



***Al-Ameen* ANNUALS**

A refereed journal for Interdisciplinary Studies

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Editorial

It is with great pride and happiness that I present the latest edition of ‘Al-ameen Annuals’ , the multidisciplinary journal of Al-Ameen College. This journal serves as a platform to enhance the research capabilities of our teachers and postgraduate students, fostering a culture of academic excellence and intellectual growth.

I am particularly delighted that all the articles in this edition have been rigorously checked using the plagiarism detection software recently introduced at our college. This reflects our commitment to maintaining the integrity and quality of research.

The establishment of our multidisciplinary research center in commerce and allied areas of social sciences has been a milestone for the college. It has strengthened our focus on research and opened new opportunities for collaborative studies and innovative solutions to societal challenges.

I extend my sincere gratitude to the editorial team for their tireless efforts and to our contributors for their valuable work. Let us continue to build a strong research culture at Al-Ameen College, striving for excellence and meaningful contributions to society.

Chief Editor

Automated Fetal Health Analysis: NLP and OCR for Pregnancy Scan Reports

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Abstract

The paper unveils a pioneering approach to the automation of analyzing of pregnancy scan reports based on making thorough use of the capabilities provided by Natural Language Processing (NLP) and Optical Character Recognition (OCR) technologies. This paper addresses the challenge of automating the interpretation of pregnancy scan reports, a task that is traditionally takes a considerable amount of time and has the possibility of human error. The method presented here is put through the process for the method which involves OCR to obtain reliable text from a pregnancy scan report and NLP to identify further classify relevant entities, namely; trimester, placenta, Fetal heart beat and biometric measurement. Automated Fetal Health Analysis system evaluates the conditions of the fetal health by comparison with established medical reference ranges. The automation of this solution aims to reduce the workload of healthcare experts and ensure greater precision in prenatal diagnostics. The results involves balanced streamlining of the analysis process may be achieved using a combination of OCR and NLP, and examinations can also be carried out within an acceptable time frame with precise estimations of fetal health. This research depicts how advanced technologies can be adapted in medical data processing to produce feasibility and benefit.

Keywords: Natural Language Processing (NLP), Optical Character Recognition (OCR), Pregnancy Scan Reports, Fetal Health Analysis, Named Entity Recognition (NER), SpaCY models .

I. INTRODUCTION

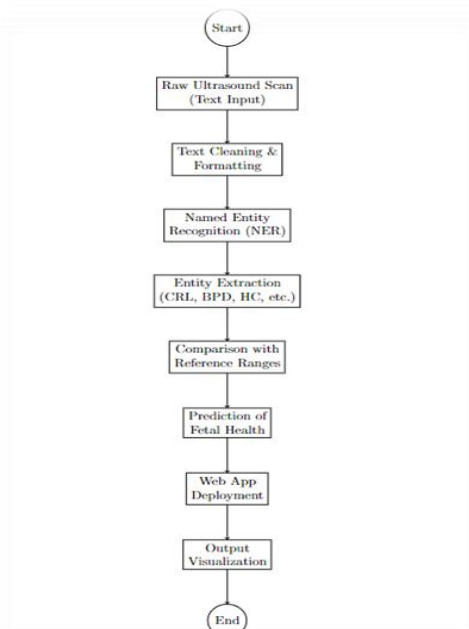
I. Analysis of Pregnancy scan reports therefore plays a vital role in prenatal care as it gives essential information on fetal health and development status. Conventionally, this work has

relied on doctors and nurses doing it by eye-time-consuming and susceptible to error. Increasingly, volume and accuracy mean that automated assistance becomes necessary.

- II. Advances in NLP and OCR present promising methods for automated extraction and analysis of textual data from medical images. NLP allows machines to decode human language, while OCR converts an image of text into a format machine-readable [6]
- III. The manual interpretation of reports derived from the pregnancy scan is inefficient and error-prone in leading to potential delays and inaccuracies in prenatal diagnostics. Therefore, there is a very high demand for an automated system that can extract data reliably and periodically analyze these reports to provide to healthcare professionals.
- IV. An innovative approach about how pregnancy scan report analysis could be simplified has been discussed using OCR and NLP technologies [7]. After extracting accurate textual data from varied reports of scans using OCR, there follows the use of NLP for determination and categorization of critical entities such as trimester, placenta position, fetal heart rate, and biometric measurements [8].
- V. The integration of OCR and NLP allows the development of the Automated Fetal Health Analysis system targeted towards the effective analysis of fetal health conditions. The data extracted are then presented as analysis results in comparison with reference medical values thus providing timely and reliable health

assessments [7]. In addition to reducing the workload of healthcare professionals, automated solutions have accuracy in prenatal diagnosis thus increasing the outcome of patient care [8].

- VI. This paper describes an approach to automatically extract entities from pregnancy scan reports and analyze resulting fetal conditions using joint NLP and OCR technologies. When text from scanned images is extracted using OCR and identified and classified crucial entities by an NLP model with this method, improved diagnostic efficiency and accuracy will be obtained. The approach saves health professionals unnecessary time burden and gives timely and reliable findings, thereby enhancing the quality of care during prenatal periods.



II METHOD

A. Model

spaCy is an open-source library for advanced Natural Language Processing (NLP) in Python. SpaCY is not only designed to be efficient and fast but also production-ready to ensure developers can create scalable applications and workflows. spaCY models are pretrained pipelines, incorporating a number of varied NLP components designed for specific tasks and languages. The model used in this study is the one adopted from the framework of spaCY specifically with 'en_core-web_sm' for NER experiments. The 'en_core_web_sm' model is part of the spaCY library which is an efficient language model designed to process natural model designed to process natural language text at scale. It is a small English model which is trained on web text with vocabulary, syntax, entities, and word vectors [3]. The model architecture comprises:

- **Tokenization:** Breaking up the text into meaningful units, such as words and punctuation.
- **POS Tagging:** Assigns grammatical categories like noun, verb, etc., for tokens.
- **Dependency Parsing:** Determines syntactic structure and discovers relationships between tokens.
- **Named Entity Recognition (NER):** Finds entities like persons, organizations, dates, and custom entities specified at training time [3].

B. Data preparation

In developing our NLP model to interpret pregnancy scan reports, the first critical step involves accurate data preparation. This section outlines the procedures for sourcing the data, annotating it for NER purposes,

and converting it into a machine-readable format.

Data Collection

Reports containing comprehensive listings of health parameters for babies will serve as our primary data source. Since these reports are often in image format, they must be digitized using OCR. This process involves OCR tools extracting text from scanned images, enabling the data to be prepared as a foundation for further analysis.

NER Annotation

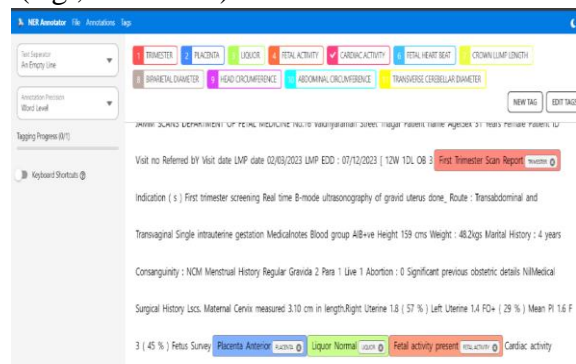
After having obtained the text, annotation of the data for NER follows. This process is aimed at identifying and tagging key entities in the text for an understanding of health and development of the fetus. Classes defined while annotating include

- **TRIMESTER:** Defines the stage of pregnancy (e.g., "First Trimester").
- **PLACENTA:** Info about the placenta (e.g., "Placenta Anterior").
- **LIQUOR:** Information regarding amniotic fluid (e.g., "Liquor Normal").
- **FETAL ACTIVITY:** Maternal Notes of fetal movements (e.g., "Fetal activity present").
- **CARDIAC ACTIVITY:** Information regarding fetal heart activity: for example, "Cardiac activity present."
- **FETAL HEART BEAT:** Fetal heartbeat data. That is, for example, "Fetal heart rate 154 bpm."
- **CROWN LUMP LENGTH:** Measurement of the crown-rump length
- **BIPARIETAL DIAMETER:** Measurement of the biparietal diameter (e.g., "BPD 21").
- **HEAD CIRCUMFERENCE:** Recording of

head circumference measurement (for example, "HC 75.43").

• **ABDOMINAL CIRCUMFERENCE:**

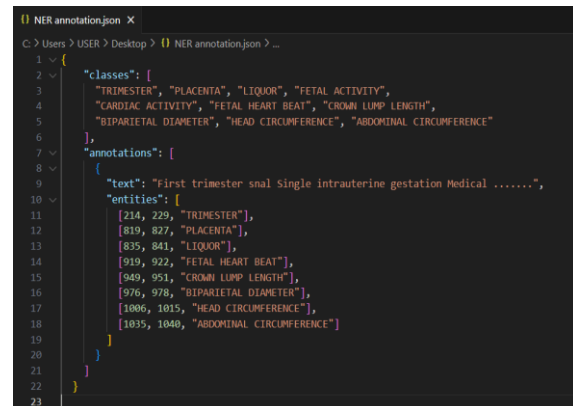
Provide abdominal circumferential measurement, for example, "AC 58.14". The text annotation tool [Figure 2] allows the exact annotation by stating the beginning and the end of each entity in terms of position in the text, which helps the model learn patterns for detecting similar entities in unstructured data [4]. For example, for the sentence "First Trimester scan report", the substring "First Trimester" is marked as the TRIMESTER entity starting at position 214 and ending at 229. (e.g., "CRL 59").



Converting to JSON Format

To help efficient training of the NER model, the annotated data is formatted as in the following: JSON format [figure 3]; structurally described with original text and its corresponding annotated entities defined with start and end positions and their respective labels [5]. Sample example: the JSON representation This pattern thus forms the basis of training the NER model effectively, allowing it to learn how to correctly recognize and classify entities of interest from the pregnancy scan reports.

C. Model training



The spaCy NER training will therefore be found in steps, for which details are presented later in relation to the source code and materials provided. First, the annotated text data in JSON format is read in (TRAIN_DATA) and then transformed to spaCy's DocBin format (training_data.spacy) for easy processing of data. Preprocessing text data for training should include preparing text along with annotations of entities that this text corresponds to. A specially configured spaCy configuration file for NER optimization (config.cfg) is initialized next [5]. The training command (spacy train) is run and training_data.spacy is utilized both for training and validation steps together [5]. The model trains iteratively, refining its capabilities in entity recognition based on annotated examples with the aim of optimizing performance metrics such as precision and recall. The best-performing model is selected at the end of the training period, model-best.

D. Model evaluation

The evaluation of the model measures how well the spaCy NER model works based on comparisons of its predictions versus the annotated entities within evaluation data. It

runs a pre-trained model file (nlp) along with evaluation data from a JSON file. For each text example, it predicts the entities compared with ground truth annotations to get the precision, recall, and F1 score [figure 4]. Precision measures the accuracy of predicted entities, recall evaluates completeness against annotated entities, and F1 score balances both metrics to provide an overall performance measure. These scores indicate how effectively the model identifies and categorizes entities related to fetal health conditions in medical text, guiding improvements for more accurate analyses of pregnancy scan reports.

```
Precision: 1.0000
Recall: 1.0000
F1 Score: 1.0000

model meets the minimum 90% score threshold.
```

According to evaluation metrics, the data is retrieved from the report of the pregnancy scan; while the model makes sure that a good output is carried out regarding the identification of relevant parameters including trimester position, placenta, fetal activity, cardiac health, and biometric measurements. This identified set is compared with ideal reference ranges in order to assess the condition of the fetus [figure 5].

III.ACKNOWLEDGEMENT

This is a great opportunity for most of the students to work on lots of real-time projects with the knowledge of how to design and analyze real projects. We thank God Almighty for all the blessings we received during this endeavor. I am thankful to our Head of the Department, Dr. Jyothi Joseph,

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IV. CONCLUSION

Therefore, the developed NLP and OCR-based system demonstrates excellent performance in the automation of pregnancy scan reports analysis. The obtained perfect precision, recall, and F1 scores guarantee the reliability of the model, showing the feasibility of identifying and extracting crucial parameters for prenatal diagnostics. The ability to match extracted data against reference ranges allows the system to promptly produce accurate assessments regarding conditions of fetal health, thereby helping improve obstetrics clinical decision-making and patient care. Subsequent refinements may attempt to expand the model to address a more heterogeneously significant number of clinical cases and further validate its worth within real healthcare practice.

Entity Recognition Result

Entities:

- First Trimester Scan Report - TRIMESTER
- Anterior - PLACENTA
- Normal - LIQUOR
- present - FETAL ACTIVITY
- present - CARDIAC ACTIVITY
- 154 - FETAL HEART BEAT
- 59 - CROWN LUMP LENGTH
- 21 - BIPARIETAL DIAMETER
- 75.43 - HEAD CIRCUMFERENCE
- 58.14 - ABDOMINAL CIRCUMFERENCE

Health Condition:

Fetus is in good condition

V. REFERENCES

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IMPINGEMENT OF ARTIFICIAL INTELLIGENCE ON THE BANKING SECTOR: A STUDY OF PRIVATE BANKS IN KOTTAYAM

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Abstract

This study investigates the impact of artificial intelligence (AI) on the banking sector, with a specific focus on private banks in Kottayam. The research aims to understand how AI technologies are being integrated into banking operations and their effects on efficiency, customer service, and decision-making processes. A mixed-methods approach was employed, combining quantitative data from surveys and qualitative insights from interviews with bank employees and customers. The results indicate that AI has significantly improved operational efficiency and customer satisfaction, though challenges remain in terms of implementation costs. These findings suggest that while AI adoption is beneficial, it requires careful planning and robust cyber security measures. Future research should explore long-term effects and strategies for optimizing AI integration in the banking sector.

Keywords: Artificial Intelligence, Banking Sector, Customer Impact, Operational Efficiency

I. INTRODUCTION

The advent of Artificial Intelligence (AI) has ushered in a transformative era for various industries, with the banking sector being no exception. AI's integration into banking operations has revolutionized traditional banking practices, offering innovative solutions that enhance efficiency, security, and customer satisfaction. Private banks, particularly in regions like Kottayam, are increasingly adopting AI technologies to evaluating the influence of AI on banking staff, assessing the challenges faced by

stay competitive and meet the evolving demands of their clientele.

This study aims to delve into the multifaceted impact of AI on the banking sector, focusing specifically on private banks in Kottayam. By investigating how AI implementation influences both customers and bankers, the study seeks to provide a comprehensive understanding of the benefits and challenges associated with this technological shift. The research objectives include examining customer experiences,

bankers during AI implementation, and analysing the overall performance of the banking sector post-AI integration.

Through a methodical approach involving primary data collection from bank customers and employees, this study will shed light on the practical implications of AI in banking. The findings are expected to offer valuable insights into how AI can be leveraged to optimize banking operations, enhance service delivery, and ultimately contribute to the growth and development of the banking sector in Kottayam.

II. METHOD

A. Research Methodology

This study employs a mixed-methods research approach to comprehensively investigate the impact of Artificial Intelligence (AI) in the banking sector, with a specific focus on private banks in Kottayam. The methodology is structured to achieve the research objectives effectively, which include understanding the influence of AI on customers and bankers, assessing challenges encountered during AI implementation, and examining post-implementation performance in the banking sector.

B. Sampling

The study's sample population comprises customers of private banks and bankers working in the private banking sector in Kottayam. A total of 70 respondents from private bank customers and 30 respondents from bank employees were included in the

study. Random sampling technique was adopted to ensure the selection of a representative sample.

C. Data Collection

Primary data collection was conducted through the distribution of structured questionnaires. The questionnaire consists of two parts: Part A gathers demographic details, while Part B comprises conceptual questions related to AI implementation, customer experiences, challenges faced by bankers, and banking sector performance. Closed-ended questions were incorporated to facilitate comprehensive data collection.

D. Data Sources

- **Primary Data:** Questionnaires were distributed to customers and bankers to collect firsthand information regarding their experiences and perceptions of AI in banking operations.
- **Secondary Data:** Supplementary information was sourced from academic journals, internet websites, textbooks, and literature surveys to complement the primary data and provide context for the study.

E. Data Analysis

Quantitative data collected through closed-ended questions were analysed using statistical techniques such as descriptive statistics, chi – square test etc. to summarize and interpret customer and banker responses.

This research methodology is designed to provide a comprehensive understanding of the impact of AI in the banking sector, drawing insights from both customers and bankers. By employing a mixed-methods approach, the study aims to generate nuanced findings that contribute to the existing body of knowledge on AI adoption in banking and inform future strategies for AI implementation in the sector.

