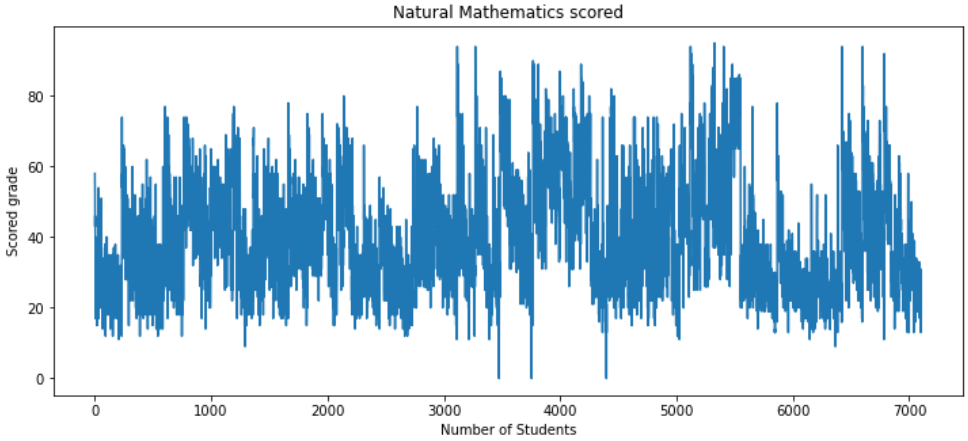

Figure 4: The trend analysis of mathematics grades achieved by Natural and science students from 2017-2022.

Figure 4 shows the density curve for biology scores obtained by students of natural sciences on national entrance exams for higher education from 2017 to 2022. It demonstrates that student performance between 2017 and 2021 had higher relative grades than in 2022. In comparison to the previous three years, the student's performance on the national education entrance exam in 2022 was at its lowest. It was a result of the new tactics used by the Ministry of Education.

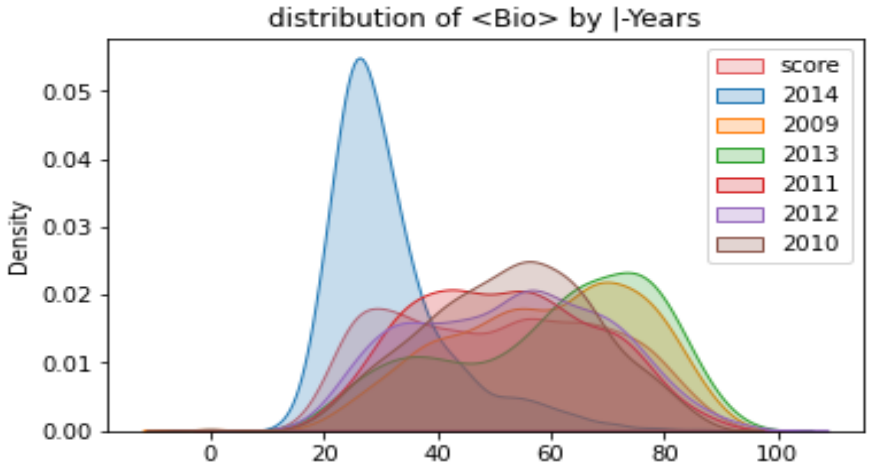

Figure 4: The density distribution curve of biology grades achieved by natural science students in the National Higher Education Entrance Examination from 2017 to 2022.

Similarly, Fig. 5 depicts the students' grades in biology. As shown in Fig. 4, the grade point average of most students in Fig. 5 was higher than the passing mark of 50. It was only valid between 2019 and 2021. However, the grade in the national education leaving examination in 2022 was the lowest.

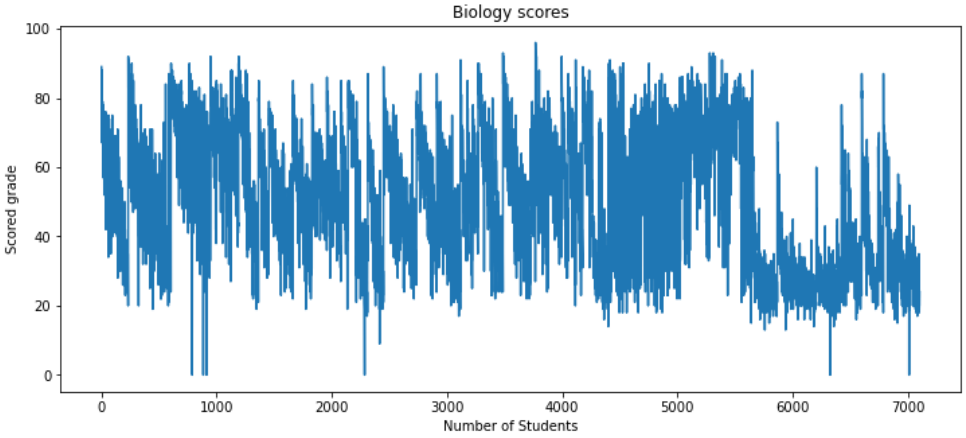

Figure 5: The National Education Leaving Examination results of biology subjects from 2017 to 2022

The results of the 2017–2022 National Education Leaving Test are shown in Figure 6, along with the grades received in chemistry. The results show that students' grades fluctuate dramatically over time. In comparison to the years 2019-2020 and 2022, students received the highest in 2021. It was due to cheating. Cheating, according to our observations, peaked in 2021 and subsequently declined in 2022, owing in part to the relocation of the exam center to the university campus.

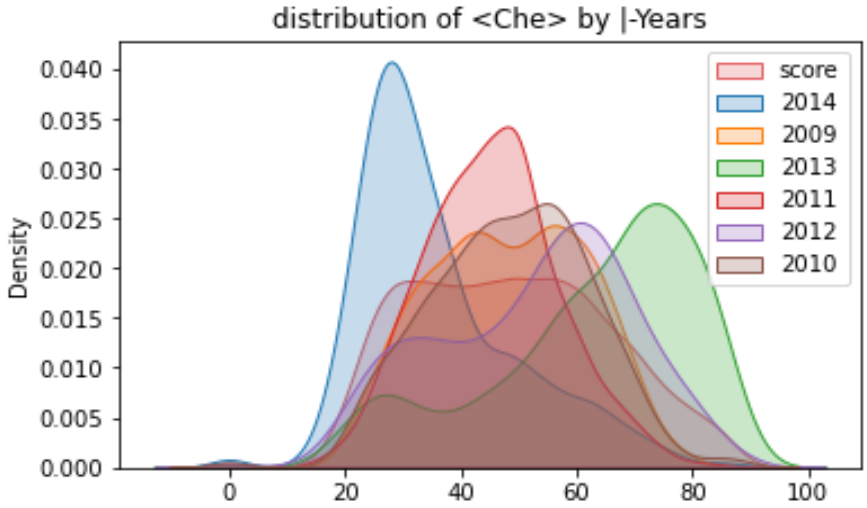

Figure 6: The density distribution curve of chemistry grades achieved by natural science students from 2017–2022.

Figure 7 depicts the trend analysis of chemistry for the national higher education entrance test for the 2017-2022 academic year. Similarly, the 2021 grade was higher than the previous two years and the 2022 academic year.

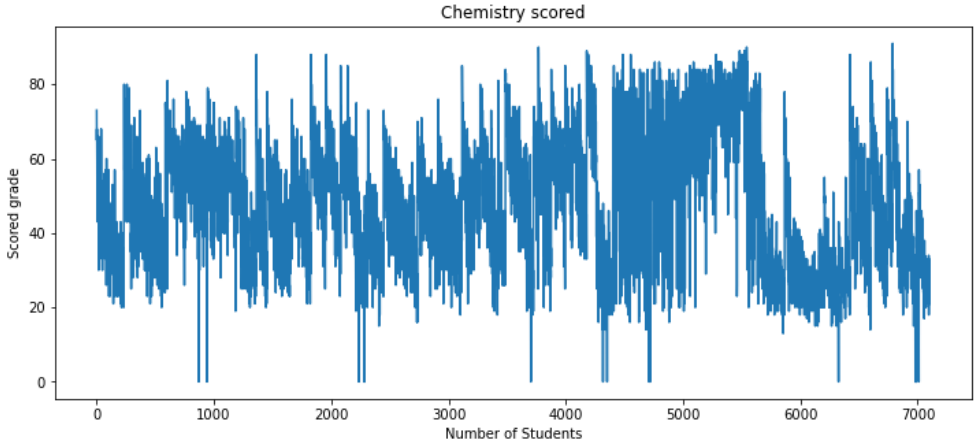

Figure 7: Trend analysis of chemistry scores in the natural higher education entrance examination by natural science students from 2019–2022.

Figure 8 illustrates the density distribution curve of natural science students' physics results in the national higher education entrance test from 2017–2022. This subject's results were lower than those of other scientific disciplines, as seen in Fig. 8.

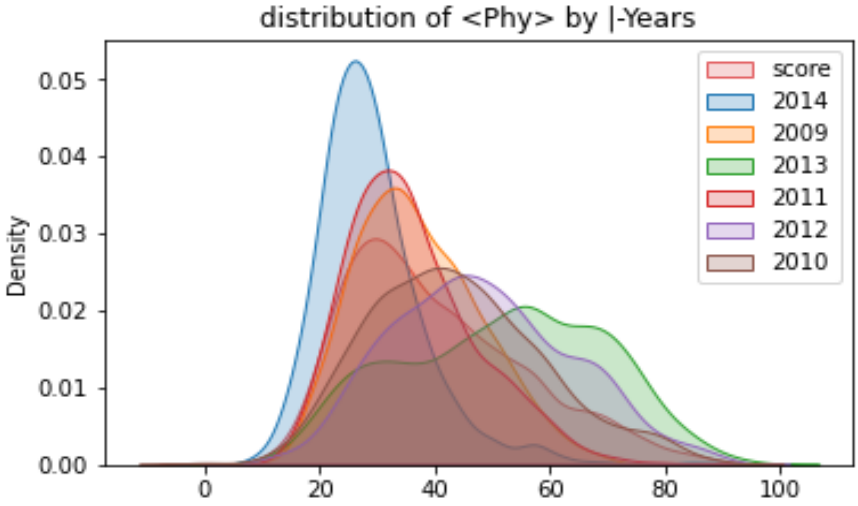

Figure 8: Physics density distribution acquired by natural science students between 2017 – 2022

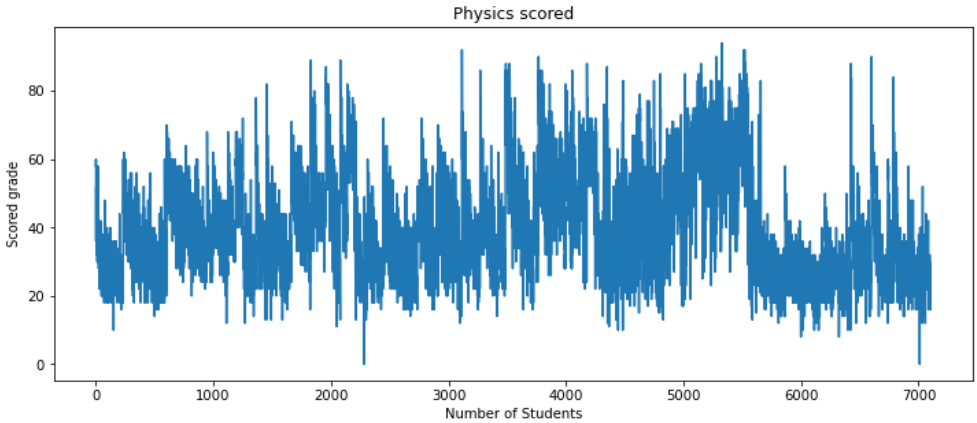

Figure 9: Trend analysis of physics achieved in the national higher education entrance examination by natural science students from 2017–2022.

Figures 2, 4, 6, and 8 depict the grade density curve's development. Students' grades from 2017 to 2021 were greatly exaggerated when compared to the 2022 academic year. It was due to the fact that all students took national examinations for higher education on campus, with university faculty serving as the examiners. The federal government developed a new strategy to deal with widespread cheating. Only 3.3% of the 888,116 students who took the entrance exam scored above 50%, and there was a total of 28,972 students who received a passing grade.

Social media has been a major factor in the past few years in students misbehaving and cheating. Social media users are inundated with information, whether it is accurate or not. Rarely is this pre-vetted. Individual social media platforms may consequently experience social and political divisions that affect students' academic success and lead to political unrest among neighboring states.

Figure 10 shows the overall grades received by pupils in the Dire Dawa administration in the National Education Entrance Examination from 2017 to 2022. It illustrates that a minimal result was earned in the 2022 academic year, whereas the maximum was earned in all sciences and mathematics fields in the 2021 academic year. Furthermore, Fig. 10 demonstrates that total student performance in 2019 was the lowest compared to the prior two years. The academic achievements of students in 2020 were higher than the previous year. Academic achievement in all science and mathematical fields is anticipated to diminish in 2022, according to the trend analysis illustrated in Figure 10.

Except for the language, the educational geography of the nation's regional states is the same. The results of the 2020 and 2021 school-leaving exams, presented in Figure 10, suggest that parents may feel justified in supporting cheating to some degree. Because of advantageous or corrupt circumstances, the family and their children seek success or advancement from one grade level to the next rather than mastering the knowledge, skills, and capabilities acquired via schooling. High entrance exam scores can lead to high-paying and prestigious positions in medicine or engineering. Low grades might lead to low-paying occupations in the local economy, such as teaching. Parents may assist their children in attempting to cheat on the exit exam. This may alleviate their burden. They actively participate by putting a small amount of money into exam questions to assist their students in receiving passing ratings. The data show that cheating is common and difficult.