III. RESULTS AND DISCUSSION

Option	No. of respondents	Percentage (%)
Yes	57	81
No	13	19
Total	70	100

Table 1 Changes in the services provided by the bank after the implementation of AI

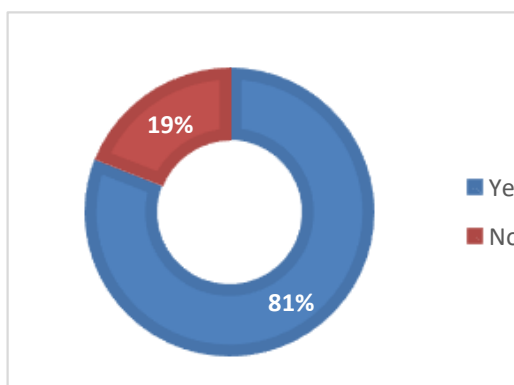


Fig. 1 Changes in the services provided by the bank after the implementation of AI

Option	No. of respondents	Percentage (%)
Strongly agree	19	27
Agree	33	47
Disagree	11	16
Strongly disagree	7	10
Total	70	100

Table 2 AI helps to show transparency in banking transactions

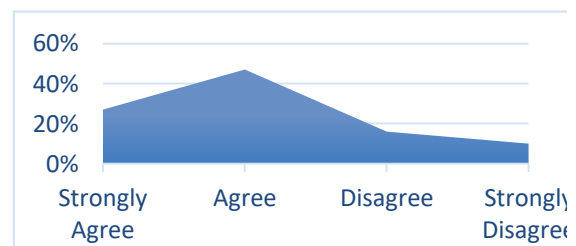


Fig. 2 AI helps to show transparency in banking transactions

Option	No. of respondents	Percentage (%)
Yes	19	63
No	11	37
Total	30	100

Table 3 Encountered challenges in adapting to AI technologies in banking operations

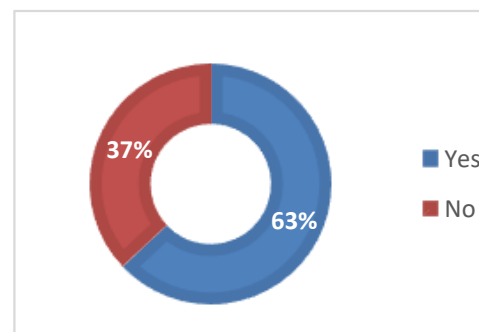


Table 3 Encountered challenges in adapting to AI technologies in banking operations

Option	No. of respondents	Percentage (%)
Directly involved	21	70
Not involved	9	30
Total	30	100

Table 4 Bankers involvement in AI adoption

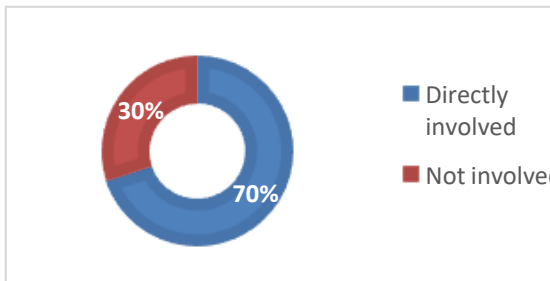


Fig. 4 Bankers involvement in AI adoption

Option	No. of respondents	Percentage (%)
Strongly agree	9	30
Agree	12	40
Disagree	6	20
Strongly disagree	3	10
Total	30	100

Table 6 AI implementation in the banking sector improves customer satisfaction

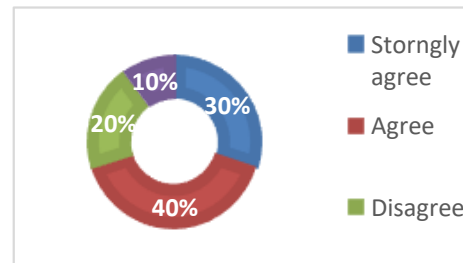


Fig. 6 AI implementation in the banking sector improves customer satisfaction

Option	No. of respondents	Percentage (%)
No significant change	10	33
Improved significantly	14	47
Declined significantly	6	20
Total	30	100

Table 5 Overall performance of the bank changed post-AI implementation

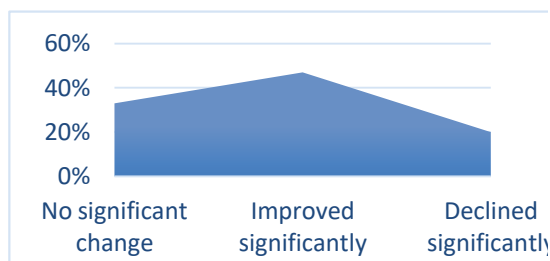


Fig. 5 Overall Performance

Option	No. of respondents	Percentage (%)
Reduction of job responsibilities	8	27%
Enhanced customer service and satisfaction levels	11	37%
Decreased efficiency in banking operations	4	13%
Limited innovation and competitiveness	7	23%
Total	30	100

Table 7 Bankers involvement in AI adoption

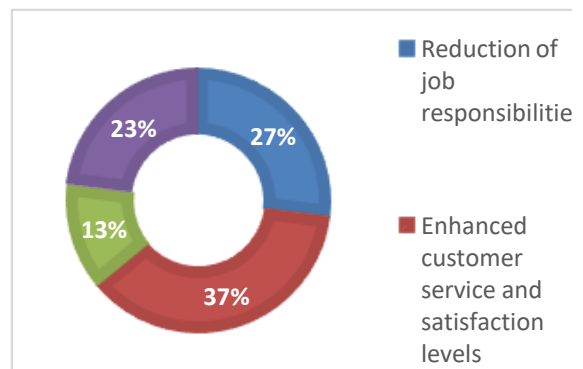


Fig. 7 Bankers involvement in AI adoption

TESTING OF HYPOTHESIS

Null Hypothesis (H0):

There is no significant influence of AI implementation on bankers' roles and responsibilities in the banking sector.

Alternative Hypothesis (H1):

AI implementation has a significant influence on bankers' roles and responsibilities in the banking sector

	Directly involved	Not Involved
Reduction of job responsibilities	6 (5.60) [0.03]	2 (2.40) [0.07]
Enhanced customer service	9 (7.70) [0.22]	2 (3.30) [0.51]
Decreased efficiency in operations	2 (2.80) [0.23]	2 (1.20) [0.53]
Limited innovation	4 (4.90) [0.17]	3 (2.10) [0.39]
Column Totals	21	9

[Using Chi square Calculator]

Table 8 Analysis table

Interpretation:

The chi-square statistic is 2.1398. The p-value is .54391. The result is not significant at $p < .05$. Therefore, under present study indicates that there is no significant influence of AI implementation on bankers' roles and responsibilities in the banking sector.

MAJOR FINDINGS

- Awareness and Perception of AI: 79% of customers are aware of AI usage in banking, with 81% believing that AI implementation has led to changes in banking services.
- Customer Satisfaction: 29% strongly agree and 44% agree that AI

implementation has positively impacted them. Additionally, 83% find AI-driven chatbots effective in addressing queries.

- Transaction Efficiency and Safety: 50% strongly agree that AI has improved transaction efficiency, while 47% believe it enhances transaction safety.
- Banking System Transformation: 40% strongly agree that AI has transformed the banking system, indicating its profound influence.
- Challenges in AI Implementation: 63% of bankers encountered challenges, suggesting the need for effective strategies to address implementation hurdles.
- Overall Performance: 47% of bankers reported a significant improvement in overall bank performance post-AI, reflecting AI's positive impact.
- There is no significant influence of AI implementation on bankers' roles and responsibilities in the banking sector.

IV. CONCLUSION

The banking sector is undergoing rapid transformation with the integration of Artificial Intelligence (AI), significantly influencing various operational facets. AI technologies have enhanced core banking, customer support, and analytical capabilities, moving banking beyond

physical branches to a more dynamic digital landscape. This technological evolution has boosted banking penetration, cost-efficiency, and facilitated small-value transactions, thereby driving overall growth and development.

The study indicates that young customers are generally aware of AI in banking, finding it beneficial yet recognizing the need for more knowledge. Bankers acknowledge AI's role in reducing work pressure and errors despite its high implementation costs. Ultimately, AI has proven advantageous for both customers and bankers, enhancing service quality, operational efficiency, and security. As AI continues to reshape banking, it is expected to further attract customers and support the sector's growth in an increasingly competitive environment.

V. ACKNOWLEDGEMENT

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WATER QUALITY ASSESSMENT IN SITAPUR DISTRICT, UTTAR PRADESH, INDIA

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Abstract

This study was designed to assess the quality of water in Sitapur District, UP, India, using physicochemical parameters like pH, Chloride, Sulphate, Alkalinity, and Hardness. For this purpose, seven groundwater samples and four surface water samples were collected and analyzed. The results were evaluated and compared with BIS water quality standards. The results show water is mildly acidic to alkaline nature. Moreover, the pH, chloride, and sulphate content were within the BIS norms of drinking water. The alkalinity of groundwater was above the BIS desirable limit but was less than the permissible limit. Even though the hardness of surface water is within the BIS limit, most of the groundwater slightly exceeds the permissible limit of drinking purpose. Also, higher values for permanent hardness than temporary hardness were noticed in the entire location. As per the classification of water hardness, the water was in the category of moderately hard to very hard. Based on the analyzed parameters the water samples are suitable for domestic purposes.

Keywords: Physico-chemical properties; Water Quality; Groundwater; Drinking water

I. INTRODUCTION

Groundwater and surface water are the primary sources of water in many parts of the world for domestic use, especially, in developing countries like India. Groundwater is over-exploited nowadays due to the terrific growth of the human population and the enhancement of agricultural and industrial sectors. Therefore, their quality should be preserved

to guarantee the fulfilment of the different water needs by humans and ecosystems. For this, it is necessary to monitor the quality and quantity of water to meet the sustainable growth of the nation. As many decisions concerning water resources protection depend on the information acquired through regular water quality monitoring, water quality data must be relevant, precise, and reliable in space and time.

Groundwater and surface water quality could be affected by several factors and

processes, such as anthropocentric impacts and natural phenomena as well as groundwater / surface - water/ soil inter-relationships [1,2]. Sitapur District in UP is famous for the production of wheat, rice, urad, sugarcane, mustard, groundnuts, peppermint, potato, and banana. In the race to enhance agricultural productivity, irrigation will become more dependent on unmonitored sources of water. It will negatively influence the soil quality and crop production. Physico-chemical parameter analysis is very important to get an idea about the quality of water and we can compare results with standard values. Mohsin et al. [3] reported that the groundwater quality in Bahalwapur City deteriorated through the physico-chemical analysis. Also, many researchers [4, 5, 6] were reported the importance of Physicochemical monitoring in their articles. The current study also focused on the water quality checking of Sitapur District, UP, India by using selected Physico-Chemical parameters. This baseline study will be a treasure for further research in this area.

II. MATERIALS AND METHODS

A. Sampling and preservation

Seven groundwater samples (W1-W7) and four surface water samples (N1-N4) were collected from the selected sites of Sitapur District, UP by proper methods. The latitude and longitude of the study area are given in Table 1. Pre-cleaned high-density polyethylene plastic bottles (1L) were used for sample collection. Groundwater samples

were taken from bore wells and surface water from canals. These samples were kept in the refrigerator until the analysis.

Sample	Latitude (°N)	Longitude (°E)
W1	27.55123	81.04941
W2	27.72048	80.48218
W3	27.66895	80.65419
W4	27.57716	80.75539
W5	27.56497	80.64713
W6	27.58016	80.84106
W7	27.71045	80.91507
N1	27.66421	80.85317
N2	27.71362	80.91191
N3	27.72099	80.48427
N4	27.66897	80.65419

Table 1. Latitude and longitude of sampling sites

B. Analytical procedure

The pH of the water samples was estimated by a digital pH meter. The hardness of water samples was determined titrimetrically using a standard EDTA solution. The silver nitrate titration method was used for the estimation of chloride ions in water samples. The alkalinity (as % CaCO₃) was examined by titration method. Sulphate ions were detected with the help of UV-visible spectrophotometer.

III. RESULTS AND DISCUSSION

The quality checking of water samples was executed by the analyses of various Physicochemical parameters such as pH, conductivity, alkalinity, chloride, total

hardness, permanent hardness, temporary hardness and sulphate ions. Obtained results are tabulated in Table 2.

The value of pH varied from 6.79 to 7.65 in groundwater and 6.04 to 8.12 in surface water (Table 2). These results show that the quality of water samples in the studied sites has no remarkable variation from the BIS recommended value (Table 2). If the pH is above this limit in drinking water may cause health issues in humans, and nutritional imbalance and release of toxic ions in the soil system after irrigation [7].

The alkalinity of the ground water ranged from 312 to 484 mg/L and for surface water was 166 to 176 mg/L during the study time. The main reason for the alkalinity of water samples is the presence of various ions like hydroxide, carbonate, and bicarbonates. The alkalinity of groundwater in the present study was above the BIS desirable limit (20 mg/L) but was less than the permissible limit (600 mg/L). Tiwari et al. [8] also noticed a similar trend in alkalinity in the Hamirpur District, UP. According to them, the reason for the alkalinity of water is the presence of suspended substances such as sludge, organic matter, inorganic matter, micro substances etc in the water source.

The hardness of groundwater and surface water ranged from the value of 126 to 750 mg/L, and 162 to 192 mg/L, respectively. Except for the sites W1, W2, W5, W6 and W7, all other water samples are below the desirable limit of BIS [7], and W7 exceeds the BIS permissible level (600 mg/L) in the absence of alternate source (Table 2).

Sample	pH	Chloride (mg/L)	Alkalinity (mg/L of CaCO ₃)	Total hardness (mg/L)	Permanent hardness (mg/L)	Temporary hardness(mg/L)	SO ₄ ²⁻ (ppm)
W1	7.22	53.64	440	278	208	70	13.5
W2	7.65	31.55	312	234	180	54	4
W3	7.59	9.47	312	126	118	8	1.5
W4	7.22	31.55	422	152	140	12	9.5
W5	7.56	18.93	484	284	172	112	2.5
W6	7.14	18.93	344	314	202	112	1
W7	6.79	242.94	412	750	492	258	46
N1	8.1	15.78	174	192	160	32	15.5
N2	8.12	22.09	168	174	130	44	13
N3	7.87	25.24	168	170	132	38	14.5
N4	6.04	15.78	166	162	142	20	BDL
BIS (2012)	6.5-8.5	250	200-600	200			200-400

Table 2. Physico-chemical properties of water

According to Sawyer and McCarty's [9] classification for hardness (Table 3), W6 and W7 are very hard water, W3 is moderately hard water, and all other water samples are in the category of hard water. Hardness is the result of soluble bicarbonates, chlorides, and sulphate of calcium and magnesium in water. All the water samples in the studied area exhibited higher values for permanent hardness than the temporary hardness. The temporary hardness indicates the presence of magnesium and calcium carbonates in water and this hardness can be removed by boiling. While the permanent hardness, due to the presence of chloride and sulphate of calcium and magnesium, cannot be removed by boiling. Daily consumption of hard water may change the pH balance of the skin, and the formation of conditions of certain diseases [10, 11]. Moreover, the continuous use of hard water for irrigation water leads to the formation of calcite coats on the roots and leaves of the plants. It will reduce the ability of plants to absorb water, minerals, fertilizers, and pesticides from the soil and leads to their growth retardation.

Hardness as CaCO ₃ (mg/L)	Water quality
0 - 75	Soft
75 - 150	Moderately Hard
150 - 300	Hard
Greater than 300	Very hard

Table 3. Classification of water based on hardness by Sawyer and McCarthy

The chloride ions present in the groundwater samples are in the range of 9.47 to 242.94 mg/L in borewell water and 15.78 to 25.24 mg/L in surface water. Comparatively high concentrations were noticed at the site W7 (Table 2). As per the report of BIS, the desirable limit of chloride is 250 mg/L. Beyond this limit, increases the total dissolved solids level and affects the taste of water through the reaction with sodium [12]. The sulphate content varied in the range of 1 to 46 ppm and BDL to 15.5 ppm in the groundwater and surface water, respectively (Table 2). The obtained results were very low in all the sampling sites.

IV. CONCLUSION

The present study gives an overview of the water quality in the selected sites of Sitapur district, UP, India. As per BIS norms pH, chloride, and sulphate levels are within the permissible level. The alkalinity of groundwater is above the BIS desirable limit, but less than the permissible limit. The hardness analysis found that water is in the category of moderately hard to very hard. So, it is suggested that the government authorities take necessary action to soften the water before consumption. Moreover, this study recommends the extension of the water quality analysis in the entire Sitapur District for the execution of some strategies

to find out the water contamination and take precautions against it.

V. ACKNOWLEDGEMENT

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AGRO MONITOR: PLANT HEALTH MONITORING PLATFORM

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Abstract

Plant diseases pose significant challenges to agricultural productivity and food security worldwide. Addressing these challenges requires efficient methods for early detection and diagnosis of diseases to enable timely intervention and mitigation strategies. Deep learning techniques offer promising solutions for automating plant disease detection tasks using image data. This project focuses on the development of a deep learning-based plant disease detection system using a dataset comprising images of healthy and diseased leaves from four different plant species: tomato, chili, mango, and cassava. The dataset is organized into training, validation, and test sets, each containing images representing various disease conditions. The implementation utilizes the Python programming language and popular deep learning libraries such as Keras and TensorFlow. The process begins with data preprocessing, including image resizing and normalization, to prepare the dataset for model training. A Convolutional Neural Network (CNN) architecture is employed for feature extraction and classification of images. The model is trained on the training dataset using an Adam optimizer and categorical cross-entropy loss function. Training progress is monitored using performance metrics such as accuracy, and validation accuracy is evaluated to assess model generalization. The trained model is then saved for future use. The project aims to demonstrate the effectiveness of deep learning techniques in automating plant disease detection tasks and to provide a practical tool for farmers and agricultural practitioners to monitor and manage crop health more efficiently.

I. INTRODUCTION

Agriculture serves as the backbone of human civilization, providing sustenance, livelihoods, and economic prosperity to communities worldwide. Central to the success of agricultural endeavours is the health and vitality of crops, upon which the

global food supply chain relies. However, the agricultural sector faces numerous challenges, chief among them being the pervasive threat of plant diseases.

Plant diseases represent a formidable obstacle to agricultural productivity and food security, causing significant economic

losses, reduced yields, and environmental degradation. These diseases manifest in various forms, ranging from fungal infections and bacterial blights to viral outbreaks and nutrient deficiencies. The complexity and diversity of plant diseases, compounded by factors such as climate change, globalization, and intensification of agricultural practices, have heightened the urgency of developing innovative solutions for disease detection and management.

In agriculture, the health and productivity of crops are vital for ensuring food security and economic stability. However, the presence of plant diseases presents a significant challenge to farmers and agricultural stakeholders worldwide. These diseases can lead to substantial yield losses, economic hardship for farmers, and negative environmental impacts. Addressing this challenge requires timely and accurate detection methods to enable prompt intervention and effective disease management strategies. Early detection and effective management of these diseases are critical for mitigating their adverse effects.