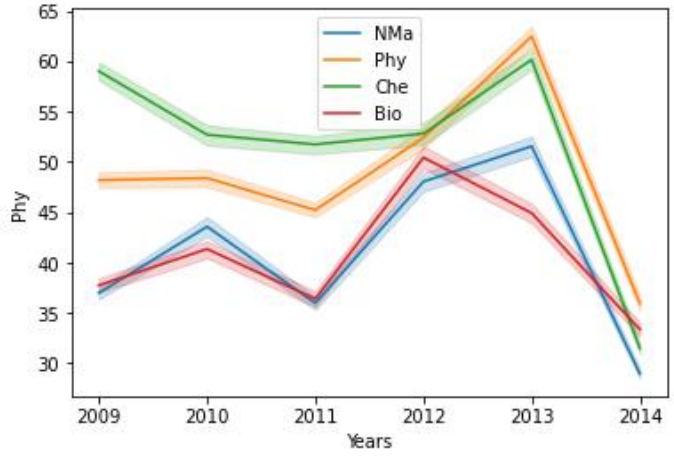

Figure 10: The overall trend analysis of student scores in science and mathematics subjects in the National Education Entrance Examination from 2017 – 2022

The association between natural sciences and national school entrance examination results is depicted in Figure 11. The grades attained by students who took the National Education Leaving Test were favorably related to the other subjects.

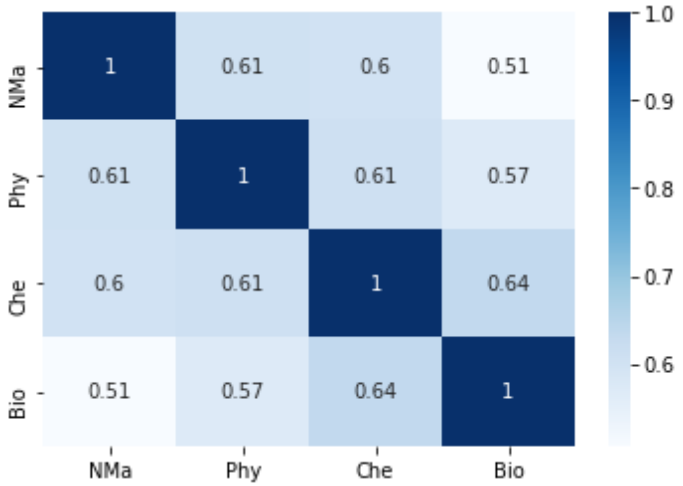

Figure 11: The Academic achievement correlation of science and mathematics subjects

Results Obtained from Student's Questionnaires

The Characteristics of The Respondents:

394 students participated in this initiative, of whom 200 (or 50.76%) were first-year students and 194 (or 49.24%) were in the 2015 remedial program. Table 4 shows the respondents' background characteristics and their families' educational backgrounds. According to the data, 85.3% were between 19 and 21 ages. Most respondents are mature enough to grasp what should be done about problems influencing students' academic performance in Dire Dawa City in grade 12 NHEEE. Moreover, 67.8% of the respondents were male and 32.2% were female. Although the survey sampled both genders, the majority of respondents were male. Primary education was the educational background of the respondents' mom and father, at 42.2% and 35.5%, respectively.

Table 4: The background of the respondents

Variables	Category	Count	percent
Age	19-21	337	85.3
	22-24	127	14.7
Gender	Female	127	32.2
	Male	267	67.8
Mothers' Education	Primary completed	167	42.2
	Secondary completed	102	25.9
	Diploma	83	21.1
	BA/BSc	41	10.4
	MA/MSc	1	3
Fathers' Education	Primary completed	140	35.5
	Secondary completed	57	14.5
	Diploma	87	22.1
	BA/BSc	75	19.0
	MA/MSc	35	8.9

Students' academic grades from the 2022 national higher education entrance examination in science and mathematics are shown in Fig. 12. The researchers devised the following system for assigning grades to students: 'A' indicates 85% or more, 'B' is between 75-84%, 'C' is 65-74%, 'D" is between 50-64%, and 'E' is less than 50%. Therefore, most of the student's grades were in the 'C' to 'E' category. A few of the students were labeled with 'A' and 'B' grades.

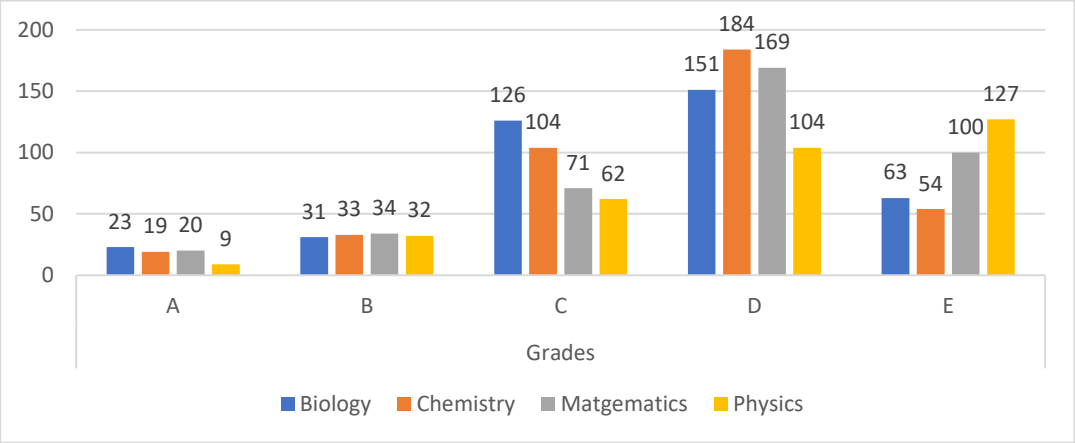

Figure 12: Students' ratings in university entrance examinations in sciences and mathematics begin in 2022.

According to the trend analysis indicated in the preceding part and the data given in Fig. 12, student academic performance in science and mathematics was a significant cause of problems. In this study, the researchers seek to identify those causes. The primary reasons include attitudes toward subjects, attitudes of teachers, teaching materials, school, student attitudes, and parental attitudes. As illustrated in Fig. 12, the researchers identified a lack of interest in the subjects as the most significant barrier to students' academic performance. The results suggest that 242 people (61.4%) are uninterested in the issue. It was one of the most significant obstacles to such triumphs. This finding could imply that during the examination, students formed a negative emotional attitude toward their courses. Cheating on the exam was one of the issues. However, the issues extended beyond cheating. The findings of this study indicate that teachers' qualifications, preparation before entering the classroom, methodology, perceptions of students, language, lack of interest, school environment, distance to school, lack of goals, substance use, study hours, and peer group all have an impact.

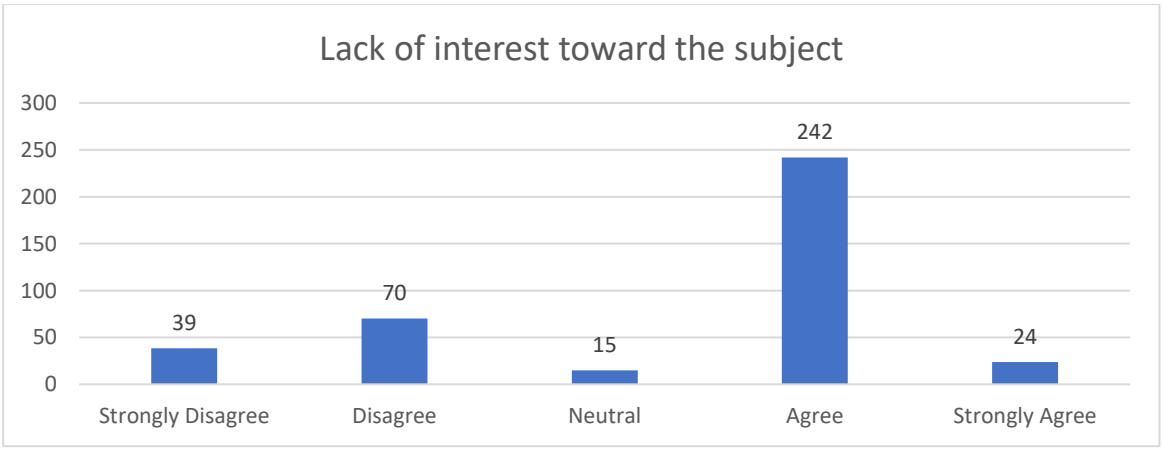

Figure 13: Students' attitudes toward science and mathematics.

Teacher Related Factors:

As demonstrated in Figure 14, students' challenges for academic performance from the perspective of teachers. According to the findings, the second most important element influencing students' academic achievement was the teachers' approach, pre class preparation, teachers' impressions of students, teachers' qualifications, and personalities. According to the findings, one of the most significant hurdles to students' performance in the admission exam was teacher methodology. The challenge, according to 62.2% of respondents, was the instructional methodology. Another difficulty for their success is the teacher's preparation before entering the classroom; 72.6% of respondents agreed to this challenge. Another barrier to student success was the teacher's opinion of the students. This challenge is supported by 71.1% of respondents. Another consideration is the teacher's qualifications.

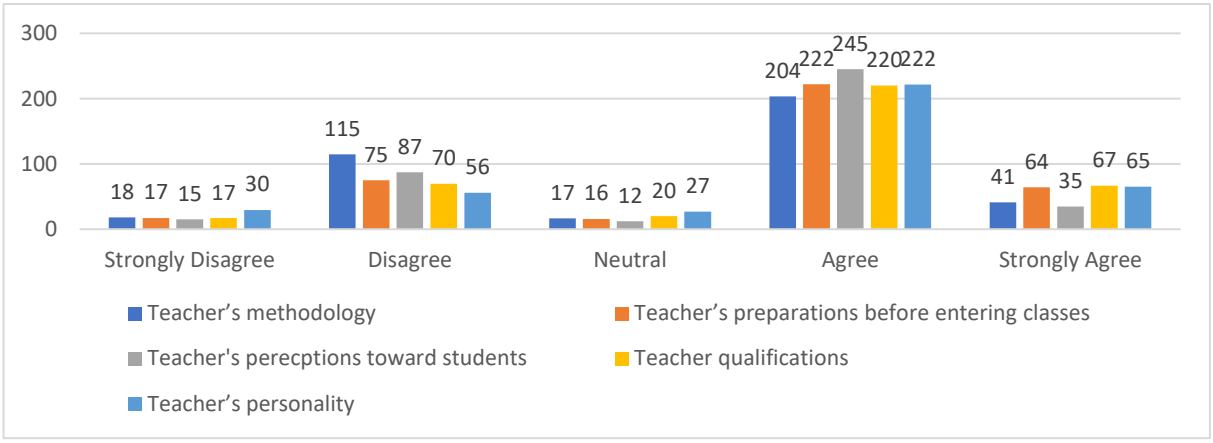

Figure 14: Challenges for students' success in academic performance in school leaving the entrance examination

Teaching-Related Material Factors:

Other elements influencing pupils' academic success were teaching materials. Reference materials, teaching aids, laboratories, topic matter, and coverage were among these components. According to the findings of this study, as shown in Table 5, respondents agree that reference materials, subject content, and coverage in the allotted time for each subject, and teaching aids or laboratories had an impact on the academic performance in the NHEEE examination.

Table 5: Teaching related material factors for academic success.

Types	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Reference materials	14(3.5%)	80(20.3%)	23(5.84%)	225(57.1%)	52(13.2%)
Content and coverage	18(4.6%)	104(26.4%)	26(6.6%)	201(51.0%)	45(11.4%)
Teaching aids/laboratory	16(4.0%)	78(19.8%)	31(7.9%)	229(58.1%)	40(10.2%)

School Related Factors:

According to the majority of research studies discovered in the literature, the school environment and distance to school are two factors that influence kids' academic achievement. School environmental elements such as student-staff ratio, school management, school personnel, classroom size, neatness, and school location, according to [38]. They have a significant impact on students' academic performance in the school leaving exams. According to Table 6, 70.6% of respondents stated that the educational environment was one of the obstacles to their

achievement in the entrance exams. Furthermore, 71.8% of respondents believed that school distance was the other factor influencing their academic success.

Table 6: Academic performance-related problems

Types	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
School environment	17(4.3%)	74(18.8%)	26(6.6%)	234(59.4%)	44(11.2%)
Distance school	15(3.8%)	70(17.8%)	25(6.3%)	236(59.9%)	47(11.9%)

Student Related Factors:

Exam cheating was one of the most significant difficulties affecting students' academic progress from 2017 to 2022, according to the trend analysis given in this study. As seen in Table 7, our research suggests that additional factors influence students' academic progress. It illustrates student-related features that promote academic success. Among these challenges are student conduct, language difficulty, exam cheating, attendance, self-study, the nature of exam types, peer groups, and substance use. According to the findings in Table 7, the respondents agreed that student conduct, language, exam cheating, school attendance, peer group, substance usage, nature of exam types, self-study hours per week, and exam center relocation all contributed to their achievement. Many students consider that the movement of exam centers and the variety of exam types are minor issues in contrast to the other criteria listed in Table 7. Furthermore, three of the most significant impediments to students' academic admission to the institution were school attendance (71.4%), self-study hours per week (70.9%), and language (68.8%), as the respondents indicated.

Table 7: Student-related factors for academic performance

Types	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Student Conduct	25(6.4%)	72(`18.3%)	27(6.9%)	229(58.1%)	43(10.9%)
Language problem	22(6.9%)	74(18.8%)	28(7.1%)	215(54.6%)	56(14.2%)
Exam cheating	26(6.6%)	70(17.8%)	28(7.1%)	229(58.1%)	43(10.9%)
School attendances	23(5.8%)	68(17.3%)	23(5.8%)	238(60.4%)	47(11.9%)
Self-study hours per week	16(4.1%)	74(18.8%)	24(6.1%)	238(60.4%)	43(10.9%)
Nature of exam types	184.6%)	130(33.0%)	25(6.4%)	189(48.0%)	33(8.4%)
Peer group	17(4.3%)	64(16.2%)	28(7.1%)	235(59.6%)	48(12.2%)
Substance use	22(5.6%)	62(15.7%)	28(7.1%)	235(59.6%)	48(12.2%)
Relocation of exam center	19(4.8%)	156(39.6%)	31(7.9%)	168(42.6%)	22(5.6%)

In focus group discussions, students had the chance to talk about how the learning environment at school affected them. Additionally, it was noted how the school's atmosphere affected students' performance in math and science. As a result, it was discovered that poor performance in science and mathematics on entrance exams is primarily caused by school management and its environment.

Results Obtained from The Teacher's Questionnaire

Demographic Profile of Teachers:

The background profiles of the instructor responses are shown in this section. It comprises school types, gender, educational attainment, teaching experiences, areas of specialization, student relationships, and teaching methods.

Table 8: Respondents background profile

Variable	Category	Frequency	percent
Types of school	Government	57	64
	Private	32	16
Gender	Female	78	87.8
	Male	11	12.4
Work experiences	1-5 years	23	25.8
	6-10 years	24	27.0
	11-15 years	41	46.1
	Above 15 years	1	1.1

According to the school classification in Table 8, 16% of the participants worked in private schools, and 64% worked in public schools. According to Table 8, most of the respondents in this study were male. 46.1% of respondents have 11-15 years of teaching experience.

Figure 15 depicts the teachers' preferences for various instructional styles. The findings revealed that participants favored a variety of educational tactics, as shown in the data above. The student-centered techniques approach was used by 47.2% of teachers. Another 34.8% of instructors preferred a collaborative method, while 18.0% chose a teacher-centered approach.

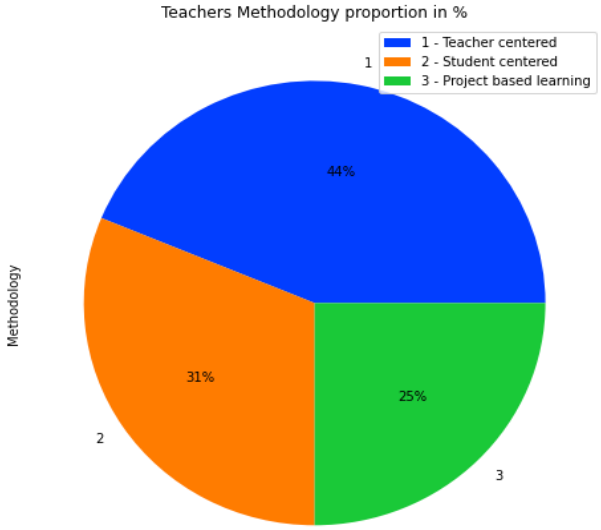

Figure 15: Applied Teacher's methodology (1 stands for Teacher-centered, 2 refers to student-centered, and 3 refers to project-based learning) (Source: Field Data (2023).

Figure 16 depicts the major areas of specialization for teachers. The results depict that biology, chemistry, mathematics, physics, chemical, electrical, and civil engineering were 24%, 24%, 16%, 16%, 10%, and 10%, respectively.

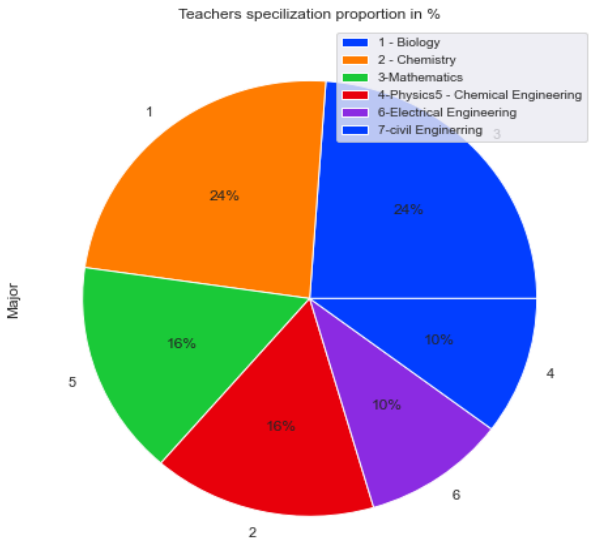

Figure 16: The respondents' the major field of specialization

How Would You Describe the Level of The Idea in Your School?

Knowledge of the curriculum and its purpose helps students improve their academic performance and the vision of the school. The results shown in Table 9 indicate that 55.1% of respondents agree that teachers understand the curriculum and its goals, and 37.1% of respondents rate the school's curriculum goals as moderate. 56.2% of the respondents felt that teachers were highly successful in implementing the curriculum. 37.6% of the respondents had some confidence in the likelihood of successful implementation of the curriculum. Additionally, Table 9 shows what teachers expect from their students for academic success. To achieve this goal, teachers work in groups to inspire and motivate students. However, the results revealed that 42.7% of parents played a role in attending school activities, and 40.3% participated in school activities. 43.8% of the respondents agreed that their parents did not force school administrators and teachers to maintain the quality of education. 38.2% of the respondents said that their students' ability to achieve their school's academic goals was low, but they respected their classmates for their efforts to excel in school. Moreover, Table 9 shows that the collaboration between teachers and school administrators in planning is high and that school administrators are enthusiastic about working with teachers on professional development.

Table 9: Teachers and parents' ideas on the academic performance of students

No	Items	Very low	Low	Medium	High	Very high
1	Teachers' understanding of the school's curricular goals	3(3.4%)	4(4.5%)	33(37.1%)	34(38.2%)	15(16.9%)
2	Teachers' degree of success in implementing the school's curriculum	2(2.2%)	5(5.6%)	32(36.0%)	37(41.6%)	13(14.6%)
3	Teachers' expectations for student achievement	3(5.4%)	10(11.2%)	13(14.6%)	49(55.1%)	14(15.7%)
4	Teachers working together to improve student achievement	4(4.5%)	13(14.6%)	34(38.2%)	25(28.1%)	13(14.6%)
5	Teachers' ability to inspire students	5(5.6%)	4(4.5%)	28(31.5%)	40(44.9%)	12(13.5%)
6	Parental involvement in school activities	16(18.0%)	22(24.7%)	30(33.7%)	16(18.0%)	5(5.6%)

7	Parental commitment to ensure that students are ready to learn	12(14.5%)	23(25.8%)	31(34.8%)	15(16.9%)	8(9.0%)
8	Parental pressure for the school to maintain high academic standards	14(15.7%)	25(28.1%)	23(25.8%)	18(20.2%)	9(10.1%)
9	Students' ability to reach the school's academic goals	7(7.9%)	27(30.3%)	30(33.7%)	22(24.7%)	3(3.4%)
10	Students' respect for classmates who excel in school	3(3.4%)	14(15.7%)	41(46.1%)	29(31.5%)	2(2.2%)
11	Collaboration between school leadership and teachers to plan instruction	7(7.9%)	15(16.9%)	30(33.7%)	33(37.1%)	4(4.5%)
12	School Leadership's support for teachers' professional development	10(11.2%)	21(23.6%)	16(18.0%)	38(42.7%)	4(4.5%)

Consider your current school and indicate how much you agree or disagree with each of the following statements.

Table 10 shows the school climate necessary to improve the academic ability of students and maintain the quality of education. 68.5% of the respondents agree that the school is in a safe place, while 22.5% disagree that the school is not in a safe place. 64% of respondents agreed that teachers were safe in school. 48.4% of the respondents agree that security, policies, and practices were in place, while 31.5% disagree. 51.7% of the respondents agreed that their students were behaving appropriately at school. 59.0% of respondents agreed that students respect their teachers. Finally, 59.5% of the respondents agree that schools have clear rules about student behavior and that those rules apply to students.

Table 10: Impact of school environment on quality of education

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
This school is located in a safe neighborhood	4(4.5%)	16(18.0%)	8(9.0%)	36(40.4%)	25(28.1%)
I feel safe when I was in the school	8(9.0%)	16(18.0%)	8(9.0%)	38(42.7%)	19(21.3%)
The school's security policies and practices are sufficient	0(0.0%)	28(31.5%)	9(10.1%)	30(23.7%)	22(24.7%)
The students behave in an orderly manner	6(6.7%)	18(20.2%)	19(21.3%)	24(38.2%)	12(13.5%)
The students are respectful of the teachers	10(11.2%)	15(16.9%)	15(16.9%)	25(39.3%)	14(15.7%)
The students respect school property	10(11.2%)	23(25.8%)	14(15.7%)	30(33.7%)	12(13.5%)
The school has clear rules about student conduct	2(2.2%)	19(21.3%)	15(16.9%)	34(38.2%)	19(21.3%)
The school's rules are enforced in a fair and consistent manner	4(4.5%)	16 (18.0%)	8(9%)	36(42.7%)	25(28.1%)

How serious is each problem at your current school? It shows the level of the problem found in the school. Table 11 shows the levels of school problems that affect student performance. 62.9%

of the respondents (with mild, moderate, and severe problems) feel that school maintenance is necessary. 42.7%, 25.8%, and 1.1% of her respondents said the level of the problem was mild, moderate, and severe, respectively. 40.4%, 12.4%, and 2.2% of respondents rated the lack of cleaning in classrooms as mild, moderate, and severe, respectively. 75.3% of respondents feel that their classrooms need maintenance and that there are not enough seats for teachers to support their students. Finally, 92.1% of respondents believe that cheating is a serious problem at school.

Table 11: The level of the current problem of the school.

Items	Not a problem	Minor problem	Moderate problem	Serious problem
The school building needs significant repair	33(37.1%0	33(37.1%)	14(15.7%)	9(10.1%)
Teachers do not have adequate workspace (e.g., for preparation, collaboration, or meeting with students)	27(30.3%)	38(42.7%)	23(25.8%)	1(1.1%)
Teachers do not have adequate instructional materials and supplies	26(19.2%)	42(47.2%)	16(18.0%)	5(5.2%)
The school classrooms are not cleaned often enough	40(44.9%)	36(40.4%)	11(12.4%)	2(2.2%)
The school classrooms need maintenance work	22(24.7%)	42(47.2%0	20(22.5%)	5(5.6%)
Teachers do not have adequate technological resources	7(7.9%)	38(42.7%)	29(32.6%)	15(16.9%)
Teachers do not have adequate support for using technology	10(11.2%)	28(31.5%)	33(37.5%)	18(20.2%)
Students cheating experiences	7(7.9%)	16(18.0%)	31(34.8%0	35(39.3%)

How Frequently Do You Have the Following Interaction with Other Teachers?

Table 12 shows that the nature of teaching resources and materials, like classrooms and technology, help to improve the quality of education. According to Figure 15, teachers were not assigned according to specialization. For example, you may have an engineering degree but teach math, physics, or chemistry. Not only does this contribute in some way to the quality of teaching, but it also encourages students to cheat on exams. Ninety-two percent of respondents said the level of cheating is high from elementary school through high school. 94.0% of those surveyed agreed to teach if they were given a specific topic. They volunteered to help design and create teaching materials and also volunteered to share their experiences with others. 34.8% of the respondents said they would not want to collaborate with others, while the rest were more positive about collaboration. 44.9% of respondents were reluctant to collaborate with other teachers to ensure continuity of learning.

Table 12: Interaction of teachers with other colleagues to sustain quality education

Items	Very often	Often	Sometimes	Never or rarely
Discuss how to teach a particular topic	9(10.1%)	24(27.0%)	51(57.3%)	5(5.6%)
Collaborate in planning and preparing instructional materials	12(15.5%0	23(24.7%)	43(48.3%0	12(15.5%)
Share teaching experiences	8(9.0%)	21(23.6%)	40(44.9%0	20(22.5%)

Visit another classroom to learn more about teaching	2(2.2%)	18(20.2%)	39(43.8%)	30(33.7%)
Work together to try out new ideas	8(9.0%0	12(13.5%)	38(42.7%)	31(34.8%)
Work as a group on implementing the curriculum	2(2.2%)	17(19.1%)	43(49.3%)	27(30.3%)
Work with teachers from other grades to ensure continuity in learning	2(2.2%)	12(13.5%)	35(39.3%)	40(44.9%)

How do you feel about being a teacher? Table 13 shows teachers' attitudes towards their profession. The results showed that most respondents were inspired and satisfied with their work. But some people don't inspire others with to work. 31.3% of those questioned have never influenced others with their work, and 37.1% of them do not want to continue in this profession for various reasons, including financial reasons. I think. A respected government agency pays no attention to occupation. Respondents believe that quality education can be achieved bottom-up rather than top-down.

Table 13: The teacher's feelings about their profession.