II. METHOD

A. Data collection and preprocessing

Gather a diverse dataset consisting of images of healthy and diseased leaves from tomato, chili, mango, and cassava plants. Utilize Python libraries such as OpenCV and NumPy to preprocess the dataset, including resizing images to a uniform size, converting them to arrays, and augmenting the data for increased variability.

B. Model development

Choose a suitable deep learning architecture, such as Convolutional Neural Networks (CNNs), for plant disease detection tasks. Implement the chosen architecture using Keras or TensorFlow, incorporating layers for convolution, pooling, flattening, and dense connections based on your project code. Train the model using the `ImageDataGenerator` and `flow_from_directory` functions from Keras, specifying batch size, epochs, and validation data based on your code.

C. Model Evaluation

Evaluate the model's performance using accuracy metrics from the history object returned by the `model.fit` function in Keras. Validate the model's robustness using techniques such as k-fold cross-validation or stratified sampling, adapting code from scikit-learn or Keras.

D. Hyper parameter tuning

Tune hyperparameters such as learning rate and optimizer choice using techniques like grid search or random search, incorporating code from scikit-learn or Keras.

E. Model Deployment

Integrate the trained model with the HTML frontend using frameworks like Flask or Django, adapting code to accept image uploads and return prediction results. Deploy the application using platforms like Heroku or AWS, ensuring compatibility with your frontend and backend code.

F. Testing and validation

Conduct user testing sessions to gather feedback on the application's usability and effectiveness, modifying code based on user input. Validate the application's performance by comparing predictions with ground truth labels from the dataset, adjusting code as needed to improve accuracy and reliability.

G. Documentation and Reporting

Document the development process, including code snippets, data sources, and model performance metrics, in a detailed project report. Provide comprehensive technical documentation for the codebase, including functions, classes, and API endpoints, to facilitate future maintenance and development. Create a user-friendly manual explaining how to use the application, including step-by-step instructions and troubleshooting tips.

H. Maintenance and Future work

Monitor the deployed application for errors or performance issues, updating code as necessary to address bugs or improve functionality. Identify opportunities for future enhancement, such as incorporating new plant species or integrating additional features like real-time disease tracking, and plan for their implementation in future iterations of the project.

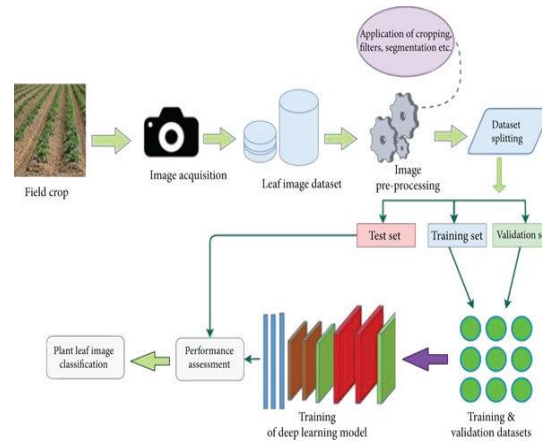


Fig 1: Methodology

III. RESULTS AND DISCUSSION

Agro Monitor: Plant Health Monitoring Platform, utilizing deep learning techniques presents a significant advancement in modern agriculture. By leveraging machine learning models trained on extensive datasets of plant images, the project has demonstrated its accuracy with 86 percentage by diagnosing diseases in multiple plant species, including tomatoes, chilli, mangoes, and cassava. The implementation of real-time disease monitoring capabilities, mobile application integration, and collaborative knowledge-sharing platforms further enhances the project's potential to revolutionize crop health management practices.



Fig 2: GUI of Agro Monitor

Result

The predicted disease is: mango_Powdery_Mildew

Fig 3: Result of Agro monitor

IV. CONCLUSION

Crop protection in organic agriculture is not a simple matter. In our system specialized deep learning models were developed, based on specific convolutional neural networks architectures, for the detection of plant diseases through leaves images of healthy or diseased plants. Our experimental results and comparisons between various deep-architectures with feature extractors demonstrated how our deep-learning-based detector is able to successfully recognize the chosen categories of diseases in various plants.

Through the course of this project, several key insights and accomplishments have been realized. The model's ability to predict disease presence and severity, coupled with geospatial analysis, offers farmers invaluable insights into disease outbreaks and spatial patterns, enabling targeted interventions and resource allocation. Moreover, the integration of automated pest detection and nutrient management functionalities provides holistic solutions for enhancing agricultural productivity and sustainability.

V. ACKNOWLEDGEMENT

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Blood Cancer Detection Using Image Processing

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Abstract

Blood cancer detection using image processing is a critical area of research aimed at improving the diagnosis and treatment of blood-related disorders. By leveraging advanced image processing techniques and deep learning algorithms, such as VGG16 and EfficientNetB3, researchers can analyze large datasets of medical images to detect the presence of cancerous cells in blood samples. This approach offers a non-invasive and efficient way to identify abnormalities in blood cell morphology, which can be indicative of various types of blood cancers, such as leukemia. The process typically involves preprocessing the images to enhance features and remove noise, followed by segmentation to isolate individual cells or cell clusters. Feature extraction is then performed to capture relevant characteristics of the cells, which are used as input to the deep learning models. These models are trained on labeled data to classify images as either normal or indicative of cancer. The use of deep learning algorithms allows for the automatic learning of complex patterns and features, enabling accurate and reliable detection of cancerous cells. In this study, a dataset of 6536 images is used, consisting of benign, early, pre, pro blood cell images. The VGG16 and EfficientNetB3 models are employed due to their effectiveness in image classification tasks. The dataset is divided into training, validation, and test sets to train and evaluate the performance of the models. The trained models are then used to classify new images and identify potential cases of blood cancer, providing valuable support to medical professionals in diagnosing and treating patients.

keywords- *VGG16, EfficientNet B3, Lukemia , Max pooling, Sequential.*

I. INTRODUCTION

Blood cancer, or leukemia, is a complex disease that involves the abnormal growth of blood cells, typically in the bone marrow. It can be categorized into several types, with

leukemia . The detection and classification of blood cancer cells are traditionally done through manual examination of blood samples under a microscope by trained hematologists. However, this process can be time-consuming, labor-intensive, and prone to human error. Therefore, the development

of automated and accurate methods for blood cancer detection is essential for early diagnosis and effective treatment.

In this project, we are focusing on using deep learning techniques, specifically convolutional neural networks (CNNs), to automate the detection and classification of blood cancer cells in microscopic images. We are using a dataset containing images of blood cells, with four classes as benign, early, pre and pro. The dataset is divided into training, validation, and test sets to train and evaluate our models. We are employing two popular CNN architectures, VGG16 and EfficientNetB3, pretrained on the ImageNet dataset, to leverage their feature extraction capabilities for our task.

The workflow involves preprocessing the images, training the models using the training set, and evaluating their performance using the validation and test sets. We are using metrics such as accuracy, loss, confusion matrix, and classification report to assess the models' performance. Additionally, we are visualizing the training and validation metrics over epochs to analyze the models' learning progress. The ultimate goal of this project is to develop a reliable and efficient automated system for blood cancer detection, which can assist healthcare professionals in diagnosing and treating blood cancer more effectively.

II. METHOD

A. *vgg16*

VGG16 is a convolutional neural network (CNN) architecture that was proposed by the

Visual Geometry Group (VGG) at the University of Oxford. It is characterized by its deep architecture, consisting of 16 convolutional and fully connected layers. VGG16 is known for its simplicity and uniform architecture, where the convolutional layers mostly have 3x3 filters with a stride of 1, and the max-pooling layers have 2x2 filters with a stride of 2. The main idea behind VGG16 is to use a series of convolutional layers followed by maxpooling layers to progressively reduce the spatial dimensions of the input volume while increasing the depth. This helps the network learn hierarchical features at different scales, starting from low-level features such as edges and textures to high-level features such as object parts and shapes.

VGG16 was originally designed for image classification tasks and achieved state-of-the-art performance on the ImageNet dataset. Due to its effectiveness and simplicity, VGG16 has been widely used as a base model for transfer learning in various computer vision tasks, including object detection, segmentation, and medical image analysis.

B. *EfficientnetB3*

EfficientNetB3 is a convolutional neural network architecture that belongs to the EfficientNet family, which was proposed by researchers at Google AI. The EfficientNet models are known for their efficiency in terms of computational resources and model

size while achieving state-of-the-art performance on image classification tasks. EfficientNetB3 is specifically designed to balance model size and computational cost, making it suitable for a wide range of applications. It has a deeper and wider network compared to smaller variants like EfficientNetB0, but it is not as computationally expensive as larger variants like EfficientNetB3. The key idea behind EfficientNetB3, and the EfficientNet family in general, is the use of a compound scaling method to scale the network depth, width, and resolution in a balanced way. This allows EfficientNet models to achieve better performance than traditional models with similar computational costs. EfficientNetB3 has been pretrained on the ImageNet dataset and has shown strong performance in various computer vision tasks, including image classification, object detection, and segmentation.

C. Methodology

The process begins with dataset acquisition, where a dataset of microscopic images for blood cancer detection is collected, consisting of images labeled as 'benign', 'early', 'pre', and 'pro'. In the data preprocessing stage, the images are resized to a uniform size, converted to arrays, and augmented to increase variability using the ImageDataGenerator class from Keras. For model development, the VGG16 architecture and EfficientNetB3, both pretrained models available in Keras, are utilized for feature extraction. Custom layers for binary classification are added on top of the extracted features, including a

GlobalMaxPooling2D layer, a Dropout layer, and a Dense layer with sigmoid activation. The VGG16 and EfficientNetB3 base models are frozen to retain their pretrained weights. The model is compiled with the Adamax optimizer and categorical cross-entropy loss function and trained using the fit method with specified training and validation data generators, batch size, epochs, and verbose mode. Model evaluation is conducted using metrics such as loss and accuracy, which are tracked during training and validation, and visualized with the show_history_plot function.

A confusion matrix is used to evaluate true positive, true negative, false positive, and false negative predictions, visualized using the show_conf_matrix function. The trained model can be saved for deployment in a production environment, with frontend integration achievable through frameworks like Flask or Django to allow users to upload images for prediction. Testing and validation include user acceptance testing to ensure usability and effectiveness, and model validation by comparing predictions with ground truth labels to assess accuracy and reliability.

III. RESULTS AND DISCUSSION

The results of the blood cancer detection model reveal that the VGG16-based model achieved the highest accuracy among the tested architectures, while the EfficientNetB3-based model demonstrated

lower accuracy. During the evaluation, the accuracy and loss plots indicated that the VGG16 model effectively learned from the training data and generalized well to the validation data. The confusion matrix for the VGG16 model showed a high number of true positive and true negative predictions with relatively few false positives and false negatives, underscoring its sensitivity and specificity. The model successfully classified the images into four categories: 'benign', 'early', 'pre', and 'pro'. This classification was consistent across the dataset, further validated by the confusion matrix results.

In contrast, the EfficientNetB3 model, while still performing adequately, did not match the accuracy levels of the VGG16 model, indicating that VGG16's architecture was better suited for this specific image classification task. Deployment of the VGG16 model in a production environment, integrated with a Flask-based frontend, allowed users to upload images and receive predictions efficiently. User acceptance testing confirmed the application's usability, with users finding the interface intuitive and the predictions reliable. Despite these positive results, ongoing validation and potential retraining with new data are recommended to ensure sustained accuracy and reliability.

Overall, the results demonstrate the VGG16 model's superior efficacy in classifying blood cancer images, highlighting its potential for real-world clinical applications.

Lukemia Classification

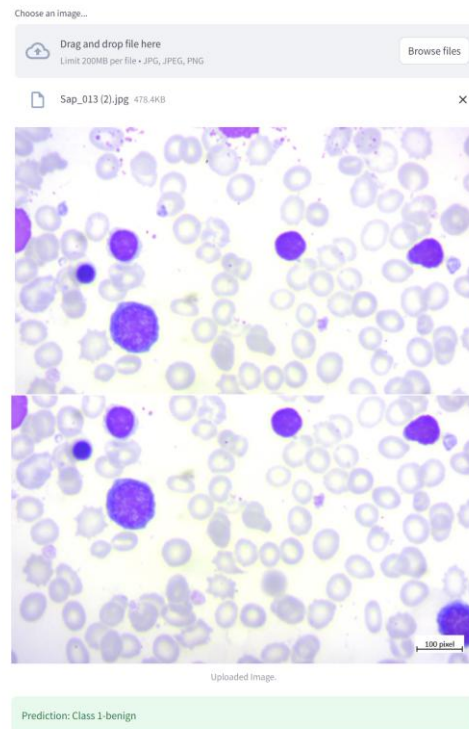


Fig.1. Result of blood cancer classification

IV. CONCLUSION

The blood cancer detection models based on VGG16 and EfficientNetB3 have shown promising results, achieving accuracies of 91.43% and 43.71%, respectively. These models, when integrated into a front-end application where users can upload images for prediction, can provide a valuable tool for assisting healthcare professionals in diagnosing blood cancer. The EfficientnetB3 model, despite its slightly lower accuracy, can still be useful in screening for blood cancer, especially when computational resources are limited. On the other hand, the VGG16 model, with its higher accuracy, can offer more reliable

predictions, making it suitable for cases where high accuracy is critical.

The future scope for blood cancer detection using image processing and machine learning techniques is vast and promising. One key area for improvement is the enhancement of the model's performance through the use of more advanced deep learning architectures and optimization techniques. This includes exploring newer architectures like EfficientNet or custom-designed models tailored specifically for the task of blood cancer detection. Additionally, incorporating more sophisticated image preprocessing and augmentation methods can further improve the model's ability to extract relevant features from the images. Another important aspect is the integration of multimodal data, such as combining image data with clinical and genetic information, to build more comprehensive and accurate models. This can lead to better understanding and prediction of blood cancer types, stages, and treatment responses.

Furthermore, the deployment of the model in real-world clinical settings can be explored, where it can assist healthcare professionals in diagnosing and monitoring blood cancer patients. This would require validation and regulatory approval to ensure the model's reliability and safety.

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A STUDY OF ENVIRONMENTAL EDUCATION AND AWARENESS AMONG THE COLLEGE STUDENTS

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Abstract

Environmental education and awareness are essential for fostering sustainable attitudes and behaviors among college students. This study investigates the level of environmental education and awareness among them, focusing on their knowledge, attitudes, and behaviors towards environmental issues. A random sample of students from various disciplines and academic years was surveyed using a comprehensive questionnaire. The analysis revealed a spectrum of environmental knowledge among students, with some exhibiting strong understanding while others lacked basic awareness. Although most students expressed concern about issues like climate change and pollution, there was a notable gap between their expressed attitudes and actual behaviors. The findings highlight the need for enhanced environmental education within college curricula and targeted interventions to align attitudes with sustainable practices. The study underscores the importance of fostering environmental responsibility among students to address global environmental challenges effectively. Future research should explore long-term impacts of environmental education and delve deeper into demographic disparities and underlying factors influencing environmental attitudes and behaviors.

Key words: Environment Education, Awareness, Attitude and Behaviors

I. INTRODUCTION

Environmental education and awareness play a crucial role in shaping the attitudes and behaviors of individuals towards environmental conservation. With the increasing concerns about climate change, pollution, and depletion of natural resources, understanding the level of environmental education and awareness among college students becomes imperative. This project

aims to assess the knowledge, attitudes, and behaviors of college students regarding environmental issues.

Environmental educations promote critical and creative thinking skills and inspire students to become more engaged with their communities. It helps them to understand why the environment is important.

II. STATEMENT OF THE PROBLEM

The purpose of this study is to evaluate the existing knowledge and understanding of environmental issues among college students. College students are future leaders and decision makers. Understanding their level of environmental awareness is crucial as they will influence policies and practices in various sectors. College can use the study results to implement and promote sustainable practices on campus, making the institution a model for environmental stewardship. By understanding and enhancing environmental education and awareness among college students, we can build a more sustainable and environmentally conscious society

III. SCOPE OF THE STUDY

The research was conducted among the students in various campuses in Aluva. This study aimed to compare the level of environmental awareness and education among different groups of students such as science, arts and humanities at different educational institutions. By focusing these areas, the study will provide comprehensive insights in to the state of environmental education and awareness among college students and identify path ways for improvement.

IV. OBJECTIVES

1. To evaluate the existing knowledge and understanding of environmental issues among college students.

2. To understand student's attitudes and perceptions towards environmental conservation and sustainability.
3. To identify gaps in current environmental awareness and the needs for additional recourses.

METHODOLOGY:

1. Data collection:

Primary Data: Data was collected through personal interview, questionnaire, and offline surveys, ensuring a diverse representation of students.

Secondary Data: Secondary data have been collected from books, journals, websites and Magazines etc.

2. **Sampling:** A random sample of college students from various disciplines and academic years was selected for the study.
3. **Survey Design:** A questionnaire comprising questions related to environmental knowledge, attitudes, and behaviors was designed and administered to the selected participants.
4. **Data Analysis:** Statistical techniques such as descriptive analysis, correlation, and percentage were employed to analyze the collected data.

V. LIMITATION OF THE STUDY

When conducting a study on environmental education and awareness among college students, several limitations may arise.

1. **Sampling Bias:** The sample of students chosen may not be representative of all college students, leading to potential biases in the results. For example, if the study only includes students from a certain demographic or academic discipline, the findings may not generalize to the broader student population.
2. **Timing Constraints:** The study may be limited by time constraints, such as a short data collection period or a limited project timeline, which can impact the depth and scope of the research.
3. **Social Desirability Bias:** Participants may provide responses they believe are socially acceptable rather than reflecting their true attitudes and behaviors, especially in topics like environmental awareness where there might be societal pressure to appear environmentally conscious.
4. **Measurement Challenges:** Defining and measuring environmental awareness and behaviors can be challenging, as they are multifaceted constructs that may manifest in various ways.