Items	Very often	Often	Sometimes	Never or rarely
I am content with my profession as a teacher	20(22.5%)	34(38.2%)	29(32.6%)	6(6.7%)
I am satisfied with being a teacher at this school	15(16.9%)	15(16.9%)	48(53.9%)	11(12.4%)
I find my work full of meaning and purpose	24(27.0%0	31(34.8%)	25(28.1%)	9(10.1%)
I am enthusiastic about my job	10(11.2%)	35(39.3%)	26(29.2%)	18(20.2%)
My work inspires me	18(20.2%0	18(20.2%)	34(38.2%0	19(31.3%)
I am proud of the work I do	15(16.9%)	34(38.2%)	20(22.5%0	20(22.5%)
I am going to continue teaching for as long as I can	17(19.1%)	15(16.9%)	24(27.0%)	33(37.1%)

In The Last 2-3 Years, Have You Participated in Services Training or Professional Development in Any of The Following Areas?

Table 14 shows the need for in-service training to maintain educational quality. While 50% of respondents agreed that they had completed on-the-job training in science or math, 39% of respondents said they had no on-the-job training in science or math. While 61.8% of respondents have received hands-on training in teaching methodology, 38.2% have not received such training to maintain student achievement. The majority of respondents did not know how to apply the science and math curriculum. As shown in Table 14, integrating science and technology information is essential aspect of maintaining student academic performance. Another key point for student achievement beyond the subject is that teachers need to teach students how to develop critical thinking and research skills. Additionally, 59.6% of those surveyed were unsure how to respond to individual student needs. They believed that this kind of education was important to the teaching and learning process.

Table 14: Professional development of teachers for the last two to three years.

Items	Yes	No
Science/mathematics content	50(56.2%)	39(43.8%)
Science/mathematics teaching methodology	55(61.8%)	34(38.2%)
Science/mathematics curriculum	44(49.4%0	45(50.6)
Integrating information technology into science and mathematics	48(53.9%0	41(46.1%)

Improving students' critical thinking or inquiry skills	40(44.9%)	49(55.1%)
Science/mathematics assessment	47(52.8%)	42(47.2%)
Addressing individual students' needs	36(40.4%)	53(59.6%)

How Many Total Hours Have You Spent in Formal In-Service or Professional Development (e.g., Workshops, Seminars) For Science or Mathematics Over the Last Two to Five Years?
The survey results found that 40.1% of respondents had no professional training in science and mathematics at all, and 28% had less than 6 hours of training in the last three years. 25% of respondents said they had completed 6-15 hours of training in the last 3 years. Only 7% of respondents said they exercised for more than 15 hours in the past three years.

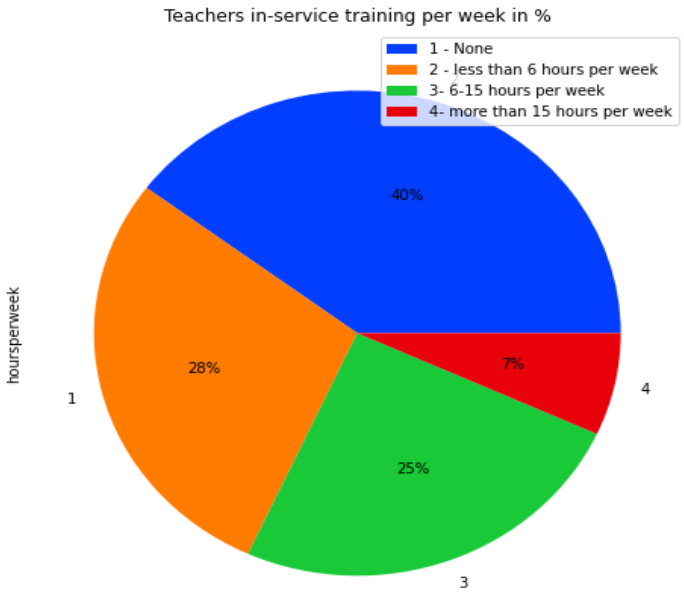

Figure 15: teachers' in-service training or professional development per week for the last three years.

DISCUSSIONS

According to Table 6, students who live a long distance from school will struggle to complete outside-of-school duties due to the time spent walking from school to home and vice versa [39-40]. Aside from exhaustion and hunger, kids who must walk long distances will get home or school late [41]. When kids are required to walk long distances, a significant amount of energy is expended, which can contribute to poor concentration on school duties and promote absenteeism and school dropouts [42-45].

According to [46-48], this was due to the unfavorable stereotype that had been established surrounding the subjects that had the lowest grades. Figures 8 and 9 show the lower grades earned over the 2017–2022 school year. The highest grades were obtained between 2021 and 2022. This was due to cheating rather than poor academic performance during the 2022 school year.

Figure 10 shows that the quality of examinations in Ethiopian schools has recently deteriorated. In 2021, this was due to insufficient examination preparation, administration, and scoring systems in all subjects. A growing number of stakeholders, both inside and outside the academic community, report rampant examination malpractice in the system, resulting in a rapid decline

in educational quality [49]. The significance of social media leaks on exam responses was greater than predicted. The importance of social media leaks in exam responses was greater than expected. Because of massive social media leaks of examination answers, Somali regional authorities canceled national examinations in 2019, requiring students to retake them, resulting in the student protests mentioned in [50].

According to [51-53], there is a worldwide developmental decline in student science motivation and attitudes. The results obtained in this work agree with [11, 54]. Factors related to academic success in school are critical to motivating students to succeed in learning science.

Science achievement at the secondary school level is critical because secondary school is the level at which general ideas become specific concepts in teaching science [55]. Students' performance at this level determines whether they continue their education in the science stream.

As the results revealed by [48] agree with this study, factors other than the teacher-student relationship had a significant impact on student performance. Students said they were not hostile to their teachers. However, it has been found that students are so afraid of science and mathematics that they do not practice, believing that if they do, they will fail. Some students said this. Moreover, some teachers who are not science or math teachers share their experiences of how difficult science or math was for them. This reduces students' morale towards science and mathematics.

The study of the factors influencing academic achievement demonstrates that the individual student has a more significant influence on their development than the school, teachers, teaching resources materials, and parent education background and that the school's environmental factors are usually more influential than the student's characteristics [56-59].

Cheating prevalence in school can be classified into two categories: dimensions and reasons, both of which incorporate components of equity and justice. The first dimension is the school's commitment to assessing each student's performance fairly [26, 60]. According to the findings, equity has a substantial impact on Ethiopia's education system. It provides a foundation for the school's credibility in promoting students' moral and ethical development. Furthermore, it is concerned with the societal ideal of equitable distribution of life possibilities, which means that someone who cheats may compete for higher education and a future job in place of someone else. This inequity is most pronounced in upper secondary schools, where students compete for entrance to further education based on their final results.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study concentrated on the issues and challenges associated with Ethiopian higher education, admission exam results, and educational quality. Participants in this study included university students and teachers from the Dire Dawa Administration Education Bureau. The study used a trend analysis of student records from 2017 to 2022 and a survey to elicit respondents' perspectives on how they perceive factors affecting academic achievement. The sample was chosen randomly and included 464 students and teachers. As data collection approached, interviews, focus group talks, and documents were used.

The first research question inquired: What was the trend in high school academic performance in science and mathematics under the Dire Dawa administration from 2017 to 2022? The results showed that many students scored below 50% in four subjects in six years, such as biology, chemistry, mathematics, and physics. However, the results for 2021 and 2022 were not comparable. As was shown in the paper, the total number of students scoring above 50% was 8.6% of 340,00 in 2022. In addition, the first eight figures show the number of students every year. Altogether, the academic performance of students in sciences and mathematics subjects in the science stream was very poor.

The second study question is: What variables contributed to poor performance in science and mathematics in selected secondary school admission tests during the Dire Dawa administration's 2017-2022 term? The data demonstrated that students' lack of interest in the courses was the first and most significant impediment to their academic success. Other aspects, such as teacher's qualifications, dedication to their profession, school surroundings, instructional methods, reference materials, peer group impact, substance usage, study time, lack of goals, and cheating, are also dependent on other work. This impacted learners' ability to be properly prepared for their final exams.

According to the findings of this study, the Federal Ministry of Education system promises to sort citizens into distinct life paths based on national higher education admission examinations after 12 years of hard work. This is attributable to the country's national human resource development policy. However, young people aspire to attain their vision's big goals through these approaches. The government's testing processes lack a legitimate basis for sorting due to significant inequalities in teacher qualification, teacher preparation, teacher methodology, educational resources, class size, school compound environment, student languages, and the secondary school security system, among other factors. This might be one of the motivations behind students who choose to commit fraud or cheating with their exceptional accomplishments. To counteract this academic injustice as a social phobia, the government, school administration, teachers and their associations, parents, and students should collaborate.

Recommendations

The following suggestions were made in order to raise students' academic achievement in the Dire Dawa administration in light of the study's findings:

1. Governments must make sure that instructors are hired, trained, and then assigned to the most underprivileged areas. In rural and underprivileged locations, it is important to use suitable salary, bonuses, housing, professional development opportunities, and career possibilities to attract skilled teachers. Children in remote places will have qualified instructors and a high-quality education if teachers are chosen using a clear, rigorous procedure, local hiring, and quality incentive programs.
2. A cross-sectional learning framework can help create school communities where all stakeholders can come together to discuss ideas, concerns, and solutions.
3. Organize workshops and training sessions for teachers who teach a variety of disciplines to help them become better educators.
4. Teachers must be capable of reflecting on their own teaching, evaluating the methods they use critically, and seeking out new teaching strategies.
5. Encourage learning in children utilizing a variety of strategies and teacher-led activities.
6. Motivate students to learn using different techniques and teacher-taught activities

7. Professional freedom: Teachers are best equipped to decide how to set up the ideal learning environment.
8. Professional ethics Parents should be aware of their children's issues and collaborate with teachers and administrators to keep an eye on their children's academic progress (for instance, by incorporating the Convention on the Rights of the Child into the ethical and professional standards of education).
9. The education bureau and nearby higher education institutions collaborate closely to build teacher capacity.

Availability of Data and Materials

The findings of this study are derived from data collected and analyzed using the methods and materials specified. The data supporting this discovery will be made available upon request at any time.

Competing Interests

We declare that we have no competing interests.

Funding

Funding is not applicable for this study because the research project was not funded by any organization.

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 76-84

Muhammad Nashirudin Al-Bani's Perspective on Takfir Hadith

Muhammad Sabri[1], Edi Safri[2], & Rahima Sikumbang[2]

1. UIN Imam Bonjol Padang, Indonesia
2. UIN Syech Muhammad Djamil Djambek Bukittinggi

Abstract:
The Wahhabi Salafi group often quotes the opinion of Sheikh Nahsirudin Albani in matters of religious teachings. Meanwhile, Salafi-Wahhabi groups often disapprove of their fellow believers and religions. Of course, Syekh Muhammad Nahsirudin Albani was indirectly accused of being the embryo of takfir teachings, while what the author found from Syekh Muhammad Nashirudin Albani's thoughts is that it is not that easy to disbelieve fellow Muslims, so it is interesting to examine more deeply how Muhamman Nashirudin Albani's understanding of the hadiths of Takfir. The research methodology is descriptive qualitative, using a library research approach which is not field research, but works with books and scientific works related to Shaykh Nashirudin Albani. The data analysis technique is collecting data, reading it, analyzing it, then drawing conclusions objectively. The findings show that a person cannot be said to be a disbeliever if he has never clearly stated and is believed by heart that someone is really against the law of Allah SWT, or considers the law of Allah SWT to be irrelevant. As for those who commit big or small sins, as long as they do not openly oppose the law of Allah SWT, they are fasiq and immoral.

Keywords: Muhammad Nashirudin Albani, Takfir, Hadith

PENDAHULUAN

Speaking about the Fatwa of Sheikh Muhammad Nashirudin Albani is always relevant for the Salafi-Wahabi group. In fact, they often quote it when explaining issues of Islamic teachings (Yahya and Yahya 2021). The axiom that was formed and developed in most Indonesian society is that Sheikh Albani is a figure and part of the Salafi-Wahabi movement (Hosen 2019). In fact, in researching hadith issues, Sheikh Albani is a reference for Salafi-Wahhabism in determining the authenticity of hadith, religious issues, and even more so in the issue of heresy. However, scholars have different views regarding the credibility of Sheikh Albani's paradigm in criticizing hadith and fatwas in Islam itself (Yahya and Yahya 2021).

The Salafi-wabahism sect has always been paradigm as an extreme and radical sect in Indonesia. Even the Ministry of Religion of the Republic of Indonesia is planning to disband Salafi-Wahabi groups in Indonesia, because they are considered to be disrupting the integrity of the Republic of Indonesia. Apart from that, the Wahhabi group is considered a sect that is causing chaos in religious communities in Indonesia, especially Islam. Furthermore, Salafi-Wahabi are also known by Indonesian people as takfir sects, or beliefs that like to make other Muslims infidels(Ilham Kurniawan, 2020).

Furthermore, the Salafi-Wahabi sect is famous for its ideology of returning to the Koran and Hadith (Sudjito Sudjito, Hendro Muhaimin, And Agung Saras Sri Widodo, 2018). At first glance, their ideology does not conflict with Islamic teachings in general. The Prophet said that if you

have different opinions about something, then return to the Koran and hadith. The message of this hadith gives a signal that it is important to maintain peace and unity among the Ummah in order to avoid divisions between the Ummah (Tazlie Sham Ab. Rahman and Bushrah Binti Basiron, 2022). Salafi-Wahabi people always make narratives back to the Koran and hadith as they are without interpretation from people who are experts in their fields (Muhammad Abror Rosyidin, 2021). Meanwhile, to understand the hadith and the Qur'an, the ummah requires analytical assistance from scholars, because not all humans have the same capacity and in addition, understanding the Qur'an and hadith is not that simple (Aar Arnawati, 2017).

In general, the Salafi-Wahabi sect is perceived by Indonesian society as a sect of takfirism or a sect that likes to make fellow Muslims infidels (Azra 2018). The Salafi-Wahabi reference preference in making hujjah is always linked to Sheikh Albani's opinion or fatwa. However, Sheikh Albani's explanation of takfir hadiths is different from what is understood by Salafi-Wahabi today. With all the differences in Sheikh Albani's thoughts regarding takfir hadiths, it is interesting to study them more deeply. This article aims to assess something objectively and comprehensively. Don't let differences in understanding mean that someone is humiliated, their thoughts are denied, and their works are insulted. The methodology in this research is descriptive qualitative, which is not field research, but library research, by collecting materials or references from books, scientific works spread on Google or in libraries manually. The primary sources in this research are, Manhaj Salaf Albani's book, Do Not Disbelieve in Fellow Muslims; and Albani Comments, and secondary sources, namely, from scientific works related to Albani which are spread on the Web. The steps for this research are, collecting material, reading it, analyzing it, then drawing conclusions objectively.

DISCUSSION

Methodology for Understanding the Hadith of Sheikh Muhammad Nashiruddin Albani

Sheikh Albani's understanding of hadith seems controversial with the majority of muhadditsin circles. This is due to his understanding of the book Sahih Bukhari, where in his view there are several hadiths in Imam Bukhari's writings that contain dha'if hadiths(Syarifah 2015). This statement sparked anger among some ulama, who believed that all the hadiths in the book of Bukhari were authentic. So, it is not surprising to see sharp criticism from hadith scholars such as Sheikh Yasin Al-Fadani, Al-Harari, al-Guhamri, Assegaf and other hadith scholars. For example, Al-Ansari criticized Albani regarding the status of the 20 raka'at tarawih hadith, al-Ghumari was of the opinion that Albani's assessment of the status of the hadith was irresponsible. Assaqaf also criticized Sheikh Albani for having translated 990 hadiths authenticated by Bukhari(Syarifah 2015).

The methodology of authenticating hadith in Sheikh Albani's thinking is basically the same as previous scholars, and there is almost no difference. Sheikh Albani in terms of the criteria for authentic hadith is the same as Ibn Shalah as a senior hadith scholar of his time. The criteria for the authenticity of a hadith according to Sheikh Albani are, namely, continuous sanad, dhabit rawi, 'just rawi, no syaz and no 'illat. However, even though it is the same, there are differences between Sheikh Albani and other hadith scholars. This distinction lies in the perspective in interpreting the criteria for authentic hadith (Hanifa, Masrur, and Khaeruman 2022).

According to Sheikh Albani, the requirements for continuous sanad consist of four criteria, namely; A relatively long period of friendship, hearing directly, meeting and being contemporaries. Of course, these criteria contradict Ibn Salah's requirement of liqa'. However, it

is in line with Imam Muslim who made concessions on the issue of liqo'(Umar 2022). Next, justice. In general, in the science of musthalah hadith, the criteria for a just narrator are, namely, being Muslim, mature, rational, and free from the causes of wickedness, and maintaining muru'ah. (Syaikh DR. Mahmud Ath-Thahhan 2010). In contrast to Shaykh Muhammad Nashirudin Albani in terms of rawi justice on the point of rational baliqh, namely, only being satisfied with mumayyiz (Hanifa et al. 2022).

The habit of the narrator. Linguistically, "dhabth" means solid, strong and perfect. This means that habitual narrators are human beings or narrators who have strong memorization and memory, if at any time needed they can convey freely and clearly(Nafi`atul Amimah & 2022). According to Ibnu Hajar Al-Asqalani, a dhabit narrator is a narrator who has a strong memorization and is able to convey the hadith whenever necessary (Asep Herdi 2014). In contrast to Shaykh Muhammad Nashirudin Albani, a narrator can be said to be habitual if jarh and ta'dil have been carried out, otherwise a narrator is said to be majhul (unknown). However, if a narrator comes from a friend, then it is immediately accepted without being criticized first, because according to Albani, a friend is a person who is 'fair and habitual'(Muhammad Rafi'iy Rahim et al. 2022).

Shadz hadith. In general, syadz is a hadith narrated by tsiqah narrators, but in contrast to more tsiqah narrators. According to Imam Syaf'i, a shadz hadith is a hadith narrated by a tsiqah narrator, but has diversity with most narrators being more tsiqah (Abdul Karim Munthe 2020). It could be said that the requirements for syadz hadith are hadiths narrated by tsiqah narrators, and there is conflict with most narrators who are more tsiqah (Zein 2017). According to Shaikh Muhammad Nashirudin Albani, this is the same as the explanation of the majority of ulama in the case of syadz hadith (Fadhillah 2022).

'Illat hadith. 'Illat hadith are the vague causes of a hadith which makes the authenticity of the hadith defective. The way to test the defects of a hadith is through 'aqli arguments, namely, with reason, the five senses of history and not resembling the words of the Prophet Muhammad SAW (Sulidar, Siti Ismahani 2022). Albani in this case says that 'illat hadith is the ambiguity of a narrator or the lack of clarity of a narrator. There are contradictions between one history and another, including the 'illat hadith according to Shaikh Muhammad Nashirudin Albani. So if there is a conflict between one history and another, the step to resolve it is tarjih, namely, looking for the one that is stronger in terms of memorization and justice (Muhammad Nizar 2019).

FINDINGS RESULTS

As a result of the search, the author found takfir hadiths commented on by Sheikh Albani, including the following:

حدثنا أبو بكر بن أبي شيبة حدثنا محمد بن بشر وعبد الله بن نمير قالا حدثنا عبيد الله بن عمر عن نافع عن ابن عمر أن النبي صلى الله عليه وسلم قال إذا كفر الرجل أخاه فقد باء بها أحدهما(صحيح مسلم)

Meaning:

"Saheeh Muslim 91: Has told us Abu Bakr bin Abu Syaibah has told us Muhammad bin Bisyr and Abdullah bin Numair both said: has told us Ubaidullah bin Umar from Nafi' from Ibn Umar that the Prophet sallallaahu 'alaihi wa sallam said: "If a man disbelieves in his brother, then indeed one of the two of them has returned with his disbelief."(H.R. Muslim)

According to the language, takfir comes from the word kurf, namely, to cover. So, in simple terms, infidels are those who cover up the truth, or cover up the blessings of Allah SWT, and do not acknowledge it. According to Izutsu, kafir means being ungrateful, an attitude that does not show gratitude in the form of actions, and denies the values of monotheism. Meanwhile, Takfirism is an understanding that punishes and sentences someone to be an infidel (Fadlan Fahamsyah 2022).

The above hadith is very general in nature and is not specific to the issue of what Albani comments about humans who are condemned as infidels. The author found in existing writings or references that what Sheikh Albani commented on was about takfir towards leaders, and Albani's comments made disbelief towards fellow Muslims.

Infidelizing Fellow Muslims According to Sheikh Albani

According to Sheikh Albani, basically the issue of takfir is not only focused on those in power but also the people they lead, namely, the wider community. This problem is not a new problem, but it has existed for a long time, and this group is called the Khawarij. This group has small groups, one of which is still popular today is the Al-Ibadiyyah group (Abu Anas Ali bin Husein Abu Luz 2002).

Al-Ibadiyyah used to be a straight group like Islam in general, but recently this group has begun to move away from the path of Islamic groups in general, namely promoting the Khawarij ideology. However, the cleverness of this group is that they lie about their identity and are the same as the Shiite sect, namely, practicing taqiyyah. Apart from that, this group often considers those who commit major sins as infidels, where the typology of takfir thinking is the same as the manhaj of the Khawarij group. Strangely enough, they also popularized the narrative back to the Koran and Sunnah, but their own teachings were distorted from these two fundamental sources (Salim 2003).

Sheikh Albani added that, according to him, the cause of groups who like to disbelieve fellow Muslims is that a person's knowledge is shallow and they do not want to deepen their knowledge of the religion. Furthermore, the cause of people who like takfir is that they explore religious knowledge not based on the rules that have been determined by Sharia. As Allah SWT says, Qs. An-Nisa' 115.

Meaning:

"And whoever opposes the Messenger after the truth has become clear to him, and follows a path that is not the path of the believers, we let him free from the error he has mastered and We put him in Jahannam, and Jahannam is the worst place to return to." (Q.S. an-Nisa'; 115)

The verse above provides a very clear explanation that methods or ways of understanding religion are very urgent. In the end, people who deviate from the true principles of Islam will use their desires in interpreting or interpreting the Koran and Sunnah. Sometimes, they are basically sincere people, but by not understanding good Sharia rules, they tend to fall into distortions of understanding. Sometimes, they are people who are sincere in preaching Islamiyyah, but because they do not understand the rules that have been determined, they fall into errors in interpretation. As for how to understand these hadiths, it is not enough to be fluent in Arabic, to master the nasekh wa manuskh, but rather to trace history in real terms at the time of the Prophet in a

comprehensive manner, in order to get a complete understanding and not easily sentence fellow believers and co-religionists with infidel words(Salim 2003).

Furthermore, the takfirism group in calling their fellow Muslims infidels bases their thinking on the QS verse. Al-Maidah; 44. Meaning: "Whoever does not decide according to what Allah has revealed, then they are disbelievers."(Q.S. Al-Maidah; 44). This verse has actually been repeated in the same verse, but with a different ending. QS. al-Maidah; 45,"Then they are the wrongdoers." In another verse it is also stated, QS. Al-Maidah; 47, "Then they are the wicked."

The word kafir for the takfirism group is defined as people who have completely left the Islamic religion, as are Jews and Christians. According to Sheikh Albani, these people are people who do not understand the meaning of verses and hadiths regarding the issue of takfir. It is clear that the three verses above have continuity with one another. What is meant by kufr in the Qur'an or Hadith are unjust people and wicked people. Likewise, our brothers who commit acts of disbelief are not condemned as infidels leaving the Islamic religion, but are simply wicked and unjust (Amr Abdul Mun'im Salim, 2019).

As Ibn Abbas said, "there is no kufr in this verse as you understand it. In fact, disbelief does not exclude someone from religion. That is the lowest form of kufr compared to true kufr. Likewise in the words of the Prophet from the history of Abdullah bin Mas'ud, "Reviling Muslims is wickedness, and fighting them is kufr." Sheikh Albani interprets this hadith to mean only kufr 'amali, namely kufr of actions. Kufr actions do not include apostates, but rather people who are wicked and unjust, because inwardly they still recognize the law of Allah SWT, but they only violate this through their actions. So, it's not that easy to say someone is an infidel. As for what is said to be an infidel, that is, if a person believes in his heart and clearly says that the law of Allah SWT is good and irrelevant or openly says that he does not believe in the law of Allah SWT, something like this can be said to be an infidel(Salim 2003).

Talking about the issue of infidels, the Prophet Muhammad strongly condemned this act and it was even an insult to those who said their brothers were infidels, and the word infidel itself would return to those who said this. As Rasulullah SAW, said:

حدثنا محمد وأحمد بن سعيد قالا حدثنا عثمان بن عمر أخبرنا علي بن المبارك عن يحيى بن أبي كثير عن أبي سلمة عن أبي هريرة رضي الله عنه أن رسول الله صلى الله عليه وسلم قال إذا قال الرجل لأخيه يا كافر فقد باء به أحدهما وقال عكرمة بن عمار عن يحيى عن عبد الله بن يزيد سمع أبا سلمة سمع أبا هريرة عن النبي صلى الله عليه وسلم(صحيح البخاري)

Meaning:

"Has told us Muhammad and Ahmad bin Sa'id both said: has told us Uthman bin Umar has told us Ali bin Mubarrak from Yahya bin Abu Kathir from Abu Salamah from Abu Hurairah radliallahu 'anhu that the Messenger of Allah sallallaahu 'alaihi wa sallam said: "If someone says to his brother: "O infidel" then it is possible that one of the two will return." Ikrimah bin 'Ammar said: from Yahya from Abdullah bin Yazid he heard Abu Salamah heard Abu Hurairah from the Prophet sallallaahu 'alaihi wa sallam."(H.R. Bukhari) (Abu Anas Ali bin Husein Abu Luz 2002)

This hadith is in line with the story from the time of the Prophet, where one of the Prophet's companions was named Usamah bin Zaid. The polytheists say, "There is no true worship except Allah SWT." However, Usamah bin Zaid ignored these words, and even killed him straight away.

The Messenger of Allah knew about this problem, Usamah defended himself by saying, "They say that is just a way to defend themselves, even though their hearts are in denial." The Messenger of Allah replied, "Have you cut open their chests, if they are truly polytheists."

If the problem of disbelieving spreads and becomes a struggle, it is the same as the struggle for faith. Then there will be slander and division among the Islamic ummah. Dismissing a leader whose morals may not be as ideal as the Prophet's morals is not appropriate (Abu Anas Ali bin Husein Abu Luz 2002).

Sheikh Nashirudin Albani's View of Disbelieving Leaders

Meaning: "Indeed, there is (in) the Messenger of Allah a good role model for you (namely) for those who hope for (the mercy of) Allah and (the coming of) the Day of Judgment and He mentions Allah a lot."