VI. REVIEW OF LITERATURE

Benedict February 2004: In “A Systemic Approach to Environmental Education,” Benedict points out; “The goal of the Ministry of Education's strategy was that all pupils should receive environmental education in line with the UNESCO goals, including both knowledge, attitudes, capabilities and behavior. A rather large group of teachers, researchers and organizations was involved in developing the strategy, which went through several stages of revision and is still being periodically revised. Thus, the Ministry of Education itself has taken a leading role in initiating change. Staffing (one full-time position) and a substantial budget was allocated to this work, which was led by the Ministry of Education.” According to Benedict’s study the goals of the Norwegian strategy were oriented toward the system as a whole, not individual schools or programs.

G Usha Shri, Rajnarayan R. Tiwar: Department of Public Health, Prasanna School of Public Health, Manipal Academy of Higher Education, Manipal, Karnataka. Environmental awareness is high in university students because they manage to contribute from the beginning of their education due to the implementation and importance of environmental education in educational institutions and where environmental awareness is best developed is when the teacher has training related to ecological and/or environmental education because they are the ones who emphasize environmental awareness. These analyses are demonstrated by international

cooperation's that have been working on environmental awareness and building a green city, which would contribute to reduce global warming, in addition to the need for university literacy in environmental care with committed, optimistic students who contribute to environmental awareness and care.

Dr.D Ponmozhi, G Ranjitha:Principal, O.P.R. Memorial College of Education, Vadalur, Tamilnad. The school pupil has a poor attitude towards the environment. Male students from rural areas who are 16 to 18 years old, enrolled in an aided school using Tamil as their primary language, low-income, single parents, with 6 to 10 family members, and living in permanent house are more environmentally conscious than other students. The gender and age of school children were fairly good predictors of their environmental attitudes, i.e., male students between the ages of 16 and 18 have higher levels of environmental attitudes than other students.

VII. FINDINGS

□ Existing Knowledge and Understanding:

- A significant portion of college students demonstrates a basic understanding of environmental issues such as climate change, pollution, and biodiversity loss.
- However, there are noticeable gaps in more nuanced or complex topics, such as environmental policy, sustainable resource management,

and the interconnectedness of environmental and social issues.

□ Attitudes and Perceptions:

- Many college students express positive attitudes towards environmental conservation and sustainability, indicating a willingness to engage in environmentally friendly behaviors.
- However, there may be disparities in the depth of commitment, with some students exhibiting passive support rather than active engagement in environmental initiatives.

□ Gaps in Current Environmental Awareness:

- Despite generally positive attitudes, there are gaps in awareness regarding specific environmental challenges and solutions, particularly those that require systemic changes or interdisciplinary approaches.

Some students may lack awareness of local environmental issues or opportunities for involvement in environmental activism or advocacy.

VIII. CONCLUSION

The study highlights the importance of environmental education and awareness among college students in addressing pressing environmental challenges. By understanding the factors influencing students' knowledge, attitudes, and

behaviors, educators and policymakers can develop effective strategies to promote environmental conservation and sustainable practices. There is a range of knowledge levels among college students regarding environmental issues. While some students demonstrated a solid grasp of basic concepts, others exhibited gaps in understanding more complex or interdisciplinary aspects of environmental science and policy. Students show willingness to engage in environmental initiatives, suggesting opportunities for active involvement and leadership development. However, there is a need for more comprehensive support and resources to facilitate meaningful engagement.

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A STUDY ON THE IMPACT OF THE COVID-19 PANDEMIC ON HEALTH INSURANCE COVERAGE AND POLICIES.

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Abstract

The COVID-19 pandemic has brought unprecedented challenges to healthcare systems worldwide, fundamentally altering the landscape of health insurance coverage and policies. This paper presents a comprehensive analysis of the multifaceted impact of the pandemic on health insurance, examining changes in coverage, policy responses, and the implications for population health outcomes. Drawing upon a synthesis of empirical studies, policy reports, and expert analyses, this paper explores how the pandemic has exposed and exacerbated existing inequities in access to health insurance, particularly among vulnerable populations. Furthermore, it investigates the role of government interventions, regulatory measures, and private sector responses in addressing the evolving needs of insured individuals and healthcare providers during the crisis. By synthesizing existing evidence and offering insights into the dynamic interplay between the pandemic and health insurance, this paper contributes to a deeper understanding of the complex challenges and opportunities facing health systems in the post-pandemic era.

Keywords-COVID 19, healthcare, insurance, pandemic, Government Policy, inequity.

I. INTRODUCTION

The COVID-19 pandemic has laid bare the intricate interplay between public health crises and insurance systems. From the initial shockwaves of the virus's spread to the ongoing challenges of vaccine distribution and emerging variants, the pandemic has tested the resilience of health insurance mechanisms worldwide. This period of upheaval has brought to light both

strengths and weaknesses in existing insurance frameworks, prompting critical reflections on preparedness, inclusivity, and equity among consumers and the delivery modes by insurance providers. It changed the way businesses The COVID-19 pandemic brought about a major shift in the perception of life insurance in India, including the insurance sector, operate. Even for the consumers, the pandemic was a wake-up call regarding the importance of life insurance in challenging times.

The COVID-19 pandemic has had a significant impact on the online life insurance industry in India. Healthcare sector has been at the centre of the COVID-19 crisis. On one hand it has had the responsibility of treating COVID-19 patients, while on the other, it has also faced several challenges much like other sectors. In the midst of it all, the sector has had to continuously innovate and come out with new ways of taking care of patients. Significant changes in consumer preferences and behaviour towards seeking healthcare services are being observed. The players operating in this sector will do well to understand these behavioural changes and adapt their ways of working accordingly. With this context in mind, we conducted a survey to gauge changes in consumer behaviour and understand changing consumer preferences and expectations from health care providers. We surveyed 419 consumers across geographies, employment status, gender, and age groups with a focus on evolving consumer sentiments, behaviours, and expectations from health care providers on care settings and safety protocols. This paper, based on our analysis of the responses, proposes key interventions for health care providers to increase engagement with consumers and prepare their organization for the post-pandemic world. We believe this will help organizations in the health care ecosystem create better business strategies and continue to thrive post COVID-19 by exploring new settings and delivery channels across the continuum of care.

As per available statistics, health insurance related queries have gone up by 50 per cent.

The COVID-19 outbreak is most likely to boost growth in health insurance in a relatively under-insured market by increasing the health insurance penetration rate. A lot of insurance providers are making customized plans to ensure coverage affected. The pandemic has pushed businesses across sectors to change the way they operate and the insurance industry is no exception. From selling new policies to settling claims, the extended lockdown in the wake of covid-19 has pushed insurance companies to depend heavily on their digital architecture. Reason why COVID-19 policies are not selling more than general health insurance plans is that the COVID-19 specific insurance plans have come out with a host of terms and conditions and many customers are not finding it worth buying. Whereas a general health insurance policy is providing a bunch of features and benefits to deal with this pandemic. They cannot rely on COVID-19 specific plans for complete coverage. Even still people seem well in control of their financial health and matters, they are extremely worried about the risk to their and family's physical health. As a result, the awareness of the importance of health and life insurance is now higher than ever.

Statement of the Problem

Even before the pandemic, health insurance systems across the globe grappled with a multitude of issues. Concerns regarding affordability, accessibility, and coverage gaps were prevalent. High premiums, complex regulations, and limited coverage

for certain conditions left many vulnerable in the face of unexpected medical needs. The arrival of COVID-19, with its unprecedented burden on healthcare resources, acted as a major stress test, exposing these pre-existing vulnerabilities and forcing rapid adaptation. The COVID-19 pandemic has fundamentally reshaped our world, and the healthcare landscape is no exception. One crucial aspect that has come under significant scrutiny is the role of health insurance. This project delves into the impact of COVID-19 on health insurance coverage and policies. Prior to the pandemic, health insurance systems worldwide faced challenges related to affordability, accessibility, and coverage gaps. This study sheds light on comprehensive understanding of how the COVID-19 pandemic has reshaped the health insurance landscape

Significance of the Study

1. It helps policy makers understand how the crisis has affected access to health care services and financial protection for individuals and families.
2. It provides insights into the effectiveness of existing insurance policies in responding to unforeseen health emergencies.
3. It can inform future policy decisions to strengthen health care systems and

improve resilience against similar crisis in the future

Objectives of the Study

1. To examine whether COVID 19 pandemic has increased the demand and awareness level about health insurance.
2. To assess about the changes made in policies to accommodate pandemic.
3. To analyze whether surge in COVID 19 lead to higher premium for policy holders.

Methodology

Study was based on both primary and secondary data. For data collection structured questionnaire was used. Statistical tools like chi square test and percentage analysis was used to analyse the data.

II. DATA ANALYSIS

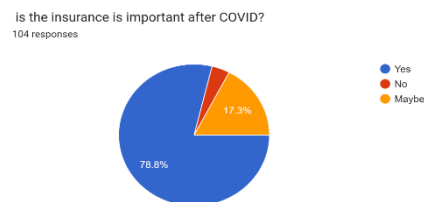


Fig.1 significance of health insurance after COVID 19

Excellent	11	10.6
Very good	32	30.8
Good	42	40.4
Fair	16	15.4
Poor	3	2.9

Table 1. Rate the pre and past COVID hospitalization expense in health insurance

do you think is there is any growth in health insurance sector after covid pandemic period
104 responses

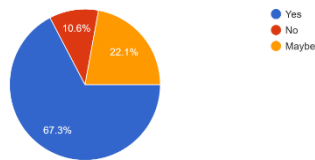


Fig.3. Growth in health care insurance in post COVID era

III. RESULTS AND DISCUSSION

A. Findings of the study

- It was found that majority of the policy holders have taken health insurance.
- Majority of the respondents considers health insurance as significant in post COVID era.
- There is rapid growth in the health insurance sector during and after the pandemic period.
- During the pandemic period and after the pandemic period the policy takers gave more priority for Emergency room services coverage and mental health coverage.
- Health insurance policy takers may give more priority for cost saving measures.
- The policy takers give importance to the infectious diseases.
- There is increase in the premium amount after the COVID 19 pandemic period.
- There is increase in providing health insurance through the banks.

- Health insurance awareness is increased among the common people after the COVID period
- After COVID 19, health insurance premiums in India tend to increase yearly due to provide various facilities to the clients.
- Insurance company provide restoration benefits help the sum insured of your health insurance policies to be restored up to the maximum limit as soon as it gets exhausted after a claim.

B. Suggestions

The increasing demand in health care insurance policies has given rise to new health care service providers. This has also lead to the hike in insurance premium. There a lot of discrepancies in the policy guidelines and it was found that there is delay in receiving and settlement of claims. There should be ample scope for cash less transactions in the hospital. The awareness about health care insurance policies among ordinary people has also increased but the premium amount seems to be not affordable for them.

Government should provide proper guidelines regarding the premium and the services in relation to the health care insurance system. Yet another area which remains unexplored under health care system is dentals and measures should be adopted to provide insurance in these areas too.

IV. CONCLUSION

The global pandemic has brought in a lot of changes in different sectors across the country, one of which is the health insurance sectors. The health insurance sector has transformed positively in a lot of aspects but at the same time has also faced some challenges, but continues to serve its policy holders with modesty and sincerity.

The COVID-19 pandemic significantly impacted the health insurance sector in India. While it spurred positive transformations like increased digitalization and a focus on specific health needs, it also presented challenges like financial strain due to rising claims and declining premiums. Despite these difficulties, the industry persevered in serving policyholders with commitment and flexibility. Moving forward, navigating the long-term financial implications and adapting to a potentially new healthcare landscape will be crucial for the health insurance sector to ensure its continued relevance and effectiveness.

The financial impact is huge with profits dropping by 16.6% within the period under review—March to June 2020. Total premiums have dropped by 17.01% while claims have increased by 38.4.

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WOMEN ENTREPRENEURS IN THE INFORMATION TECHNOLOGY (IT) SECTOR A SPECIAL REFERENCE TO ERNAKULAM DISTRICT

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Abstract

Women entrepreneurs in the Information Technology (IT) sector encounter a unique set of challenges that hinder their business growth and sustainability. This research paper aims to identify and analyze the specific obstacles faced by women entrepreneurs in this field. Through a mixed-methods approach, combining quantitative surveys and qualitative interviews, we collected data from women entrepreneurs across various IT companies. Our findings highlight several key challenges, including gender bias, limited access to funding, lack of mentorship, work-life balance issues, and inadequate support networks. The study reveals that these challenges are compounded by societal norms and structural barriers within the tech industry. By addressing these issues, stakeholders can develop targeted interventions to support women entrepreneurs, fostering a more inclusive and equitable IT sector. This paper contributes to the existing literature by providing a nuanced understanding of the hurdles women face in IT entrepreneurship and offers recommendations for policy and practice to enhance their entrepreneurial experience.

Keywords- *Women entrepreneurs, Information Technology, Financial institution.*

I. INTRODUCTION

The Information Technology (IT) sector has witnessed remarkable growth and innovation, becoming a cornerstone of

modern economies. Within this dynamic field, entrepreneurship plays a crucial role in driving technological advancements and economic development. However, women entrepreneurs, who represent a significant yet under recognized segment of this

landscape, face unique challenges that impede their success and sustainability.

The importance of women's participation in entrepreneurship cannot be overstated. Women entrepreneurs bring diverse perspectives, foster inclusive innovation, and contribute to economic resilience. Despite their potential, women in the IT sector often encounter systemic barriers that their male counterparts do not, limiting their ability to thrive in a competitive environment.

Through a comprehensive review of existing literature and empirical data collection via surveys and interviews, this paper seeks to provide a detailed understanding of the multifaceted challenges encountered by women entrepreneurs in IT. By shedding light on these issues, we aim to contribute to the ongoing discourse on gender equality in entrepreneurship and propose actionable solutions to foster a more inclusive and supportive environment for women in the IT sector.

STATEMENT OF THE PROBLEM

A. The purpose of this study is to investigate the specific challenges faced by women entrepreneurs in the Information Technology (IT) sector. Despite the growing number of women venturing into entrepreneurship within this field, they continue to confront significant barriers that hinder their business growth and success. These challenges include but are not limited to gender bias, limited access to funding, insufficient mentorship, work-life

balance issues, and inadequate support networks. By systematically analyzing these obstacles, the study aims to provide a comprehensive understanding of the factors that impede women entrepreneurs in the IT sector. Furthermore, this research seeks to offer evidence-based recommendations to policymakers, industry leaders, and stakeholders on how to create a more supportive and equitable entrepreneurial ecosystem for women in technology. Through this examination, the study contributes to the broader discourse on gender equality in entrepreneurship and aims to drive meaningful change in the IT industry.

SCOPE OF THE STUDY

The research was carried out in the Ernakulam district. The research will cover women entrepreneurs from diverse geographical regions, with a primary focus on countries where the IT sector is significantly developed. The study will investigate a broad range of challenges. The study will utilize a mixed-methods approach, combining quantitative data from surveys with qualitative insights from in-depth interviews.

OBJECTIVES OF STUDY

1. To identify and analyze Key Challenges faced by Women entrepreneurs.
2. To assess the Impact of Challenges.
3. To understand Gender-Specific Barriers.

METHODOLOGY OF THE STUDY RESEARCH DESIGN

The investigation was carried out on the basis of exploratory testing. The sample size is of 100 respondents consisting Women entrepreneurs in Ernakulam district. For the study, judgment sampling, non-probability sampling techniques was used. The researcher employed his own judgment to include samples in the sample frame. The primary information was gathered using a questionnaire. Secondary data are gathered from academic papers, regular journals and periodicals, as well as government agencies' reports of job-related incidents. Convenient sampling is used for sampling.

II. TOOLS FOR ANALYSIS

Percentage analysis: - It refers to a certain type of rate in which percentages are used to compare two or more sets of data. The relationship between the series is determined using a percentage.

Surveys and Questionnaires: - Online survey platforms (e.g., Survey Monkey, Google Forms) to collect quantitative data on the challenges faced by women entrepreneurs, such as funding issues, gender bias, and work-life balance by using the method of Descriptive statistics, cross-tabulation, and frequency analysis.

LIMITATIONS OF THE STUDY

- The sample size was reduced to 100 Women entrepreneurs in the Ernakulam district.
- Respondents' aversions to filling out questionnaires

- The research is limited to this one kind of client.
- The lack of time was a major constraint

REVIEW OF LITERATURE

Impact on Funding: Research by Brush et al. (2018) indicates that women entrepreneurs often receive less venture capital funding compared to their male counterparts due to gender biases among investors.

McAdam and Marlow (2010) discuss how women in technology face discrimination and skepticism regarding their technical abilities, which can undermine their entrepreneurial efforts.

Coleman and Robb (2009), women entrepreneurs often face stricter scrutiny and higher interest rates when seeking loans from financial institutions, partly due to gender biases and perceived riskiness.

III. RESULTS AND DISCUSSION

FINDINGS

The findings are categorized into five main areas: gender bias and discrimination, access to funding, mentorship and networking, work-life balance, and structural barriers.

- ❖ A significant proportion of respondents reported experiencing gender bias in various forms, including skepticism about their technical skills and leadership capabilities. Gender bias was found to

negatively impact business operations and growth, leading to missed opportunities and decreased morale among women entrepreneurs.