The takfirism group in converting fellow Muslims to infidels is based on the verse above that, it is the Prophet's way and the Prophet's style that must be followed. Furthermore, in their thinking, this country must be the same as the Prophet Muhammad. Sheikh Muhammad Nashirudin Albani does not agree with understanding the verse textually, but must explore its meaning comprehensively. Apart from that, Shaykh Muhammad Nashirudin Albani explained the hadith about obedience to the authorities and not being allowed to rebel against the authorities. As Rasulullah SAW, said as follows:

حدثنا هداب بن خالد الأزدي حدثنا همام بن يحيى حدثنا قتادة عن الحسن عن ضبة بن محصن عن أم سلمة أن رسول الله صلى الله عليه وسلم قال ستكون أمراء فتعرفون وتنكرون فمن عرف برئ ومن أنكر سلم ولكن من رضي وتابع قالوا أفلا نقاتلهم قال لا ما صلوا(صحيح مسلم)

Meaning:

"Haddab bin Khalid Al Azdi has told us Hammam bin Yahya has told us Qatadah from Al Hasan from Dlabbah bin Mihshan from Umm Salamah that the Messenger of Allah sallallaahu 'alaihi wa sallam said: "The rulers will come, you know them but you deny (their actions), whoever knows (their evil deeds) should let go, and whoever denies then he is saved. But like those who are happy and follow, the companions immediately answered, "How about just fighting?" he answered: "No! As long as they are still praying."(H.R. Muslim).

In the Hadith of the History of at-Tirmidhi it is also explained that, "Whoever insults the ruler of Allah SWT, on earth, then Allah SWT insults him (Muhammad Faiz Almath 1991). According to Muhammad Nashirudin Albani, it is haram to criticize, insult or rebel against a ruler, because this only creates hostility and the loss of the people's obedience to a leader. However, on the contrary, Shaykh Muhammad Nashirudin Albani is of the opinion that he recommends to the ummah to pray for good things for the ruler, because the goodness and happiness of a leader has implications for the goodness and happiness of the people he leads (Salim 2003).

In the author's opinion, Albani's opinion is clear that no one should criticize or insult a ruler, let alone disbelieve a leader for his bad deeds, and sometimes these bad deeds are not necessarily true as reported. The recent situation in Indonesia is that hoax news is spreading on social media regarding harassment of those in power. This is a form of Muslims who have begun to move away from the sunnah and fatwas of Salaf scholars, both hadith experts and fiqh experts. This

ultimately has implications for creating chaos, disintegration among the nation's children, and the emergence of feelings of hatred towards the authorities.

Just like how the Messenger of Allah preached in Mecca secretly, from those closest first. After that it was no longer possible, because there was a lot of oppression that occurred among Muslims. Finally, he moved to Medina in order to strengthen and protect the Muslims from oppression by the infidels (Ifendi 2021). In Medina, the Prophet Muhammad SAW could freely teach Islam and there was no discrimination and intimidation from infidels (Anas and Adinugraha 2017). This means that in preaching Islam well, it is necessary to use a persuasive approach, or coaching first and cannot be passionate, because being enthusiastic about wanting to establish an Islamic government is just a human habit. In fact, in the last decade, there has been a lot of bloodshed in Islamic countries because they want to establish a Khilafah state such as Syria, Iraq, Iran and others (Saifudin Asrori 2019).

According to the author, aggressive and radical methods in creating an Islamic state today are no longer relevant. It must be admitted that Islam is currently paralyzed both in terms of science and technology. Meanwhile, a country's power is currently assessed in terms of scientific and technological progress. So, it is very difficult to carry out radical Islamization, but today's Islamic ummah must start the struggle from the essentials first, namely, producing scientists who are experts in various fields, and producing scientists who are honest and obedient to the provisions. Allah SWT.

It's time for Islam to look at the substance of movements and struggles. Not only is it trapped in dramatization-history, religious symbols, which do not bring good solutions, and even create divisions, bloodshed among fellow believers and non-believers. As Ir. Soekarno said that, if you want an Islamic state, then be in power in politics and seize power through parliament, so that the direction of the state's values will tend towards Islamic teachings (Bismar Arianto 2018). Likewise, according to Shaykh Muhammad Nashirudin Albani below, if you want to establish an Islamic caliphate state, first establish true Islam in your heart and soul, then the Islamic state will automatically stand-alone (Abu Anas Ali bin Husein Abu Luz 2002).

The issue of building an Islamic caliphate is not something that is prohibited for each individual Muslim ummah, because it is an ideal, an imagination that has been outlined by the Prophet Muhammad, and Muslims believe and want to make this happen. As in the Hadith of Muhammad SAW, narrated by Abu Nuaim and Ibn Ady in the book Al-Kamil, the Messenger of Allah said, "Al-Mahdi will come out, and above his head there is a cloud in which there is a caller who calls out, This is Al-Mahdi, the Caliph of Allah, follow him "(Ath-Thahthawi 2005).

Sudah barang jelas hal ini adalah hadis yang mesti umat Islam yakini dan percaya sekaligus merupakan cita-cita dan kebahagiaan dalam menyambut momentum tersebut. Akan tetapi hal itu masih tabu untuk kita bicarakan pada saat ini dan kalaupun ingin memperjuangkannya tidaklah relevan dengan cara yang ekstrimis, melainkan adaptif dengan metode zaman. Sebagaimana zaman sekarang untuk memajukan sebuah negara. Maka yang harus dilakukan pertama kali adalah membangun kekuatan ekonomi dan militer(pertahanan) dan IPEK (Eni Susilowati dkk 2022). Bukan sebaliknya, kita hanya bisa memberikan narasi-narasi provokatif, konfrontasi dengan menggunakan dalil-dalil jihad, namun sepi dengan tindakan yang *rill* sesuai dengan realitas dan kebutuhan zaman kita hidup sekarang.

This means that the Islamic ummah must look at the substance of the times and be adaptive to the dynamics of the times. Unfortunately, Muslims today are not aware of this, but like to shout on the streets in fighting for things that are not substantial. So, the author agrees with Sheikh Albani's argument that, if he wants to establish an Islamic state. So, improve religious values and implement religious teachings perfectly in each individual Muslim. If this is done, it is not nonsense if a country is based on Islamic sharia law.

So, in the author's opinion, Shaikh Albani's thoughts on takfir hadith are not as harsh as what the Wahhabi group claims, which are somewhat infidel and heretical. Likewise with matters of heresy, for example congregational remembrance. If the perpetrator of a major sin does not punish infidels, let alone just dhikr in the case of tahlilan. Sheikh Albani also offers the concept that Islamic preaching does not have to be passionate, which in the end does not produce any productive solutions for Muslims at all. Rather, it reflects the method brought by the Prophet, namely, da'wah with those closest to you first or with humanist guidance.

CONCLUSION

Sheikh Albani understands takfir hadith by not accepting just one text, but by comparing it with other hadiths or verses. According to Albani, a person is condemned as an infidel if a Muslim clearly from his tongue and heart admits that the law of Allah SWT is irrelevant, cannot be used and does not believe in his conscience and clearly opposes the law of Allah SWT, with clear words.

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Advances in Social Sciences and Management
March 2024, Vol-2, No-3, pp. 85-99

Service Quality and Its Effect on Customer Loyalty of Banking Industry in Jaffna District Sri Lanka: A Comparative Study Between State Banks and Private Banks

Thillainayagam Dushyenthan

Abstract:
Purpose: To examine how service quality effect on customer loyalty of banking industry in Jaffna district Sri Lanka. Design/methodology/approach: A questionnaire derived from previous studies and the relevant Literature was completed by 420 customers of both private and state banks in Jaffna district, Sri Lanka. Liner regression analysis assessed the effect on customer loyalty of three key constructs of service quality such as station quality, interaction quality and outcome quality. Correlation analysis was carried out to examine the interrelationship between service quality and customer loyalty. And also, independent sample T-test and independent sample one way ANOVA were utilized to find out the significant mean different in customer loyalty among personal demographic variables. Further regression analysis was used to find out impact between two variables. Findings: service quality contributes significantly to customer loyalty and predicts 79.6 percent of the variation found. Interaction quality and outcome quality in service quality contribute significantly to customer loyalty. But customer loyalty is not contributed significantly by station quality in the service quality. And also, there is a significant mean different in-service quality and customer loyalty among the private banks and state banks. State bank customers are more loyal to their bank rather than private banks due to the safety and security features and private banks are offering high service quality rather than state banks. Overall association between service quality and customer loyalty is positively correlated. Research limitations/implications: This research focuses on banking services in one particular district of the country. Therefore, further research in other sectors may be necessary before generalization can be made on. Practical implications: Based on the finding of the study, there are a few key points that can be used to conclude this research paper. It is very important that the service quality in the banking service industry in Jaffna peninsula contributed to the customer loyalty. Mainly interaction and outcome quality dimensions in the service quality contribute to the customer loyalty for becoming effective one. Originality/value: reinforces and refines the body of knowledge relating to customer loyalty in service industries.

Keywords: service quality, customer loyalty and banking service providers.

INTRODUCTION

The current business environment is becoming more competitive and challenging than ever before. With multidimensional challenges and demand of globalization, the organizations are forced to re-engineer their products, services and systems to improve the service quality and remain competitive. Service quality is a measure of how an organization delivers its services compared to the expectations of its customers to create loyalty. Loyalty describes an ongoing emotional relationship between organization and customer manifesting itself by how willing a customer is to engage with and repeatedly purchase from particular firm versus their competitors.

Concept of service quality and customer loyalty are powerful tool to determine organizational performance and long-term sustainability of the firm. Banks also need to be more focus on delivering high level of service quality to their target audience to sustain them for a long period of time.

The banking sector in Sri Lanka remains heavily fragmented. Regulatory measures and market forces could lead to consolidation within the banking sector, resulting in more efficient banking operators and economies of scale. Smaller banks, in particular, are more vulnerable given the pressure on their capital buffers as well as profitability. Further both state and private banks are compelled to invest in and improve their digital systems and platforms for a smoother customer experience, which, to an extent, to be driven by customer demand as well as the competitive pressure to offer the best digital solutions. As a result, from the digital technology side, majority of customers using internet banking, mobile banking, wallet products even during Covid crisis situations as well.

Development of financial sector in a country plays a significant role in economic development. because it promotes through capital accumulation and technological advancement by boosting savings rate, optimizing the allocation of capital, mobilizing and pooling savings, and facilitating and encouraging foreign capital inflows. The banking sector, as the main aspect of the financial sector, provides very important and productive strategy to manipulate stable of that sector achieving financial inclusion, maintaining favorable asset and balancing capital and liquidity level of the economy. Commercial banks are key players in financial markets operations and act an significant role in keeping a country's economy operation smoothly through facilitating the depositing money, to taking loans, exchange currencies and supporting other finance intermediately activities.

Banks also engaged in providing payment services, thereby facilitating all entities to carry out their financial transactions. On the other hand, banks can create vulnerabilities of systemic nature, partly due to a mismatch in maturity of assets and liabilities and their inter connectedness. Therefore, the soundness of banks is important as it contributes towards maintaining confidence in the financial system and any failure may have the potential to impact on activities of all other financial and non-financial entities and finally the economy. In terms of the asset base and the magnitude of services provided, the Licensed Commercial Banks (LCB) are single most important category of financial institutions with in the banking sector.

Customers also having huge number alternative choices to fulfill their financial needs other than these LCB, there are a number of LSB and other financial institutions which are targeting the same customers. Consequently, the banks have now started to realize the prominence of customer loyalty and its contribution to the financial performance and growth of the banks.

RESEARCH PROBLEM

Providing the service that the customers are looking for is very important to retain customers. Quality of the service offered to the customer might be accepted differently by the customer. Some customer give attention for the waiting time to get the service, getting access to the center is another consideration while resource used by the organization to serve the customer is also another critical consideration for other customer about service given by the organization. This makes hard on service provider on which part to focus in order to retain and have a loyal customer. Giving due attention to what customers are looking for today, forecasting and preparing for the

future need of the customer is crucial in order to be competent in the market and retain a loyal customer. Presently banks are ever more concerned about and realizing that the service acquiring decisions of customers is not only influenced by the value alone, but also by the service support available after the delivery of the service (Agnihothri et al., 2017). The effective delivery of high-quality service can help to build and sustain long-term relationships with customers.

Every Banks tries to provide superior services to keep their customers satisfied. With this introduction of the trade liberalization and economic reformation, more significant changes have taken place in the banking and financial sector in Sri Lanka. However, the context has not been properly studied in terms of performance, consumer behavioral responded and competitiveness. Customers of public sector banks experienced a higher service gap compared to the private sector banks. Dissanayake, Wasantha & Jinadasa (2016). Based on the comments provided by the respondents during the pilot study remaining 68.33% of the customers still perceived that bank which are operating in Jaffna district delivering their services at lower level after the implementation of digitalized products. Most of the employees are reluctant to interact with customers and failed to give better financial solutions in accordance with their requirements immediately which is basically depends on employee's attitude of the particular bank.

- RQ: What extent the service quality influences on customer loyalty in banking service providers in Jaffna district, Sri Lanka.

SIGNIFICANCE OF THE STUDY

The perceived significance of this study is based on two items: the relationship between service quality and customer loyalty in a banking sector. Several previous studies track the relationships between service quality and customer loyalty cognitions. This study attempted to combine these facets to understand the full relationship of the enablers of service quality on customer loyalty.

OBJECTIVES OF THE STUDY

The main objective of the study is examined how service quality effect on customer loyalty of banking industry in Jaffna District Sri Lanka and secondary objectives are:

- To find out the relationship between service quality and customer loyalty of banking industry in Jaffna District Sri Lanka.
- To identify which sector bank provides more service quality to sustain their customers as loyal one.
- To identify which sector banking customers are loyal to the bank Jaffna district Sri Lanka.
- To examine significance, mean difference of customer loyalty exist across five levels of age group.

REVIEW OF LITERATURE

Service Quality (SQ)

Service quality (SQ) is defined as the customer's subjective judgment about a service's 'overall excellence'. It is believed that service quality improves the overall quality of a service and assists in achieving business excellence (Ganguli & Roy, 2013; Huang, 2009). Service quality is a measure of how an organization delivers its services compared to the expectations of its customers. Customers purchase services as a response to specific needs.

Nowadays many organizations have started to maintain good customer relationship and hence they use all sorts of technologically advanced services and facilitate their customers to avail of the benefits. Right from the seventies there was a need for improvement in customer services in

banks. With the emergence of new generation banks, introduction of technology, competition, deregulation, etc., new dimensions to customers' service have been added. In the present scenario, "customers' delight", has been the buzzword in banking. The external and internal service quality in banks is a compulsory requirement for the survival of banks in the industry for both enhancement of profits and acquiring new prospects and keeping existing as well.

Present study carried out by the way of using hierarchical service quality model whereas SERVQUAL exist as a predominant model which was formulated by Parasuraman. Because This model is the most used by marketing researchers and scientists, although it is an exploratory study and does not offer a clear measurement method for measuring gaps at different levels. Further SERVQUAL factors are inconsistent and it is not comprehensive for different applications (Dabholkar, et al., 1996; Shahin & Samea, 2010).

Hierarchical service quality model that able firms to recognize problems in primary stage of their delivered services - Interaction Quality, Physical Environment Quality, and Outcome Quality - (Pollack, 2009). It can help managers find customer needs and service weaknesses simultaneously in order to enhance service quality perception and service experiences of customer via high quality of service. This model shows better understanding about customer perception of service quality until today. These three primary dimensions are modelled in this study and the following sections discuss the sub-dimensions of each primary dimensions in detail.

i. Station quality – the quality of a retail bank mainly from where the services are offered ambient conditions, corporate image and Accessibility. (Mohammad Alamgir Hossain & Yogesh Kumar Dwivedi 2014 and Huang, 2009)
ii. Interaction quality – quality of the service delivery systems in terms of Attitude and behavior, expertise & problem-solving skill (Xin Shu 2018 & Caro & Garcia, 2008; Clemes et al., 2009; Dabholkar et al., 1996.
iii. Outcome quality – signifies the functional and tactical benefits (Mohammad Alamgir Hossain & Yogesh Kumar Dwivedi 2014, Miguel-Da´vila et al., 2010 and Bloemer, De Ruyter, & Peeters, 1998).

Customer Loyalty

Customer loyalty is a deeply held commitment to rebuy or patronize a preferred product or service consistently in the future, thereby causing repetitive same brand or the same brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior. Nowadays, research on customer loyalty has received considerable attention in the literature even though, defining and measuring loyalty has proved to be extremely difficult. Some scholars considered customer loyalty as a uni-dimensioned construct which measured only the behavior of customers i.e., repeat purchase. Yi and Jeon (2003) defined loyalty as repeated purchases of a particular product or service during a certain period of time. A similar definition was given by Ladhari et al. (2011) for customer loyalty in the banking sector as a customer's repeated patronage of a certain bank over a long period of time. In this research the researcher identified by basing on the literature put forward these are the major dimensions of the customer loyalty as it is commitment, trust and switching cost.

Commitment:

According to academic definition, commitment to the sales consultant is a desire to maintain a valued relationship and it is an affective commitment and a psychological attachment (Morgan and Hunt, 1994), behavioral intention, that is, the intention to continue the relationship in the

future will be derived from this kind of attachment to the sales consultant (Gundlach et al., 1995). Commitment and loyalty are inter-connected concepts since commitment differs from loyalty as commitment refers to economic, emotional and or psychological attachments which a customer has with a particular store or brand or service and then because of this commitment the customer decides to be loyal or disloyal with the brand (Thomson et. al., 2005).

Trust:

Trust is the most important determinant of customer loyalty. Ganesan (1994) proposed that trust is the key for the determination of long-term orientation between buyer and seller. Further, a key component of trust is the extent to which the customer believes that the vendor has intentions and motives beneficial to the customer and is concerned with creating positive customer outcomes. It is therefore considered that confidence is an essential factor that leads to long-term customer retention. Lost trust means a lost customer. Characteristics of trust-based relationships are: cooperation between buyer and seller, first-class, long-term relationships and quality of cooperation. Cooperation is based on the fact that trust reduces uncertainty and risk, which increases the cooperation between the supplier and buyer. From relationships based on trust and cooperation, the seller and buyer learn that mutual activities give better effects than reliance on individual ones.

Switching Cost:

Switching cost refers to the cost that is incurred by a customer while changing a service, product, supplier and is not limited to just the financial cost, but can also be psychological cost, time cost, etc. Every shift that a customer makes comes with a cost, so it should be evaluated properly before making the switch. Switching costs are a main reason why buyers stay with or switch a seller. In mobile phone services, switching costs play an important role on making customer loyal. Further As in Fornell's (2016) typology switching costs include both economic and psychological values. Switching costs are often recognized as a means for keeping customers in relationships, regardless of their satisfaction with the service provider. Customers may remain loyal when high switching barriers make it costly to switch to another supplier.

Relationship Between Service Quality and Customer Loyalty

Perceived service quality is recognized as a significant antecedent factor of customer loyalty (Kandampully et al., 2011; Suhartanto et al., 2013). Several studies have reported both the direct and indirect impact of service quality on customer loyalty. Dubé and Renaghan (2015) investigated the effect of several functional areas of banks on customer loyalty and found the quality of the various banking services was the most important factor impacting loyalty levels, followed by the quality of bank staffs. Tepeci (2016) stated that consistently providing high quality services, with added value features, leads to an increase in the number of brand-loyal customers in the banking business. Boulding, Kalra, Staelin, and Zeithaml (1993) also reported a positive correlation between service quality and repurchase intentions and willingness to recommend.

Most research in the area of service quality has been based upon the model developed by (Parasuraman et al 1985, 1988), which incorporates a comparison of customer expectations and perceptions of service performance. It is relevant to refer briefly in the related areas of the subject to find out and to fill up the research gaps. Literature on Service Quality dimensions like Tangible, Reliable, Responsiveness, Assurance and Empathy and few studies which are undertaken on the customer perception in banking sector.

Due to increasing completion the bank needs to consider the weak areas in order to meet customer perception about service quality. Emari et al., (2011) assessed to determine the dimensions of service quality in the banking industry in Iran. The study empirically examined Groonor's model suggesting that service quality dimensions like modified SERVQUAL scale like tangible, assurance, responsiveness, reliability and empathy were used to measure functional quality, technical quality service items were developed by image, customer satisfaction and overall service quality. The results reveals that the overall service quality is influenced more by a study consumer's perception of technical quality than functional quality.

Vithya Leninkumar (2016) in her study to examine association between service quality, customer satisfaction and customer loyalty in banking sector in Northern region Sri Lanka. Service quality five dimensions were tangibles, reliability, responsiveness, assurance, empathy, Customer satisfaction and customer loyalty. 300 sample were taken from banks which is located in Northern province Sri Lanka. Based on her findings it was concluded that higher levels of service quality of banks lead to higher levels of customer satisfaction, and customer loyalty. A strong relationship between customer loyalty and service quality has been confirms by many researchers (Anderson & Mittal, 2000; Bloemer & De Ruyter, 1999; and Oliva et al., 1992). Evidences of strong and direct relationship between customer loyalty and service quality have also been given by Heskett et al. (1997). whereas if level of customers' is also tending to be relatively high, it may also act as a vital promoter of customer loyalty However in today highly dynamic and competitive environment attaining higher levels of customer satisfaction and customer loyalty, especially in the services sector, may be a tough task for many organizations. Also, notably many researchers have proved willingness to recommend and repurchase intention as dimensions of the customer loyalty. Further they found that service quality has a strong positive impact on these dimensions of customer loyalty (Ehigie, 2006; Wong & Sohal, 2003; Bloemer et al., 1998; and Bitner, 1990).

Summary of Conclusions from the Literature Review

Through the analysis of the literature, distinct relationships have been found when relating to service quality and customer loyalty, Various service quality dimensions include Tangible, Reliability, Responsiveness, Assurance and Empathy was made for the study. 122 sample respondents were used in Judgement sampling. Tools like Mean, Standard deviation, student t-test have been used to find the credit facilities and insurance services in private sector banks need to concentrate. Public sector banks need to improve their service quality by improving their physical facility, infrastructure and giving proper training to their employees. A strong relationship between customer loyalty and service quality has been confirms by many researchers (Anderson & Mittal, 2000; Bloemer & De Ruyter, 1999; and Oliva et al., 1992). Evidences of strong and direct relationship between customer loyalty and service quality have also been given by Heskett et al. (1997). While Bloemer and De Ruyter (1999) have stated that service quality results in customer loyalty, Ganguli and Roy. 2011, Mohammad Alamgir Hossain & Yogesh Kumar Dwivedi 2014, Vithya Leninkumar (2016), Dissanayake, Wasantha&Jinadasa (2016), Xin Shu 2018, Caro & Garcia, 2008; Clemes et al., 2009; Dabholkar et al., 1996 and Huang, 2009.

CONCEPTUALIZATION

Based on the research question, the following conceptual model has been constructed. This model of service quality in banking service organization introduces new constructs and uniquely combines them in specifying that the customer loyalty is a function of station quality, interaction quality and outcome quality in the service quality. In which, personal demographical factors are used as a moderating variable.

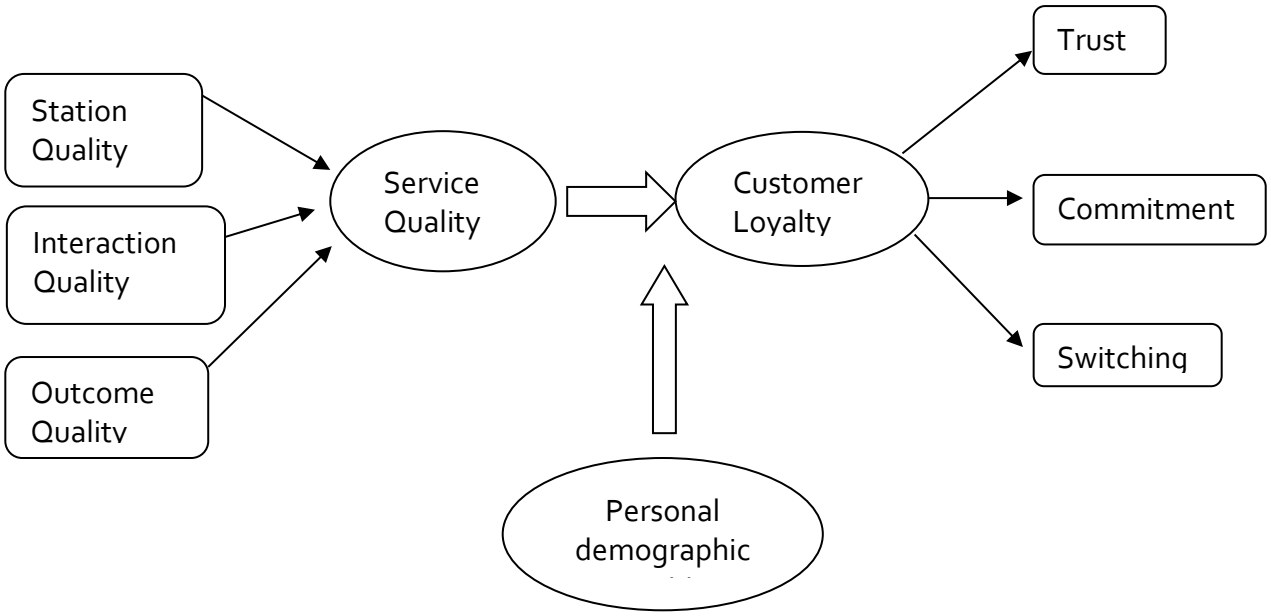

Figure no 01: Conceptualization model

HYPOTHESES OF THE STUDY

The following hypotheses are formulated for the study.

- H1: Service quality highly influenced on customer loyalty of banking industry in Jaffna district Sri Lanka.
- H2: There is a positive association between service quality and customer loyalty of banking industry in Jaffna district Sri Lanka.
- H3: Private sector banks provide more service quality rather than state banks in Jaffna District Sri Lanka.
- H4: Customers are more loyal to state banks compared with private banks in Jaffna District Sri Lanka.

METHODOLOGY

Data Collection

Primary and secondary data are used for this study. Primary data are collected through the questionnaire, and secondary data are collected from texts, journals and magazines.

Sample

A survey instrument in the form of close-ended questionnaire was developed for the purpose of collecting the main data for the study. This study was conducted in banking service providers in Jaffna peninsula. Factors such as precision, confidence, time and cost constraints were taken into consideration in selecting sample size.