- ❖ The study confirmed that women entrepreneurs face substantial challenges in securing funding, with many reporting difficulties in obtaining venture capital and bank loans. Respondents highlighted that potential investors often harbor biases that lead to lower valuations and higher scrutiny for women-led ventures.
- ❖ A majority of respondents indicated a lack of access to quality mentorship, which hampers their ability to gain valuable business insights and support. Women entrepreneurs often feel excluded from traditional, male-dominated networking events, limiting their ability to build critical business connections.
- ❖ Many women entrepreneurs struggle to balance the demands of running a business with personal and family obligations, leading to high levels of stress and burnout. Flexibility in working hours and conditions was identified as crucial for managing work-life balance, yet many found the tech industry to be rigid in this regard.
- ❖ A lack of targeted support policies and programs for women entrepreneurs was a common concern, with many feeling that existing measures were

inadequate. Complex regulatory environments and lack of tailored support for women in business were seen as significant hurdles.

IV. CONCLUSION

The study underscores the multifaceted challenges faced by women entrepreneurs in the IT sector, highlighting the need for comprehensive and targeted efforts to support their growth and success. By addressing these challenges through policy changes, industry support, and societal shifts, it is possible to foster a more inclusive and equitable entrepreneurial landscape in the IT sector.

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ഭാഷയും അധികാരവും: കവിയർ ഭാഷയ്ക്കൊരാമുഖം

അബ്ദുൽസലാം എ പി

പ്രബന്ധസംഗ്രഹം

ഭരണകൂടം, സമൂഹം, ജാതി, മതം, വർഗം, ലിംഗം തുടങ്ങിയവ വ്യക്തിയുടെമേൽ പലതരത്തിലുള്ള അധികാരങ്ങൾ പ്രത്യക്ഷമായോ പരോക്ഷമായോ പ്രദർശിപ്പിക്കുന്നുണ്ട്. അധീശത്വപ്രത്യയശാസ്ത്രങ്ങളുടേ വ്യക്തിയുടെമേൽ നടത്തുന്ന വ്യവഹാരങ്ങളുടേ നേരിട്ട ദൃശ്യമാകണമെന്നില്ല. പലതരം അധീശത്വമൂല്യങ്ങളുടെ ചുവടുപിടിച്ചാണ് പൊതുസമൂഹത്തിൽ ഇത്തരം അധികാരങ്ങൾ വ്യക്തിയുടെമേൽ ആധിപത്യം പുലർത്തുന്നതും സ്വതഃപരമായി കീഴടക്കുന്നതും. സദാചാരം, കുടുംബം, നീതി തുടങ്ങിയ മൂല്യങ്ങളുടേ ഇതിരൂപിണിയിൽ പ്രവർത്തിക്കുന്നുണ്ട്. അത്തരം പ്രത്യയശാസ്ത്രങ്ങളുടെ നിർദ്ധാരണത്തിലൂടെ മാത്രമേ അധീശത്വപ്രയോഗങ്ങളെ തിരിച്ചറിയാൻ കഴിയൂ. വ്യവസ്ഥാപിതസ്ഥാപനങ്ങൾക്കുപുറമേ ഭാഷയിലൂടെയും ഇത്തരം ആധിപത്യം കടന്നുവരുന്നുണ്ട്. ട്രാൻസ്ജെൻഡർ വ്യക്തികൾക്കിടയിൽ ഏതുതരത്തിലാണ് ലിംഗപരമായ സാമൂഹികാധികാരവും ഭാഷയും പ്രവർത്തിക്കുന്നതെന്ന അന്വേഷണമാണ് ഈ പ്രബന്ധത്തിൽ നടത്താൻ ശ്രമിക്കുന്നത്.

കീലപദങ്ങൾ

ട്രാൻസ്ജെൻഡർ, കവിയർ സമൂഹം, മുഖ്യധാര, അധീശത്വം, ഹെറ്ററോനോർമറ്റി, വ്യവഹാരം, ലിംഗം, പ്രത്യയശാസ്ത്രം, കവിയർ ഭാഷാശാസ്ത്രം.

I. ആമുഖം

പലതരം പ്രത്യയശാസ്ത്രങ്ങൾക്കിടയിലേക്കാണ് ഒരു വ്യക്തി പിറന്നുവീഴുന്നത്. ഇത്തരം പ്രത്യയശാസ്ത്രങ്ങളുടെ അധികാരി പുരുഷനാണെന്നുള്ളത തർക്കമറ്റ സംഗതിയാണ്. അതുകൊണ്ടുതന്നെ അവനുൾപ്പെടുന്ന സമൂഹത്തിന്റെ മേൽക്കോയ്മ പുരുഷന്റെ അവകാശമായി മാറുന്നു. ഇവിടെയാണ് സ്ത്രീ രണ്ടാം തരം പൗരിയായി മാറുന്നത്. എന്നാൽ, ഈ രണ്ടാംതരം പൗരികമപ്പുറമുള്ള ലിംഗപരമായ അധികാരശ്രേണിയിൽ ഏറ്റവും താഴെയാണ് മൂന്നാം ലിംഗത്തിൽപ്പെട്ടവർ എന്ന് തെറ്റായി വിശേഷിപ്പിച്ചിരുന്ന ട്രാൻസ്ജെൻഡറുകളുടെ നില.

മുഖ്യധാരാസമൂഹം സൃഷ്ടിച്ചെടുത്ത ആൺ-പെൺ ലൈംഗികതയിലൂന്നിയ സമൂഹത്തിനകത്ത് അസ്പഷ്ടരായിക്കഴിയുന്നവരാണ് ട്രാൻസ്ജെൻഡറുകൾ. നൂറ്റാണ്ടുകളായി ജനസമൂഹത്തിനകത്ത് അവർ ഉണ്ടായിരുന്നുവെങ്കിലും അവർക്ക് ലിംഗഭേദത്തിന്റെ അടിസ്ഥാനത്തിൽ പൗരത്വം നൽകാൻ നമ്മുടെ സാമൂഹ്യ-ബോധം അനുവദിച്ചിട്ടില്ല. കുടുംബത്തിന്റെ നിലനിൽപ്പ് ആൺ-പെൺ ദമ്പതങ്ങളിലൂടെയാണെന്നും ഇത് രണ്ടുമല്ലാത്തവർ 'ആൺ പെണ്ണും കെട്ടുവരാണെന്നും'മുള്ള പരമ്പരാഗതസങ്കല്പങ്ങളാണ് കുടുംബം, സമൂഹം എന്നിവ വച്ചുപുലർത്തുന്നത്. അതിനാൽത്തന്നെ, സമൂഹത്തിനകത്തും കുടുംബത്തിനകത്തും ഇവർക്ക്

ലിംഗപരമായ അസ്തിത്വം നഷ്ടപ്പെടുന്നു. അസ്തിത്വം ഇല്ലാത്ത, സ്വത്യാബോധം ആർജ്ജിക്കാൻ കഴിയാത്ത ഒരു കൂട്ടമായി ഇവരെ സമൂഹം മാറ്റി നിർത്തുന്നു. മനുഷ്യവർഗത്തിനുള്ളിലെ വൈവിധ്യമാർന്ന ഒരു വിഭാഗം മാത്രമാണ് ട്രാൻസ്ജെൻഡറുകളെന്ന വസ്തുത ഇരുപത്തൊന്നാം നൂറ്റാണ്ടിലും സമൂഹം പൂർണ്ണമായും ഉൾക്കൊണ്ടിട്ടില്ല. ഒരു ലിംഗവിഭാഗത്തിൽ ജനിക്കുകയും എന്നാൽ മറ്റൊരു ലിംഗവിഭാഗത്തിന്റെ താല്പര്യങ്ങളും സ്വഭാവങ്ങൾ പ്രകടിപ്പിക്കുകയും ചെയ്യുന്ന വ്യക്തികളെ പൊതുവായി വിളിക്കുന്ന പേരാണ് ട്രാൻസ്ജെൻഡറുകൾ.

സാമൂഹികശാസ്ത്രപഠനമേഖലകളിലേക്ക് ഏറ്റവും അവസാനം പ്രവേശനം കിട്ടിയവരാണ് ട്രാൻസ്ജെൻഡറുകൾ. സ്ത്രീപഠനം പല മേഖലകളിലേക്കും പടർന്നുതുടങ്ങിയപ്പോഴും ഇവർ അക്കാദമിക് സമൂഹത്തിന്റെയും പൊതുസമൂഹത്തിന്റെയും പരിധിക്കു പുറത്തായിരുന്നു. പുരുഷകേന്ദ്രിതമായ ലിംഗാവസ്ഥയ്ക്കു പുറത്താണ് എന്നതാണ് ഇവരുടെ അദ്വൈതപരമായ പിറകിലെ വസ്തുത. “ലൈംഗിക ന്യൂനപക്ഷങ്ങൾ നേരിടുന്ന തിരസ്കാരം പുരുഷാധിപത്യസമൂഹത്തിന്റെ ലിംഗപരമായ ഉൾഭയങ്ങളുടെ പ്രതിഫലനമാണ്.

പുരുഷാധിപത്യസമൂഹത്തിന്റെ പ്രത്യയശാസ്ത്രത്തിന് ഒരു ലിംഗരൂപമുണ്ടെങ്കിൽ അത് പുരുഷനാണ്. സ്ത്രീയുടെ വിധേയത്വം അത് അരക്കിട്ടറപ്പിക്കുന്നു. എന്നാൽ മൂന്നാം ലിംഗത്തിന്റെ സാന്നിധ്യം പുരുഷാധിപത്യ പ്രത്യയശാസ്ത്രത്തെ ഷണ്ഡീകരിക്കുന്നു” എന്ന് ഷിജു ഏലിയാസ് നിരീക്ഷിക്കുന്നു (21).

അധികാരബന്ധങ്ങളെ പുരുഷനിലേക്കും സ്ത്രീകളിലേക്കും മാത്രമായി ചുരുക്കുന്നതിനെ ലിംഗപദവി പഠനങ്ങൾ ചോദ്യം ചെയ്യുന്നു. പുരുഷനും സ്ത്രീയും കൂടാതെ മറ്റൊരു ലിംഗവിഭാഗം ഉണ്ടെന്ന തിരിച്ചറിവ് ജ്ഞാനമണ്ഡലമായി വികസിക്കുകയായിരുന്നു. സ്ത്രീകൾക്കുനേരെയുള്ള ലിംഗപരമായ എല്ലാത്തരം അസമത്വങ്ങൾക്കുമെതിരെ സ്ത്രീവാദചിന്തകൾ ചോദ്യം ഉയർത്തി

കൊണ്ടിരിക്കുന്ന സമയത്തുതന്നെയാണ് മറ്റ് ലിംഗഗണങ്ങളെ എങ്ങനെ അടയാളപ്പെടുത്തണമെന്ന ചിന്തകൾ ഉയർന്നുതുടങ്ങുന്നത്. മുഖ്യധാരയുടെ എല്ലാത്തരം അധികാരവിനിമയങ്ങളെയും ചോദ്യം ചെയ്തു ലിംഗപദവിയുടെ രാഷ്ട്രീയത്തെ വിശാലമായ ചിന്തയിലേക്ക് ഉയർത്തി അധിശപ്രത്യയശാസ്ത്രത്തെ പ്രശ്നവത്കരിക്കാൻ സമീപകാല ലിംഗപദവിപഠനങ്ങൾക്ക് കഴിയുന്നുണ്ട്. കേറ്റ് മില്ലറിന്റെ സൈക്സാൽ പൊളിറ്റിക്സ്, ആൻഡ്രിയൻ റീച്ചിന്റെ കമ്പൽസറി ഹെറ്ററോസെക്സുവലിറ്റി ആന്റ് ദ ലെസ്ബിയൻ തുടങ്ങിയ കൃതികൾ ലിംഗപദവിയെയും ലിംഗവ്യത്യാസത്തെയും കുറിക്കുന്ന ചിന്തകൾ അക്കാദമിക് സമൂഹത്തിനുമുമ്പിൽ അവതരിപ്പിച്ചു. പിതൃമേധാവിത്വം മുന്നോട്ടുവയ്ക്കുന്ന ലിംഗപരമായ അധിശപ്രത്യയശാസ്ത്രത്തെ തുറന്നുകാണിക്കാനും പുതിയൊരു ജ്ഞാനപദ്ധതിയായി ലിംഗപഠനങ്ങളെ മുന്നോട്ടുകൊണ്ടുപോകാനും ഇത്തരം കൃതികൾക്കു സാധിച്ചു. സാമൂഹികവും സാംസ്കാരികവുമായ അധികാരബന്ധങ്ങളെയും അതിലടങ്ങിയിട്ടുള്ള പ്രത്യയശാസ്ത്രത്തെയും വെളിപ്പെടുത്തുകയാണ് മുഖ്യമായും ലിംഗപദവിപഠനങ്ങൾ ചെയ്യുന്നത്.

അധികാരവും ഭാഷയും

ലിംഗപരമായ അധികാരത്തെ സൂക്ഷ്മമായി നിലനിർത്തുന്നതിൽ ഭാഷ വളരെ വലിയ പങ്കുവഹിക്കുന്നുണ്ട്. മറ്റേതൊരു സാമൂഹികസ്ഥാപനങ്ങളിലുമുള്ളതുപോലെ ഭാഷയിലും അധികാരശ്രേണി നിലനിൽക്കുന്നുണ്ട്. അധികാരവും ഭാഷയും തമ്മിലുള്ള അധികാരശ്രേണി തിരിച്ചറിയണമെങ്കിൽ ഭാഷയെ ഒരു വ്യവഹാരയൂണിറ്റായി പഠിക്കേണ്ടതുണ്ട്. വ്യവഹാരവും അധികാരവും എങ്ങനെ ആശയവിനിമയോപാധിയിൽ പ്രവർത്തിക്കുന്നു എന്നു മനസ്സിലാക്കുമ്പോഴേ ഭാഷയിലെ അധികാരത്തെ തിരിച്ചറിയാൻ കഴിയുകയുള്ളു. വാമൊഴിയിലോ വരമൊഴിയിലോ

ഉൾച്ചേർന്നിരിക്കുന്ന അർത്ഥത്തെയാണ് ഇവിടെ അധികാരം എന്നതുകൊണ്ട് അർത്ഥമാക്കുന്നത്. വ്യത്യസ്ത സാമൂഹിക-സ്വഭാവങ്ങൾക്കനുസരിച്ച് രൂപപ്പെടുന്ന ഭാഷാരൂപങ്ങളാണ് വ്യവഹാരമായി മാറുന്നത്. മിഷേൽ ഫൂക്കോയുടെ അധികാര സങ്കല്പനങ്ങളെ പ്രയോജനപ്പെടുത്തി വ്യവഹാരമൊരു പാഠമാണ്, വ്യവഹാരമൊരു പ്രയോഗമാണ്, വ്യവഹാരമൊരു സാമൂഹികപ്രയോഗമാണ് എന്നിങ്ങനെ ത്രിമാന രൂപരേഖ നോർമൻ ഫെയർക്ലോ രൂപീകരിച്ചതായി പി.എം. ഗിരീഷ് (15) രേഖപ്പെടുത്തുന്നു. മാനവരാശിയെ പുരോഗതിയിലേക്ക് നയിക്കുന്നതിൽ എഴുത്തിനും വായനയ്ക്കുമുള്ള പങ്ക് ചെറുതല്ല. അറിവിന്റെ വിശാലതയിലേക്ക് ഒരു സമൂഹത്തെ ഉയർത്തിക്കൊണ്ടുവരുന്നതാണ് ഭാഷ. എന്നാൽ സമൂഹത്തിൽ ഭാഷ പ്രവർത്തിക്കുന്നത് ആണിന്റെയും പെണ്ണിന്റെയും സ്വത്വപ്രക്രിയയെ അടിസ്ഥാനപ്പെടുത്തിയാണ്. പുരുഷൻ സ്ത്രീയുടെമേൽ ആധിപത്യം സ്ഥാപിക്കുന്നത് ഭാഷയിലൂടെയുമാണെന്ന് സാരം. ഭാഷയിലെ ലിംഗബോധത്തെ പരിശോധനയ്ക്കു വിധേയമാക്കിയാൽ മാത്രമേ ലിംഗാധികാരം ഭാഷയിൽ നടത്തുന്ന ആധിപത്യപ്രത്യുശാസ്ത്രങ്ങളെ തിരിച്ചറിയാനും പ്രതിരോധിക്കാനും കഴിയൂ. പുരുഷനെ അപേക്ഷിച്ച് സ്ത്രീയുടെ ഭാഷ കൂടുതൽ മര്യാദ പ്രകടമാക്കുന്നുവെന്ന് വിലും ലബോറും രണ്ടാം തരമെന്ന് കരുതപ്പെടുന്ന സാമൂഹികപദവിമൂലം സ്ത്രീകൾക്കുണ്ടാകുന്ന സ്ത്രീകൾക്കുണ്ടാവുന്ന അപകർഷതാബോധം സ്ത്രീകളുടെ സംഭാഷണത്തിൽ പ്രകടമാണെന്ന് റോബിൻ ലക്കോഫും പുരുഷൻമാരെ അപേക്ഷിച്ച് സ്ത്രീകളു കൂടുതൽ അടച്ച് ഒതുക്കിപ്പിടിച്ചാണ് സംസാരിക്കുന്നതെന്ന് സപീറും നിരീക്ഷിക്കുന്നതായി ഡോ. സീമാ ജെറോം (75) വ്യക്തമാക്കുന്നു.