Table No 01: Number of Population and Sampling frame work

Jaffna District	BOC		Peoples		NSB		Commercial Bank		HNB		Sampath Bank	
	P	S	P	S	P	S	P	S	P	S	P	S
Jaffna Main Branch	0.258 Mn	31	0.205 Mn	27	0.186 Mn	29	0.165 Mn	27	0.156Mn	27	0.145 Mn	27
Nelliady	0.080 Mn	9	0.117 Mn	15	0.060 Mn	10	0.095Mn	16	0.075 Mn	13	0.060 Mn	11
Chunnakam	0.119Mn	14	0.100	13	0.065	10	0.045	7	0.080	14	0.082	15

			Mn		Mn		Mn		Mn		Mn	
Chavakachcheri	0.072Mn	9	0.036Mn	5	0.051 Mn	8	0.075 Mn	12	0.049 Mn	9	0.030Mn	5
Manipay	0.029 Mn	3	0.030 Mn	4	0.060 Mn	9	0.030 Mn	5	0.021 Mn	4	0.020Mn	4
Chankanai	0.032Mn	4	0.042 Mn	6	0.028 Mn	4	0.020 Mn	3	0.019 Mn	3	0.043 Mn	8
Total	0.59Mn	70	0.53 Mn	70	0.45 Mn	70	0.43 Mn	**70**	0.40 Mn	70	0.38 Mn	70

The study is limited to customers of banking service providers in Jaffna peninsula. Stratified random sampling method has been adopted to select respondents. Researchers issued four hundred and twenty (420) questionnaires to the selected customers and all the respondents returned with their responses. The above table gives details about the distribution of questionnaires.

Instrument Development

The instrument used in this study is composed of 2 parts. The part 1 includes a number of demographic questions such as age, gender, educational qualification and type of bank. The second part deals with service quality and customer loyalty in the banking service sector. This is measured by three sub dimensions including station quality, interaction quality and outcome quality for service quality and also trust, commitment and switching cost for customer loyalty.

Data Analysis Method

Various statistical methods have been employed to compare the data collected from 420 respondents. These methods include (1) descriptive statistics which involves in collecting, summarizing and presenting data. This analysis is given information for the data through the frequency distribution, central tendency, and the dispersion. (2) Inferential statistics which involves in drawing conclusions about a population based only on sample data. It includes linear regression analysis, independent sample one-way ANOVAs (f-test), independent sample t-test (t-test). Linear regression analysis is used to find out the significant impact of service quality and customer loyalty. And t-test and f-test are used to identify the significant mean different between the levels of customer loyalty across the personal demographic factors.

RESULTS AND ANALYSIS

Reliability

The internal consistency of the research instrument should be tested by reliability analysis (Ndubisi, 2006). Nunnally (as cited in Ahsan et al., 2009) suggested that the minimum alpha of 0.6 sufficed for early stage of research. The Cronbach's alpha in this study were all much higher than 0.8, the constructs were therefore deemed to have adequate reliability. The descriptive statistics of the variables and reliability estimates are shown in below table.

Table 02

Variables	No of Items	Cronbach's alpha value
Customer Loyalty	15	0.92
Station Quality	10	0.94
Interaction Quality	11	0.89
Outcome Quality	06	0.88

Correlation Analysis

From this analysis we can summarize that, the service quality of private and state banks has significant influence on customer loyalty regarding their banking services. Because the coefficient of correlation is 0.892 at 0.00 significant level which is almost the strong relationship.

Regression Analysis

The purpose of regression analysis is to find out the significant impact or influence of independent variable on dependent variable (ndubisi, 2006). In this study, service quality is considered as independent variable or predictor variable, and the customer loyalty is considered as dependent variable. Table No 03 presents the results of the regression analysis.

Table no 03: Single linear regression analysis.

Multiple R	R Square	Adjusted R Square	Standard Error	Beta(β)	T	Sig.F
0.892	0.796	0.796	0.21540	0.892	40.422	0.000

NOTE: Significant at 0.05 levels: The results of the regression analysis summarized in table no 03 show that service quality contributes significantly to customer loyalty predicts 79.6 percent of the variation found. Therefore, every service organization more concentrate on delivering high quality service standards to create customer loyalty.

Independent Samples t-Test.

It is carried out to find out whether there was any significant mean difference of customer loyalty across private banks and state bank. Additionally, it was carried out to find out whether there was any significant mean difference of service quality and customer loyalty across private banks and state banks.

Customer Loyalty Based on The Banks

Table no 04: Results of T-test

Customer Loyalty	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig	t	Df	Sig. (2-tail)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal Variances Assumed	2.165	0.001	20.699	418	0	-0.67746	0.03273	-0.7418	-0.61313
Equal variances Not assumed			20.699	409.957	0	-0.67745	0.03273	-0.7418	-0.61313

Table 05: Group Statistics

Customer Loyalty				
Type of Bank	N	Mean	Std. Deviation	Std. Error Mean
Private	210	3.2825	.35809	.02471
State	210	3.9600	.31100	.02146

According to the above group statistics the mean customer loyalty score was 3.2825 (SD = 0.35809) for private banks and 3.9600 (SD = 0.31100) for state banks. The customer loyalty scores of private banks and state banks were compared using an independent sample T – test. The results shows that there was a significant different between the customer loyalty of private banks

and state banks. Because the significance value is less than 0.05 (Sig = 0.001). Therefore, we can conclude that state bank customers are more loyal to their bank rather than private banks.

Service Quality Level Based on Banks

Table no 06: Results of T-test

Service Quality	Levene's Test for Equality of Variances		T-test for Equality of Means						
	F	Sig	t	Df	Sig. (2-tail)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances Assumed	13.168	0	-17.26	418	0	-0.59753	0.3462	-0.66558	-0.52948
Equal variances Not assumed			-17.26	409.32	0	-0.59753	0.3462	-0.66558	-0.52948

Table 07: Group Statistics

Service Quality				
Type of Bank	N	Mean	Std. Deviation	Std. Error Mean
Private	210	3.9519	.32789	.02263
State	210	3.3544	.37969	.02620

According to the above group statistics the mean service quality score was 3.9519 (SD = 0.32789) for private banks and 3.3544 (SD = 0.37969) for state banks. The service quality scores of private banks and state banks were compared using an independent sample T – test. The results shows that there was a significant different between the service quality of private banks and state banks. Because the significance value is less than 0.05 (Sig = 0.001). Therefore, we can conclude that private banks are offering high value of quality service to their target audience compared with state banks.

Independent Sample One-way ANOVA test

Generally, it is used when a researcher has one independent and one continues dependent variable and the independent variable specifies three or more groups for an example age group at (18-27, 28-37, 38-47, 48-57 and above 57. It was used to find out whether there is any significant mean difference of customer loyalty across 05 levels of age group.

Table No 08: Results of ANOVA

Descriptive

Customer Loyalty

	N	Mean	Std. Deviation	Std. Error	95%Confidence Interval f Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
18-27	40	3.6317	0.50839	0.08038	3.4691	3.7943	2.73	4.53
28-37	145	3.6294	0.48092	0.03994	3.5505	3.7084	2.53	4.67
38-47	109	3.6122	0.43083	0.04127	3.5304	3.6940	2.67	4.47
48-57	66	3.6626	0.49086	0.06042	3.5420	3.7833	2.93	4.73
Above 57	60	3.5656	0.51734	0.06679	3.4319	3.6992	2.73	4.53
Total	420	3.6213	0.47668	0.02326	3.5756	3.6670	2.53	4.73

Test of Homogeneity of Variances

Customer Loyalty

Levene Statistic	df1	df2	Sig.
1.070	4	415	0.371

ANOVA

Customer Loyalty

	Sum of Squares	df	Mean Square	F	Sig
Between Groups	.322	4	0.080	0.352	0.843
Within Groups	94.884	415	0.229		
Total	95.206	419			

The above descriptive statistics represent that the mean customer loyalty score was 3.6317 (SD = .50839 for 18-27 age group, 3.6294 (SD = .48092) for 28-37 age group, 3.6122 (SD = .43083) for 38-47 age group, 3.6626 (SD = .49086) for 48-57 age group and 3.5656 (SD = .51734) for above 57 age group. The customer loyalty scores of five level of age group were compared using an independent sample one way ANOVA.

Hypotheses Testing (Summary)

Analysis	**Independent Variable**	**Dependent Variable**	**Correlation r**	**Adjusted r^2**	**Sig**	**Mean Value**
Regression	Station Quality	Customer Loyalty		0.554	0.000	N/A
	Interaction Quality	Customer Loyalty		0.888	0.000	N/A
	Outcome Quality	Customer Loyalty		0.785	0.000	N/A
Correlation	Service Quality	Customer Loyalty	0.892**		0.000	N/A
Independent sample T - test	State bank Private bank State bank Private bank	Customer Loyalty Service Quality			0.001 0.001 0.000 0.000	3.9600 3.2825 3.3544 3.9519
Independent sample one way ANOVA	Age group 18-27 28-37 38-47 48-57 Over 57	Customer Loyalty			0.371	 3.6317 3.6294 3.6122 3.6626 3.5656

CONCLUSION AND RECOMMENDATION

Customers' perception of the level of excellence of the service quality of the state banks is found to be below their expectation compared with private banks. As per the research findings station quality, interaction quality and outcome quality highly positively correlated with customer loyalty. Therefore, overall service quality highly positively associated with customer loyalty. Further in accordance with regression analysis 79.6% of the customer loyalty determined by overall service quality whereas remaining 20.4% of customer loyalty depends on other factors. In addition to that as per the independent sample T test analysis that results shows that there was a

significant different between the customer loyalty of private banks and state banks. Because the significance value is less than 0.05 (Sig = 0.001).

Therefore, based on the results state bank customers are more loyal to their bank rather than private banks due to the safety and security features.in contrast there was a significant difference exist between the service quality of private banks and state banks. Because the significance value is less than 0.05. Therefore, researcher could able to find that private banks are offering high value of quality service to their valuable customers rather than state banks. Since independent sample one way ANOVA used to find out whether is there any significant mean difference of customer loyalty across 05 levels of age group. Based on the analysis researcher could be able to conclude that five levels of age group people are equally loyal regards to their banking services from state banks and private banks.

In the context of customer loyalty there was a significant mean differences exist between state banks and private banks thus revealed that state banks customers are more loyal to their banks rather than private banks. Anyhow there were no significant difference exist between the customer loyalty and five levels of age group. Ultimately according to this research study researcher able to conclude that 88% of the customer loyalty depends on service quality which is the combination of station quality, interaction quality and outcome quality whereas remaining 12% of the customer loyalty determined by other factors.

All service quality determinants significantly effect on customer loyalty. One of the major aims of the study was to make relevant recommendations on service quality of banking industry in Jaffna district Sri Lanka. Considering the findings of the study and conclusions, the following recommendations are made. It is concluded from the findings that; overall service quality is a construct of three dimensions. Management of both state and private banks should recognize this vital information and strategies their service quality improvement policies around this model. It is important that management of both state banks and private banks to recognize that the quality of their services in terms of interaction quality.

Thus, much effort should be made to maintain or even enhance their current performance in terms of interactivity between staff and customers. As much as it is important to maintain the strengths of the service quality of both state and private banks, it is even more important to work on the weaknesses. Generally, it is concluded from the study that the overall service quality of the state banks falls short of customers expectation. Out of the three dimensions of the service quality of banks identified, all of them are perceived to be below customers' expectations resulting in the less than expected overall service quality specifically in state banks. Thus, management of both state and private banks should be aware of this information and take concrete steps to improve on the overall service quality of the banks.

To achieve this, employees must be motivated and trained to improve their customer relations in terms of being responsive to customers, showing empathy to customers as well as instilling confidence in customers of the service of the banks. Notwithstanding the fact that improvement in the service quality of both state banks and private banks in all the dimensions is desirable, greater emphasis should be placed on interaction quality since it is found to be the most influential factor of overall service quality perception of customers in banking sector compared with other dimensions including station quality and outcome quality. Moreover, it is concluded from the study that, equal stance needs to be maintained regards demographic variables such as gender,

age, income level of customers and educational level of customers while formulating policies on improving service quality.

LIMITATION AND FUTURE RESEARCH

Even though the current study carries important implications and new insights to commercial banks, to academics and especially to managers in the banking industry, there were a few inherent limitations identified in this study. Mainly service quality was considered as important determinants of the study. Apart from these construct other constructs which influence customer loyalty namely; beliefs, value and corporate image also could be studied to predict customer loyalty in present. The current study explored the relationships between three constructs only in the commercial banks of the Jaffna district Sri Lanka.

Only six banks were selected including three state banks and three private banks and therefore care should be taken in generalizing the findings. The sample was selected using the convenience random sampling method among the selected banks and the sample size was limited to four hundred and twenty. The reliability of data depended on the respondents' understanding and perceptions as given in the self-reported data.

Even though the current study narrowed the empirical gap, it still provides a pathway for future research. First, the objective of the current study was to explore the influence of service quality on customer loyalty in commercial banks of Jaffna district Sri Lanka, therefore it did not include banks other than commercial banks in the banking industry.

It also focused on the Jaffna district of Sri Lanka. Thus, the scope of generalizing the results to other contexts and to the whole of Sri Lanka may be limited. Therefore, covering the whole banking industry in all of Sri Lanka may provide new findings. Further, replications in other service contexts are highly desirable. Comparison of models of government and private banks will give more understanding on the difference between them. Further, developing a richer model that incorporates other constructs such as beliefs, value, and corporate image will also give further insights. This research has taken only 420 customers as sample, since future researchers can take more customers as sample to increase effective results.

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