“വ്യാകരണപാഠങ്ങളിലെ ശരിയായ ഭാഷ പുരുഷന്റെ ഭാഷയാണ്. സ്ത്രീവാദികളുടെ നോട്ടപ്പാടിൽ അതു പുരുഷാധിപത്യത്തി-

ന്റെ ഭാഷാദർശനമാണ്. സ്ത്രീക്കും പുരുഷനുമായി ഭാഷയുടെ പാരമ്പര്യം പങ്കുതുണകിയാൽ അതിൽ ബാക്കി വരുന്നതാണ് ലിംഗനിരപേക്ഷമായ ഭാഷാപാരമ്പര്യം. മതാത്മകമായ പുരുഷാധിപത്യഭാഷയെ മൂന്നാംലിംഗത്തിന്റെ സാന്നിധ്യം വെല്ലുവിളിക്കുന്നു” എന്ന് ഷിജു ഏലിയാസ് (75) നിരീക്ഷിക്കുന്നു. പിതൃദായകക്രമം പിന്തുടരുന്ന അനേകം അധികാരങ്ങൾക്കിടയിൽ ഒന്നാണ് ലിംഗപരമായ അധികാരം. ഈ ലിംഗപരമായ അധികാരത്തെ ഭാഷയിലൂടെ ഊട്ടിയുറപ്പിക്കുകയാണ് പുരുഷാധിപത്യസമൂഹം ചെയ്തുകൊണ്ടിരിക്കുന്നത്. ഇങ്ങനെനോക്കുമ്പോൾ ലിംഗപരമായ ആധിപത്യം പുലർത്തുന്ന ഭാഷയിൽ ഏറ്റവും താഴെത്തട്ടിലാണ് ട്രാൻസ്ജെൻറുകളുടെ നിലയെന്ന് കാണാം.

അധികാരവും ലിംഗപദവിയും

ലിംഗപദവികളും ലൈംഗികതയും വിഭാവനം ചെയ്യുന്നതിലും നിർമ്മിക്കപ്പെടുന്നതിലും സമൂഹവും രാഷ്ട്രീയാധികാരങ്ങളുമൊക്കെ പങ്കുവയ്ക്കുന്നുണ്ട്. സാമൂഹികമായി നിർമ്മിച്ചു കൂടുന്ന പലതരം വ്യവഹാരങ്ങളിലൂടെയാണ് ലിംഗപരമായ അധികാരം സമൂഹത്തിൽ പ്രകടമാവുന്നത്. ആൺവർഗത്തെ ഒന്നാം ലിംഗക്കാരായും പെണ്ണിനെ രണ്ടാം ലിംഗക്കാരായും കണക്കാക്കി, അപരലിംഗത്തെ മൂന്നാം ലിംഗമെന്ന പേരിൽ മാറ്റിനിർത്തുകയായിരുന്നു അധികാരവും മതവും രാഷ്ട്രീയമൊക്കെ ചെയ്തത്. ആണും പെണ്ണും കെട്ടവർ എന്ന അർത്ഥത്തിൽ ഹിജണ്ട, നപുംസകം തുടങ്ങിയ പദാവലികൾ ഉപയോഗിച്ചായിരുന്നു വ്യവസ്ഥാപിതമായ ശരീരഭാഷയോ, ശരീരഭാവങ്ങളോ പ്രകടിപ്പിക്കാത്ത ട്രാൻസ്ജെൻറർ സമൂഹത്തെ പൊതുസമൂഹം അഭിസംബോധന ചെയ്തുകൊണ്ടിരുന്നത്. ഭാഷയിലൂടെയുള്ള ഇത്തരം അധികാരപ്രയോഗത്തിലൂന്നിയുള്ള പാർശ്വവൽക്കരണത്തിന് ട്രാൻസ്ജെൻറർ

സമൂഹത്തിനകത്ത് ഇപ്പോഴും വലിയ മാറ്റമൊന്നും വന്നിട്ടില്ല. പൊതുസമൂഹത്തിന്റെ നടപുശീലങ്ങളിൽനിന്നും സാംസ്കാരിക ബോധത്തിൽനിന്നും മാറിനടക്കുന്നതുകൊണ്ടുതന്നെ പൊതുസമൂഹത്തിന്റെ നീതിശാസ്ത്രങ്ങൾക്കു അത്രയെളുപ്പം വഴങ്ങാത്തതാണ് ഇവരുടെ ജീവിതവ്യവഹാരം. കുടുംബ, മത, സാമൂഹ്യ സമാപനങ്ങളിൽനിന്ന് പുറന്തള്ളപ്പെട്ട ചരിത്രമാണ് പല ട്രാൻസ്ജെൻഡർ വ്യക്തികളുടെയും ആഖ്യാനങ്ങളും. ആൺ-പെൺ എന്നീ ലിംഗഭവനങ്ങളും അവർക്കിടയിൽമാത്രമുള്ള ലൈംഗികതയും എന്ന പരമ്പരാഗതമായ കാഴ്ചപ്പാടിനുപുറത്ത് നിൽക്കുന്നവരാണ് എൽ.ജി.ബി.ടി. സമൂഹം. നിലവിലിരിക്കുന്ന പുരുഷാധിപത്യ വ്യവസ്ഥകളെയും ലിംഗതാരോളകളെയും അത് ശക്തമായി ചോദ്യം ചെയ്യുന്നുണ്ട്. നരവംശപരിണാമമായി നോക്കിയാൽ പ്രകൃതി എൽ.ജി.ബി.ടി. ആളുകളെ സൃഷ്ടിച്ചത് സ്ത്രീ-പുരുഷ സമത്വത്തിനായുള്ള രാസതാരകം എന്ന നിലയിൽകൂടിയാണെന്ന് എനിക്ക് തോന്നാറുണ്ട്. പ്രണയമെന്നത് രണ്ട് സ്വതന്ത്രവ്യക്തികൾക്കിടയിൽമാത്രം സാധ്യമായ കാര്യമാണ്. പുരുഷാധിപത്യ സമൂഹം സ്ത്രീ-പുരുഷ പ്രണയത്തെപ്പോലും ഇല്ലാതാക്കുന്നു. അത്തരം സമൂഹങ്ങളിലെ പുരുഷൻ പുരുഷസൗഹൃദങ്ങളിലൂടെമാത്രം നേടിയെടുക്കാവുന്ന ആൺവിശേഷാധികാരങ്ങൾ അനുഭവിക്കുന്നതായിരിക്കും സ്ത്രീയോടുള്ള പ്രണയത്തേക്കാൾ മുൻഗണന നൽകുന്നത്. പ്രണയത്തേക്കാൾ പുരുഷസൗഹൃദങ്ങൾക്കും വ്യക്തിപൂജയ്ക്കും അക്രമരാഷ്ട്രീയത്തിനും സൂപ്പർതാര ഫേൻസ് മേളകൾക്കും മുൻതൂക്കം കൊടുക്കുന്ന ആണത്തസംസ്കാരം ആയിരിക്കുമത്.

പുരുഷനെ അപേക്ഷിച്ച് സ്ത്രീകൾക്കുണ്ടുതരം ശരീരമാണ് ഉള്ളതെന്ന് കമ്പോള-ഫാഷൻ സങ്കല്പങ്ങളിലെ ലിംഗപരമായ ആധിപത്യസ്വഭാവത്തെക്കുറിച്ച് വിശദമാക്കുന്ന വേളയിൽ പിയറി ബോർദ്യു അഭിപ്രായപ്പെടുന്നുണ്ട്. ഒന്ന് സമൂഹം

കൽപ്പിക്കുന്ന മാതൃകാശരീരം. മറ്റൊന്ന് നിരന്തരം മറ്റുള്ളവരുടെ നോട്ടത്തിന് വിധേയമാകുന്ന ശരീരവും. എപ്പോഴും പുരുഷന്റെ വിലയിരുത്തലിന് വിധേയമാകുന്നതാണ് സ്ത്രീയുടെ കർത്തൃത്വം. പ്രതിരോധിച്ചാൽ ആണത്തമായും വഴിപ്പെട്ടാൽ വശീകരണമായും മാറുന്നു. ഏത് ഘടനയ്ക്കകത്തും അധീശത്വവും കീഴടങ്ങലുമുണ്ട്. അവൻ/അവൾ കർത്തൃത്വം തിരിച്ചറിയുമ്പോഴാണ് അധികാരം നിലനിൽക്കുന്ന സമൂഹത്തിനകത്ത് ഒരു വ്യക്തിയുടെ ധാരണ രൂപപ്പെടുന്നത്. “മധ്യകാലത്തുള്ള ചില മെഡിക്കൽ രചനകളിലെ യോനിയെ തലതിരിഞ്ഞ ലിംഗമായി രേഖപ്പെടുത്തിക്കാണാം. ആണത്തത്തിന്റെ തത്വമനുസരിച്ചാണ് പ്രതീകക്രമത്തിനകത്ത് ഭവനങ്ങൾ ഉണ്ടായി വരുന്നത്. ആൺ/പെൺ വിപരീതം വളരെക്കാലം മുമ്പുതന്നെ ഉണ്ടായിവന്നതാണ്. സ്ത്രീയുടെ ലൈംഗികതയെക്കുറിച്ചുള്ള സങ്കല്പങ്ങളെല്ലാം ഉണ്ടാക്കിയെടുത്തത് പുരുഷൻമാരാണ്. ലൈംഗികതയെക്കുറിച്ചുള്ള ആഖ്യാനങ്ങളിൽ വേരുന്നിക്കൊണ്ടാണ് പുരുഷസങ്കല്പങ്ങളെ ഉണ്ടായിവന്നതും നിലനിൽക്കുന്നതും.” (പിയറി ബോർദ്യു 47) ലിംഗപരമായ സാമൂഹിക വ്യവസ്ഥയിൽ എങ്ങനെയാണ് സ്ത്രീ രണ്ടാംലിംഗ കർത്തൃത്വത്തിലേക്ക് താഴുന്നതെന്നാണ് പിയറി ബോർദ്യു വിശദമാക്കാൻ ശ്രമിക്കുന്നത്. സമൂഹത്തിന്റെ ഇത്തരം ലിംഗാധികാരവ്യവസ്ഥയിൽ ട്രാൻസ്ജെൻഡറുകളുടെ അസ്തിത്വം ചോദ്യം ചെയ്യപ്പെടുക സ്വാഭാവികമാണ്. ആണത്തം എന്നും നിലകൊണ്ടിട്ടുള്ളത് അധീശത്വപ്രത്യയശാസ്ത്രത്തിനകത്താണ്. സമൂഹത്തിനകത്തും കുടുംബത്തിനകത്തും ഒരു വ്യവഹാരമെന്ന നിലയിൽ അധികാരം ലിംഗപരമായ അധീശത്വം സ്ഥാപിക്കുന്നുണ്ട്. ലിംഗവ്യവഹാരങ്ങൾക്കകത്ത് പ്രവർത്തിക്കുന്ന അധികാരമാണ് പുരുഷമേധാവിത്വത്തിന് കാരണം. പുരുഷമേധാവിത്വം എന്ന ആശയം പുരുഷൻ-സ്ത്രീ എന്ന ലിംഗവിഭാഗങ്ങളുടെ

നിർവചനങ്ങൾക്കു മുകളിലാണ് നിലകൊള്ളുന്നത്. ഇത് സാംസ്കാരികമായ പൊതുമണ്ഡലത്തിലും സാമൂഹികസ്ഥാപനങ്ങളിലുമാണ് പ്രവർത്തിക്കുന്നത്.

പുരുഷാധിപത്യസാമൂഹികഘടനയ്ക്കുള്ളിൽ എങ്ങനെയാണോ സ്ത്രീകളെ പ്രതീകങ്ങളിലൂടെ രണ്ടാംലിംഗനിരയിലേക്ക് താഴ്ന്നത്, അതേപ്രകാരമുള്ള പ്രതീകങ്ങളിലൂടെയാണ് ട്രാൻസ്ജെന്ററുകളെ പാർശ്വവല്ക്കരിക്കുന്നത്. ശരീരത്തിന്റെ എല്ലാതരം ആവിഷ്കാരങ്ങളും സമൂഹം നിർമ്മിച്ചുവെച്ച സദാചാരത്തിലധിഷ്ഠിതമാണ്. എല്ലാ സമൂഹങ്ങളിലും വിവാഹം, കുടുംബം, ജീവിതം തുടങ്ങിയവയെ നിർണ്ണയിക്കാനാവശ്യമായ മത, നീതി, നിയമ വ്യവസ്ഥകളുണ്ടാകും. ഇത്തരം പരമ്പരാഗത സമൂഹത്തിന്റെ രൂപപ്പെടലിൽ നിന്ന് പുറത്താണ് ട്രാൻസ്ജെന്റർ ജീവിതത്തിന്റെ നിൽപ്പ്. പുരുഷനിലും സ്ത്രീകളിലും സാമൂഹികക്രമം ഉണ്ടാക്കിയെടുക്കുന്ന ലിംഗാധികാര ബോധത്തിനുള്ളിലേക്കല്ല, ലിംഗ വൈവിധ്യത്തിലൂന്നിയാണ് ട്രാൻസ്ജെന്റർ വ്യക്തികള് അവരുടെ വ്യക്തിസത്ത രൂപീകരിക്കുന്നത്. മതം, കുടുംബം തുടങ്ങിയ അധികാരസ്ഥാപനങ്ങൾ തങ്ങളുടെ അസ്തിത്വത്തെ അംഗീകരിക്കാതിരിക്കുമ്പോഴാണ് ട്രാൻസ്ജെന്റർ വ്യക്തി തങ്ങളുടെ സമൂഹം തേടിപ്പോകുന്നത്. ഇങ്ങനെ എത്തിപ്പെട്ട സമൂഹത്തിനകത്ത് ആചാര-അധികാര ബന്ധങ്ങൾ കാണാമെങ്കിലും അവയൊന്നും പുരുഷാധിപത്യ വ്യവസ്ഥയ്ക്കുള്ളിലെ ലിംഗാധികാര പ്രവണതപോലെ കീഴ്പെടുത്തലിന്റേതല്ല.

കിയർ സ്വത്വങ്ങള്

പതിനാറാം നൂറ്റാണ്ടോടെ ഇംഗ്ലീഷ് ഭാഷയിൽ വേരുറപ്പിച്ച ഒരു പദമാണ് 'കിയർ'. അപരിചിതമായത്, വിചിത്രമായത് എന്നെല്ലാമാണ് ഇതിന്റെ

വാഗർത്ഥങ്ങൾ. പത്തൊമ്പതാം നൂറ്റാണ്ടിൽ, സ്വവർഗ്ഗാനുരാഗികളായ പുരുഷന്മാരെക്കുറിച്ച് 'കിയർ' എന്ന പദം ഉപയോഗിച്ചിരുന്നു. 1960-കളിലും, 70-കളിലും ലൈംഗികനൃപക്ഷവിഭാഗക്കാർ അവരുടെ പൗരാവകാശസമരങ്ങൾ സജീവമായി ആരംഭിച്ച കാലത്ത്, കിയർ എന്ന പദത്തെ അതിന്റെ അപമാനകരമായ അർത്ഥത്തിൽനിന്ന് വിമോചിപ്പിച്ചെടുക്കണം എന്ന് സ്വവർഗ്ഗാനുരാഗികള് നിശ്ചയിച്ചു. "അടഞ്ഞ വാതിലുകൾക്കുള്ളിൽനിന്ന് തെരുവുകളിലേക്ക്" എന്നും "ഞങ്ങളിവിടെയെത്താൻ കാരണം ഞങ്ങൾ കിയർ ആണ് എന്നതാണ്" എന്നും അവർ മുദ്രവാക്യങ്ങൾ മുഴക്കി. സ്വവർഗ്ഗാനുരാഗികൾ എന്ന പദംപോലും പിന്തിരിപ്പുനാണെന്ന് അക്കാലത്ത് അവർ നിഷ്കർഷിച്ചു. അവരുടെ ദൈനംദിന വ്യവഹാരങ്ങളെ ആ പദം ഒരുതരത്തിലും വഹിക്കുന്നില്ല എന്നായിരുന്നു അവർ ചൂണ്ടിക്കാട്ടിയ കാരണം. "മലയാളത്തിൽ വിമതമെന്ന് അർത്ഥവിനിമയശേഷി നൽകുന്ന കിയർ എന്ന പ്രയോഗം സമീപകാലത്ത് ഏറെ വ്യാപകമായി ഉപയോഗിക്കപ്പെടുന്നുണ്ട്. സ്വവർഗ ലൈംഗികതയുമായി ബന്ധപ്പെട്ടുവരുന്ന പദങ്ങളുടെ കൂട്ടത്തിൽ പുതിയത് എന്ന രീതിയിലാണ് ഇതിന്റെ പ്രയോഗം. സ്വവർഗ ലൈംഗികത (Homosexuality), പുരുഷസ്വവർഗസംഭോഗി (Gay), സ്ത്രീസ്വവർഗസംഭോഗി (Lesbian) അവസാനമായി വിമതം (Queer). ഇത് ലൈംഗിക-ലിംഗവൈവിധ്യതയുടെ ചരിത്രപരമായ മാറ്റത്തിന്റെ തുടർച്ചയാണ്. രണ്ടാം ലോകമഹായുദ്ധത്തിന് മുമ്പുള്ള ന്യൂയോർക്കിലും ലോകത്തിലെ വിവിധങ്ങളായ ഉപസംസ്കാരങ്ങളിലും ദൃശ്യമാകുന്നതും അതുപോലെ സങ്കീർണ്ണമായി വിലയിരുത്തുന്നതുമായ സ്വവർഗലൈംഗികതയെ ഗേയ്ക്കു മുമ്പുള്ള പദമെന്ന നിലയിൽ കിയർ എന്ന് പ്രയോഗിക്കുന്നു" (രമ്യ 173).

1990-കളിൽ കിയർ എന്ന പദം വീണ്ടും പ്രചാരത്തിൽവന്നു. ഇത്തവണ അത്

സ്വവർഗ്ഗാനുരാഗികളായ പുരുഷന്മാരെ കുറിക്കാനായിരുന്നില്ല. മറിച്ച്, ലൈംഗികതയെയും ലൈംഗിക-സ്ത്രീത്വത്തെയും കുറിച്ചുള്ള മുഖ്യധാരാസങ്കല്പങ്ങളെ തിരുത്താനായിരുന്നു. ഏതു തരം ലൈംഗികതയും സ്വാഭാവികവും സാധാരണവുമാണ് എന്ന വാദമായിരുന്നു കീയർ എന്ന പദത്തിന്റെ രാഷ്ട്രീയം. ഒരു നിശ്ചിത ലൈംഗികതയെ സൂചിപ്പിക്കുന്നതിനുപകരം, സമൂഹത്തിന്റെ നടപുവാദങ്ങളിൽനിന്നു വീട്ടുനടക്കുന്ന ഏതുതരം ലൈംഗികതയെയും സൂചിപ്പിക്കാൻ കീയർ എന്ന പദം ഉപയോഗിച്ചുതുടങ്ങി. ഏക്കോ, വാർണർ, ജൂഡിത് ബട്ലർ, ലാറൻ ബെർലൻ്റ് തുടങ്ങിയവരുടെ ചിന്തകൾ കീയർ എന്ന പദത്തിന് ഇത്തരത്തിലൊരു രാഷ്ട്രീയാർത്ഥം ലഭിക്കുന്നതിൽ സ്വാധീനം ചെലുത്തിയിട്ടുണ്ട്. കീയർ എന്നത് വ്യക്തികളെയും നിലപാടിനെയും രാഷ്ട്രീയത്തെയും അഭിസംബോധന ചെയ്യാനപയോഗിക്കുന്ന പദമായി മാറി. ആൺ-പെൺ ലൈംഗികാധിപത്യത്ത ചെറുക്കുന്ന ലൈംഗികഭിന്നലിംഗങ്ങളെ പരാമർശിക്കുവാനാണ് കീയർ എന്ന പദം സാധാരണ ഉപയോഗിക്കുന്നത്. ആധിപത്യത്തിലധിഷ്ഠിതമായ പരമ്പരാഗത ലിംഗ-ലൈംഗികതയെ പ്രശ്നവൽക്കരിക്കുകയും പുതിയ ജ്ഞാനമേഖലകളെ ഉല്പാദിപ്പിക്കുകയും ചെയ്യാൻ കീയർ പദത്തിന് സാധ്യമാകുന്നു. ഭിന്ന ലൈംഗികാധികാരത്തിന്റെ ഘടനയ്ക്കുള്ളിൽ അകപ്പെട്ട അപരലിംഗത്തിന്റെ അവകാശപ്പോരാട്ടങ്ങളുടെ കൂട്ടായ്മ എന്ന നിലയിലും കീയർ ഒരു അംഗ്രൂല ടേം പോലെ നിലകൊള്ളുന്നു. ലിംഗം, ലിംഗപദവി, ലൈംഗികത എന്നിവയുടെ പേരിൽ സമൂഹത്തിൽ കാലാകാലങ്ങളായി നിലനിൽക്കുകയും പുനരുല്പാദിപ്പിക്കുകയും ചെയ്യുന്ന അധിശമൂല്യങ്ങളെ തിരുത്തുകയും ലിംഗപദവിയെക്കുറിച്ച് ചലനാത്മകമായൊരു ഇടപെടൽ സാധ്യമാക്കുകയും ചെയ്യുകയാണ് കീയർ

കൂട്ടായ്മകളുടെ ലക്ഷ്യം. ഒരു സിദ്ധാന്തമേഖല എന്ന നിലയിലും കീയർ പദാവലി വികസിച്ചു വന്നിട്ടുണ്ട്. സ്വവർഗ്ഗലൈംഗികത എന്നതിൽനിന്ന് ട്രാൻസ്ജെൻഡറുകളേയും ലിംഗ-ലൈംഗിക വൈവിധ്യങ്ങളേയും ഉൾക്കൊള്ളുന്ന വിശാലമായ അർത്ഥത്തിലേക്ക് കീയർ പഠനമേഖലകൾ മുന്നേറിയിട്ടുണ്ട്.

കീയർ ഭാഷയും കീയർ സ്വത്വങ്ങളും

അച്ഛനും അമ്മയും ചേച്ചിയും ഒന്നിച്ചിരുന്ന് സംസാരിക്കുമ്പോൾ പറയാൻ ആഗ്രഹിച്ചത് ഉള്ളിലിരുന്ന് വിങ്ങി. ആരും കാണാതെ കുറെ കരയും. എന്റെ സൈബ്രിലാവ പ്രകടനങ്ങളിൽ വീട്ടുകാർക്കും അഭിമാനക്ഷതം തോന്നിത്തുടങ്ങി. അച്ഛന് എനോട് സഹാനുഭൂതിയുണ്ടായിരുന്നു എന്നത് സത്യം. എന്റെ മനസ്സ് അച്ഛന് മുന്നിൽ തുറക്കാനാഗ്രഹിച്ചെങ്കിലും കഴിഞ്ഞില്ല. ബിൽ മഷി കുടിച്ച് ആത്മഹത്യയ്ക്ക് ശ്രമിച്ചെങ്കിലും പരാജയപ്പെട്ടു. (വിജയരാജമല്ലിക 23).

ആ വാക്കുകൾ എന്റെ ഹൃദയത്തിൽ തറച്ചിറങ്ങുകയായിരുന്നു. എന്നെ അത്രയേറെ സ്നേഹിച്ച ഒരാൾ എന്നെ അറിയില്ല എന്നു പറയേണ്ടിവരുന്നത് നികൃഷ്ടമായതാണോ ഈ ജീവിതം? ഏറെ കടുത്ത സങ്കടത്താൽ ഹൃദയം വിറങ്ങലിച്ചു. തൊണ്ടയിലും നെഞ്ചിലും ഗർഭദം തിങ്ങിവിങ്ങി. എനിക്ക് ഒന്നും വേണ്ടല്ലോ, ഒന്നും. എങ്കിലും എന്നെ അറിയില്ല എന്നു പറയല്ലേ മാഷെ എന്ന് എന്റെ ഹൃദയം മൃകമായി വില പിടിച്ചതല്ലാതെ ഒന്നും പറയാനാവാതെ ഞാൻ നിശ്ശബ്ദയായി നിന്നു പോയി. മാഷ് എന്നെ കടന്നു മെല്ലെ നടന്നു. (ജെറീന 27)

പ്രീഡിഗ്രിക്കാലത്ത് ഞാൻ മത്സര ബുദ്ധിയോടെ കണ്ടിരുന്ന ക്ലാസ്സേറ്റം മറ്റൊരു പഠിപ്പിസ്സുമായിരുന്ന സന്തോഷ്

എന്റെ റൂമേറ്റം ഉറ്റുസൃഷ്ടിയായി മാറി. സ്വവർഗപ്രേമി കളെക്കുറിച്ച് തെറിവാക്കുകൾ ഉപയോഗിച്ച് ചിലർ ഹോസ്റ്റലിലെ സൗഹൃദസദസ്സുകളിൽ പരിഹാസത്തോടെയും അറപ്പോടെയും സംസാരി ക്കുമ്പോൾ എന്റെ ഹൃദയം ശക്തിയായി മിടിച്ചു. അത്തരം തമാശകൾക്ക് ചിരിക്കണോ കരയണോ എന്നറിയാതെ ഞാൻ പരുങ്ങി. (കിഷോർ കുമാർ 26)

മുകളിൽ നൽകിയിരിക്കുന്ന ഉദ്ധരണികളിൽ മലയാളത്തിൽ പ്രസിദ്ധീകരിക്കപ്പെട്ട മൂന്ന് കീയർ വ്യക്തികളുടെ ആത്മകഥകളിൽനിന്നുള്ള ഭാഗങ്ങളാണ്. മൂന്നു ആത്മകഥകളും സംസാരിക്കുന്നത്, ഈ വ്യക്തികളുടെ സ്വത്വത്തെ കുടുംബം, സമൂഹം, അധികാരവ്യവസ്ഥ എന്നിവ എങ്ങനെ നോക്കിക്കാണുന്നു എന്നതിനെക്കുറിച്ചാണ്. പരാമർശിച്ച ആത്മകഥകളിൽ പൊതുവായി കാണുന്ന ഒന്നാണ് തങ്ങളുടെ ചിന്തയെ, ആശയത്തെ ആവിഷ്കരിക്കാൻ ആവശ്യമായ ഭാഷയുടെ അഭാവം. ആണിനോ പെണ്ണിനോ സ്വയം ആവിഷ്കരിക്കാൻ പറ്റുന്ന ഭാഷ കീയർ വ്യക്തിക്ക് അപര്യാപ്തമായി മാറുന്നു. ആശയോപാധി എന്ന നിലയിൽ ഭാഷ അതിന്റെ ധർമ്മ നിർവഹിക്കുന്നുണ്ടെങ്കിലും, ലിംഗമാറ്റത്തിനനുസരിച്ച് ഭാഷയിൽ മാറ്റം സംഭവിക്കുന്നില്ല. അതുകൊണ്ട് പൊതുഭാഷയെ വ്യവഹാര ഭാഷയാക്കി മാറ്റി തങ്ങളെ ആവിഷ്കരിക്കുമ്പോൾ, ആ ആവിഷ്കാരം പൂർണ്ണമാകുന്നില്ലെന്നുകൂടി ഈ പുസ്തകങ്ങൾ അടിവരയിടുന്നു. അങ്ങനെയൊക്കുമ്പോൾ, കീയർ മനുഷ്യർക്ക് അനുയോജ്യമായ രീതിയിൽ ഭാഷ മാറേണ്ടതുണ്ട്. എങ്കിൽ മാത്രമേ അവർക്ക് അവരുടെ സ്വത്വാവിഷ്കാരം പൂർണ്ണമായും പ്രകടിപ്പിക്കാൻ സാധിക്കുകയുള്ളൂ. ഈയൊരു സാഹചര്യത്തിലാണ് കീയർ ഭാഷയ്ക്ക് പ്രാധാന്യം കൈവരുന്നത്. കീയർ ലിംഗിസിറ്റിക്ക് വിമർശനാത്മകമായ ഒരു പഠനപദ്ധതിയാണ്. ഒരു സമൂഹം

ഗുണപരവും വിധാംസകവുമായ ഫലങ്ങളെ എപ്രകാരം ഉല്പാദിപ്പിക്കുന്നു എന്നും, ആ വിധാംസകമായ ഫലങ്ങളെ പൂർണ്ണമായും അമർച്ച ചെയ്യാനായില്ലെങ്കിലും കുറയ്ക്കാനെങ്കിലും കഴിയുമോ എന്നുമുള്ള പരിശോധന നടത്തുന്നവയാണ് വിമർശനാത്മക പഠനങ്ങൾ. ഭാഷാരൂപവും സമൂഹരൂപവും തമ്മിലുള്ള ബന്ധത്തെ കീയർ ലിംഗിസിറ്റിക്ക് വിമർശനാത്മകമായി പരിശോധിക്കുന്നു. ലൈംഗികത എങ്ങനെ ഭാഷയിലൂടെ രൂപപ്പെടുകയും, ഭാഷയെ രൂപപ്പെടുത്തുകയും ചെയ്യുന്നുവെന്ന് അവർ പഠിക്കുന്നു. ലൈംഗികാഭിലാഷം (Desire) ഇത്തരത്തിൽ വിമർശനപരമായി പഠിക്കപ്പെടുന്ന ഒന്നാണ്. അത് ആന്തരികമോ വൈകാരികമോ എന്നതിനപ്പുറത്ത് ഒരു സാമൂഹികവ്യവസ്ഥ തന്നെയായിത്തീർന്നു വിശേഷിച്ചു. അതുകൊണ്ടുതന്നെ കീയർ ഭാഷാശാസ്ത്രം ഏകശിലാമാനമായ ഒരു സിദ്ധാന്തമല്ല. മറിച്ച്, ഹെറ്ററോനോർമറ്റീവിറ്റിക്കെതിരെയുള്ള വിഭിന്നമായ ആശയങ്ങളെ ഉൾക്കൊള്ളുന്ന ഒരു അംബുല ടേം ആണ്. ഈ ബഹുസ്വരത കീയർ രാഷ്ട്രീയത്തിന്റെ മുഖമുദ്ര തന്നെയാണ്. പരമ്പരാഗതമായ ഭാഷാശാസ്ത്രസങ്കല്പനങ്ങളിൽനിന്ന് ഇക്കാരണംകൊണ്ടുതന്നെ കീയർ ലിംഗിസിറ്റിക്ക് ഏറെ വിഭിന്നമാണ്. സ്ത്രീ-പുരുഷൻ എന്ന ബൃഹത് ദ്വന്ദ്വവിഭാഗങ്ങളെ സംബന്ധിച്ചുള്ള പൂർവ്വാഭിപ്രായങ്ങളും വൈരുദ്ധ്യവും വേണ്ടതുണ്ടോ എന്ന ചിന്തയാണ് കീയർ ലിംഗിസിറ്റിക്ക് ആധാരം. ഈ രണ്ടു സങ്കല്പനങ്ങളുടെയും ശരാശരി പെരുമാറ്റമാതൃകയെ ഒരു ഏകകമായി എടുക്കുകയും, ആ ഏകകത്തിൽനിന്ന് മാറിനിൽക്കുന്ന വ്യക്തികളെ വ്യതിയാനങ്ങളായി (Deviation) കണക്കാക്കുകയും ചെയ്യുന്നു. സ്ത്രീയും പുരുഷനും തമ്മിലുള്ള വൈജാത്യങ്ങൾക്കു നൽകുന്ന പ്രാധാന്യം സാജാത്യങ്ങൾക്കു നൽകുന്നില്ല (അവ ധാരാളമുണ്ടെങ്കിലും) എന്നും കീയർ ഭാഷാശാസ്ത്രജ്ഞർ നിരീക്ഷിക്കുന്നു.

ലോകത്തിന്റെ പല ഭാഗങ്ങളിൽ, പല സംസ്കാരങ്ങളിൽ, പല സാഹചര്യങ്ങളിൽ സ്ത്രീ-പുരുഷസങ്കല്പങ്ങളെക്കുറിച്ച് വൈവിധ്യമുണ്ടെന്നിരിക്കെ, സ്ത്രീ-പുരുഷന്മാരെന്ന് ചരം എങ്ങനെ സ്ഥിരമായ ഒരു സങ്കല്പമാകുമെന്നും കീയർ ലിംഗസ്റ്റുകളെ ചോദിക്കുന്നു. കീയർ കാഴ്ചപ്പാടനുസരിച്ച് എല്ലാ സ്വത്വസങ്കല്പങ്ങൾക്കും തരക്കേടുണ്ട്. കാരണം, ആ സങ്കല്പങ്ങളെ പൂർണ്ണമായും തൃപ്തിപ്പെടുത്താത്ത സംഗതികളെ അവ പുറത്തുനിർത്തുന്നു. ഇത് സ്ത്രീ, പുരുഷൻ എന്നിവർക്കു മാത്രമല്ല, ലെസ്ബിയൻ-ഗേ എന്നിവയ്ക്കും ബാധകമാണ്. കാരണം സ്വവർഗ്ഗപ്രണയികളെ ഗ്രാമത്തിലുള്ളവർ-നഗരത്തിലുള്ളവർ, ധനികർ-ദരിദ്രർ, വിദ്യാഭ്യാസമുള്ളവർ-അല്ലാത്തവർ, സ്വത്വം പ്രഖ്യാപിച്ചവർ-അല്ലാത്തവർ എന്നിങ്ങനെ വീണ്ടും ചെറുചെറു വിഭാഗങ്ങളാക്കി തിരിക്കാനാവും.

“ഹെറ്ററോനോർമറ്റീവിറ്റിയെ അപനിർമ്മിക്കുക എന്നതാണ് കീയർ ഭാഷാശാസ്ത്രലക്ഷ്യം എങ്കിലും, ലൈംഗികതയെയും മനുഷ്യർ തമ്മിലുള്ള ആശയവിനിമയത്തെയും കുറിച്ചുള്ള അതിന്റെ വ്യവഹാരങ്ങളെ നിയന്ത്രിക്കുന്ന സാധനങ്ങളിൽനിന്ന് മുക്തമാണെന്നു പറയാനാവില്ല.” (Heiko, Martin 523)

യു എസ്സിൽ രണ്ടു കാലഘട്ടങ്ങളിൽ ലെസ്ബിയൻ രാഷ്ട്രീയം എങ്ങനെ എഴുത്തിലൂടെ പ്രതിനിധീകരിക്കപ്പെട്ടുവെന്ന് വെറോണിക്ക കോളർ എഴുതുന്നത് കിരഹാൾ, ആഞ്ജല റിയേസ് എന്നിവർ ചൂണ്ടിക്കാട്ടുന്നു. ന്യൂയോർക്കിലെ ഒരു ആക്ടിവിസ്റ്റ് ഗ്രൂപ്പായിരുന്ന റാഡിക്കലെസ്ബിയൻസ് 1970-ൽ പുറത്തിറക്കിയ ഒരു മാനിഫെസ്റ്റോയും, 2013-ൽ കർവ് എന്ന ഗ്ലോസി ലെസ്ബിയൻ മാസികയുടെ എഡിറ്റോറിയലുമാണ് അവർ താരതമ്യപ്പെടുത്തുന്നത്. ആദ്യത്തെ ടെക്സ്റ്റിന്റെ സമൂഹോന്മുഖമായ ആക്ടിവിസ്റ്റ് സ്വഭാവവും, രണ്ടാമത്തേതിന്റെ നിയോലി-

ബറലിസ്റ്റ് സ്വഭാവവും അവർ താരതമ്യപ്പെടുത്തുന്നുണ്ട്. ആദ്യത്തെ ഫെമിനിസ്റ്റ് രീതി പിൻപറ്റുന്ന മുദ്രാവാക്യങ്ങളും, രണ്ടാമത്തേതിലെ വ്യക്തികേന്ദ്രീകൃതരീതിയും ഈ മാറ്റത്തെ പ്രതിനിധീകരിക്കുന്നു. ‘സാധാരണമെന്നു കരുതുന്ന എല്ലാറ്റിനെയും വെളിപ്പെടുത്തുകയും അസ്ഥിരപ്പെടുത്തുകയും ചെയ്യുക’ എന്ന കീയർ ലിംഗിസ്റ്റിക്സിന്റെ പ്രധാന പദ്ധതി തന്നെയാണ് ഇതിലും ഉള്ളത്. ഹെറ്ററോനോർമറ്റീവിറ്റി പോലെ ലെസ്ബിയൻ നോർമറ്റീവിറ്റിയും ഒരു യാഥാർത്ഥ്യമാണ്. കാലത്തോടൊപ്പം രണ്ടും മാറുന്നു.

ഉപസംഹാരം

മുഖ്യധാരാപൊതുസമൂഹത്തിന്റെ പാർശ്വങ്ങളിലാണ് കീയർ സമൂഹത്തിന്റെ നിൽപ്പ്. സമൂഹം, കുടുംബം, മതം തുടങ്ങിയ പ്രത്യയശാസ്ത്രമൂല്യങ്ങൾ ഉല്പാദിപ്പിക്കുന്ന അധികാരത്തിനു പുറമേ, ഭാഷയും ഇവരുടെമേൽ പിതൃദായകഘടനയുടെ ശ്രേണിവൽക്കരണം സാധ്യമാക്കുന്നു. സ്വത്വബോധത്തിന്റെ പ്രധാന ഘടകങ്ങളിലൊന്നാണ് ഭാഷയെന്നും, അത് സ്വത്വപ്രകാശനത്തിന്റെ മാധ്യമമാണെന്നും തിരിച്ചറിഞ്ഞാൽ മാത്രമേ ഭാഷയിലൂടെയുള്ള ലിംഗസമത്വം അധീശത്വമൂല്യങ്ങളെ ഒരുപരിധിവരെയെങ്കിലും പ്രതിരോധിക്കാൻ സഹായകരമാവൂ.

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ANALYSIS AND CLASSIFICATION OF HUMAN SKIN DISEASES

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Abstract

Skin diseases are prevalent and vary in severity, requiring early and accurate diagnosis for effective treatment. Traditional diagnostic methods rely heavily on visual examination and biopsy, which can be time-consuming and subjective. This project aims to develop an automated skin disease classification system using deep learning techniques, specifically convolutional neural networks (CNNs). By leveraging a dataset of skin lesion images and employing models such as VGG16 and ResNet, we aim to classify seven types of skin diseases, including Melanoma, Melanocytic nevi, and Basal cell carcinoma, among others. The proposed system seeks to enhance diagnostic accuracy, reduce diagnosis time, and provide dermatologists with a reliable tool to support clinical decisions. The project's methodology includes data preprocessing, model training, and evaluation, highlighting the potential of AI in revolutionizing dermatological diagnostics.

I. INTRODUCTION

Skin diseases are among the most common human illnesses, varying greatly in severity and complexity. Early and accurate diagnosis of skin conditions is crucial for effective treatment and management. Traditional diagnostic methods primarily rely on visual examination and biopsy, which can be time-consuming and subject to variability in interpretation. With advancements in machine learning and deep learning, automated skin disease classification has emerged as a promising approach to assist dermatologists in

diagnosing skin conditions more efficiently and accurately.

This project aims to leverage deep learning techniques to develop a robust model for the classification of various skin diseases. By utilizing a dataset of skin images, the project employs Convolutional Neural Networks (CNNs) to identify and categorize skin conditions into seven distinct classes. The integration of advanced models such as VGG16 and ResNet is explored to enhance classification accuracy and reliability. This approach not only aims to expedite the diagnostic process but also strives to reduce the burden on healthcare professionals by

providing a supplementary tool for accurate skin disease identification.

II. METHOD

A. Data Collection

The first step in this project is to collect a comprehensive dataset of skin disease images. We utilize publicly available datasets such as HAM10000, which provides a large collection of dermatoscopic images of common pigmented skin lesions. Each image in the dataset is labeled with a specific diagnosis, covering a variety of skin conditions including Melanocytic nevi, Melanoma, Benign keratosis-like lesions, Basal cell carcinoma, Actinic keratoses, Vascular lesions, and Dermatofibroma. The images are preprocessed by normalizing the pixel values and resizing them to a standard input size of 224x224 pixels to ensure compatibility with the input requirements of deep learning models.

B. Data Augmentation

To enhance the diversity and robustness of our training dataset, data augmentation techniques are applied. This includes transformations such as rotation, horizontal and vertical flipping, zooming, and scaling. Data augmentation serves a dual purpose: it artificially increases the size of the training dataset and helps the model generalize better by exposing it to a variety of possible image transformations. This step is crucial for preventing overfitting and improving the model's performance on unseen data.

C. Model Selection

[1] In this project, we explore and compare the performance of two prominent convolutional neural network (CNN)

architectures: D. A. Shoieb, S. M. Youssef, and W. M. Aly, "ComputerAided Model for Skin Diagnosis Using Deep Learning," *Journal of Image and Graphics*, vol. 4, no. 2, 2016.

[2] S. Kumar Patnaik, M. Singh Sidhu, Yaagyanika Gehlot, Bhairvi Sharma, and P Muthu*, "Automated Skin Disease Identification using Deep Learning Algorithm," *Biomedical & Pharmacology Journal*, vol. 11(3), pp. 1429-1436, 2018.[4] R. Yasir, Md. Ashiqur Rahman, and Nova Ahmed, "Dermatological Disease Detection Using Image Processing and Artificial Neural Network," in *8th International Conference on Electrical and Computer Engineering 20-22 December 2014*, IEEE 2014, Dhaka, Bangladesh, 2014.

VGG16 and ResNet. VGG16 is known for its simplicity and depth, comprising 16 layers with a series of convolutional layers followed by fully connected layers. ResNet, or Residual Network, introduces residual blocks that allow for training much deeper networks without suffering from the vanishing gradient problem. Both models are pre-trained on the ImageNet dataset and are fine-tuned on our skin disease dataset to leverage transfer learning, thus improving the accuracy of the classification task.

D. Training the Model

The dataset is split into three subsets: training, validation, and test sets. The training set is used to train the model, while the validation set is utilized for tuning hyperparameters and preventing overfitting through techniques like early stopping and learning rate adjustments. We train the models using standard optimization algorithms such as Adam or SGD with cross-entropy loss as the objective function. The performance of the models is evaluated

using metrics such as accuracy, precision, recall, and F1-score to ensure a comprehensive assessment of their classification capabilities.

E. Model Evaluation and Testing

Once the training is complete, the final evaluation of the model is conducted on the test set, which provides an unbiased estimate of the model's performance in a real-world scenario. A confusion matrix is generated to visualize the performance of the model across different categories of skin diseases, highlighting areas where the model performs well and identifying classes that may require further improvement. This analysis helps in understanding the strengths and weaknesses of the model and guides future enhancements.

By following these steps, we aim to develop an automated system that can accurately classify skin diseases, thereby assisting dermatologists in the diagnosis process and potentially improving patient outcomes.

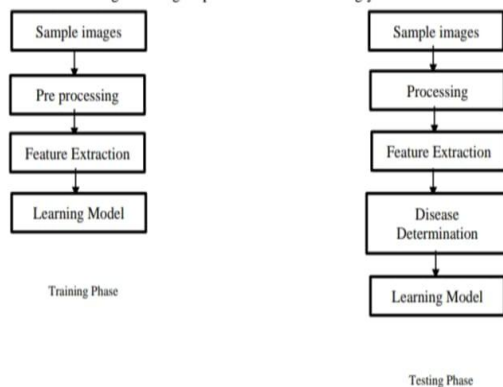


Fig 1

III. RESULTS AND DISCUSSION

A. Model Performance

The performance of our models, VGG16 and ResNet, was rigorously evaluated using the test dataset. The accuracy of the models on this dataset was recorded, with ResNet achieving a slightly higher accuracy compared to VGG16. Precision, recall, and F1-score were computed for each category of skin disease to provide a detailed understanding of the models' classification capabilities. The precision metric indicates the proportion of true positive predictions among all positive predictions, while recall measures the proportion of true positive predictions among all actual positives. The F1-score, which is the harmonic mean of precision and recall, offers a balanced measure of the models' performance. Both models demonstrated strong performance in classifying common skin diseases, though certain categories such as Melanoma and Basal cell carcinoma showed slightly lower precision and recall, highlighting areas for potential improvement. Fig 2 is represented by the user interface of a project, Fig 3 is result of the project.

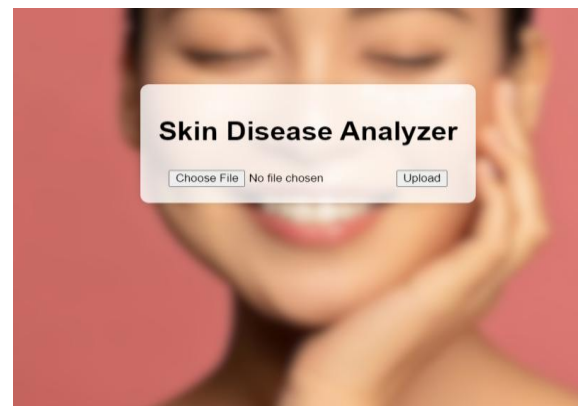


Fig 2

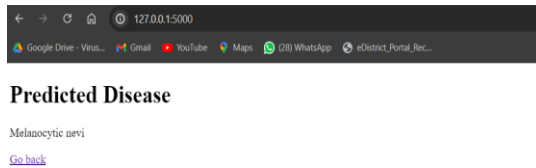


Fig 3

B. Comparative Analysis

In comparing the VGG16 and ResNet models, Simonyan, K., & Zisserman, A. (2015). Very Deep Convolutional Networks for Large-Scale Image Recognition. International Conference on Learning Representations (ICLR).

[3] He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep Residual Learning for Image Recognition. Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR). It was observed that ResNet outperformed VGG16 in terms of overall accuracy and F1-score. The ResNet model's architecture, which includes residual connections, allows it to train deeper networks more effectively by mitigating the vanishing gradient problem. This enables ResNet to capture more complex features from the skin disease images, leading to better performance. VGG16, while simpler and easier to implement, showed limitations in handling deeper network layers, which slightly affected its performance metrics. The comparative analysis highlighted that while both models are effective, ResNet's architectural advantages make it a more robust choice for the task of skin disease classification. This insight is crucial for guiding future model selection and development efforts in similar medical imaging applications.

IV. CONCLUSION

The project demonstrates that deep learning models such as VGG16 and ResNet can classify various skin diseases with an accuracy of 80%. This indicates their potential as reliable tools to assist dermatologists in diagnosing skin conditions more efficiently. Future work will focus on enhancing the model's performance by incorporating larger and more diverse datasets and exploring other advanced deep learning architectures. This will further improve the accuracy and reliability of automated skin disease classification, ultimately benefiting dermatological practices and patient outcomes.

V. ACKNOWLEDGEMENT

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हिंदी दलित कहानी : एक अनुशीलन

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दलित मूलतः हाशिए कृत हैं। समाज में मानविचित जीवन जीने के अधिकार से वंचित हैं। हिन्दी कहानी क्षेत्र में दलित कहानियों के चेतना और चिंतन पक्ष शोषण के प्रतिरोधी स्वर अर्जित करके सामने आये हैं। दलित लेखक सदियों से दमित और पीड़ित दलित लोगों की चेतना को जागृत करके उनकी पहचान को अभिव्यक्त करने का प्रयास करते हैं। यह चिंतन केवल लेखकों तक सीमित नहीं है। अपने जनसमुदाय को प्रेरणा देना और उन को समाज में सम्मान प्राप्त करना उनके परिश्रम का ध्येय है। दलित कहानीकार खुद दमित जीवन के अनुभवी हैं और अपने समुदाय के लोगों के अनुभवों के साथ ही साथ महान चिंतकों और समाजसुधारकों के वक्तव्यों से प्रभावित भी हैं। मुख्यधारा से हाशिएकृत उन को आगे लाने के लिए दलित लेखकों ने काफी परिश्रम किया। जातिव्यवस्था के कठोर चंगुल में फँसकर अत्याचारों को भोगकर दमित जीवन जीनेवाले ये लोग अपने अधिकारों से वंचित हैं। स्वतंत्रता के पहले और बाद में भी उनके अधिकार छीन लिए हैं। कठोर धूप में काम करके भूखे नंगे पड़े जनसमुदाय सामान्य जनता के अधिकारों से वंचित थे। उनकी आवाज़ कहीं सुन न पा रही थी। विद्यालयों से, मंदिरों से, सड़कों से वे दूर रहे थे। सामाजिक आन्दोलनों से परिवर्तन लाने का परिश्रम सामाजिक सुधारकों ने खूब किया है। इससे दलित लेखन भी प्रबल होकर आगे आया। “दलित साहित्यांदोलन महाराष्ट्र के सांस्कृतिक जीवन में अपूर्व और असामान्य महत्व की घटना है। हज़ारों वर्षों से मूक बने दलितों के अंतःकरण की व्यथा और वेदनाएँ आंदोलन के कारण ही शब्द रूप प्राप्त हुआ है।

इससे मराठी साहित्य को एक नई शक्ति प्राप्त हुई है।” 1

भारत की अन्य भाषाओं में भी दलित लेखकों ने सदियों के संताप को चित्रित करके झूठे इतिहासों पर करार व्यंग्य भी किया है। सामाजिक बोध जागृत करने के पक्ष में खड़े दलित लेखक दलितों के जीवनानुभवों को दिखाकर चेतना और चिंतन को उजागर करना चाहते हैं। “दलित साहित्य का समाजबोध, पाठक और श्रोता की चेतना एवं अनुभूति को प्रभावित करनेवाली गहन संवेदना से ही पूरा होता है। साहित्य पर समय और समाज का स्पष्ट प्रभाव होता है। साहित्य की रचनाओं में मनुष्य की मस्तिष्क पर पड़नेवाले जीवन और जगत की घटना और स्थितियों का ही प्रतिबिंब होता है। दलित साहित्य की मान्यता है कि कला या साहित्य को सामाजिक दायित्व का निर्वाह करते हुए कला सृजन में आगे बढ़ना चाहिए। इस दृष्टि से दलित साहित्य शुद्ध कला न होकर एक सामाजिक आंदोलन है।” 2

उनके ये विचार ही साहित्य का ताप है। इसलिए ही उनकी कला यथार्थ जीवन का चित्रण करती है। यही उसका सौन्दर्य है। उनकी अपनी भाषा में लिखने से रचनाएँ अधिक मर्मस्पर्शी बन जाती हैं। मिथक, लोकगीत आदि का प्रयोग इन की रचनाओं में देख सकते हैं। ओमप्रकाश वाल्मीकि के शब्दों में, “दलित साहित्य में दलित जीवन का यथार्थवादी चित्रण यथार्थ की मात्र नकल नहीं बल्कि साधारण परिस्थितियों में साधारण चरित्रों का वास्तविक पुनर्संजन है। इस कार्य में दर्शन और कलात्मक पांडित्यपूर्ण प्रदर्शन की आवश्यकता कतई नहीं है।

पाठक की चेतना और अनुभूति को प्रभावित करनेवाली गहन संवेदना से ही यह संभव है।” 3 हिन्दी में दलित लेखन गैरदलित साहित्यकारों से शुरू हुआ था। प्रेमचंद की कलम की छूत से अच्छूतोद्धार का परिश्रम ज़ोरों पर हुआ था। उन की कहानियाँ गाँव केन्द्रित हैं, इसलिए जातिव्यवस्था का सख्त चित्रण ठाकुर का कुआँ, सद्गति, कफन, पूस की रात आदि कहानियों में हैं। ठाकुर का कुआँ के जोखू और गंगी भारत की स्वतंत्रता के पहले के दलित समाज के प्रतिनिधि हैं। जातिगत भेदभाव का यथार्थ चित्रण इस में है। गंगी के शब्दों में, “ब्राह्मण देवता आशीर्वाद देंगे, ठाकुर लाठी मारेंगे, साहूजी एक के पाँच लेंगे।” 4 उच्चवर्गवाले खासकर ब्राह्मण लोग अपना अधिकार जीवन के सारे क्षेत्र में स्थापित करके अन्य लोगों का शोषण करते हैं। दलितों को अपना जीवन दुखदायक होने पर भी ये सब नियति का खेल मानने के कारण प्रतिरोध करने से हिचकते थे। कफन में घीसू नियति पर विश्वास प्रकट करने का एक संदर्भ इस तरह है, ‘घीसू ने समझाया, क्यों रोता है बेटा खुश हो कि वह माया- जाल से मुक्त हो गई। जंजाल से टूट गयी। बड़ी भाग्यवान थी जो इतनी जल्द माया- मोह के बंधन तोड़ दिये।” 5 यहाँ गरीबी के कारण पिता और पुत्र विवश हैं। ब्राह्मण के अधिकारों से शोषित दलित लोगों के प्रतिनिधि घीसू के शब्दों में, “वह न बैकुण्ठ में जाएगी तो क्या ये मोटे- मोटे लोग जाएँगे, जो गरीबों को दोनों हाथों से लूटते हैं और अपने पाप को धोने के लिए गंगा में नहाते हैं और मन्दिरों में जल चढाते हैं।” 6 गरीबी ही मुख्य समस्या थी। दलित कहानियाँ लिखते समय देखी गयी सच्चाई को लिखकर प्रेमचंद ने अपने चेतना और चिंतन के माध्यम से जातिगत भेदभाव को दूर करके सामाजिक नेत्रोन्मीलन का परिश्रम किया था।

दलित लेखकों ने अनुभव की प्रामाणिकता की कसौटी पर कसकर प्रेमचंद को दलित लेखकों की पंक्ति से बाहर खड़ा किया था। कहानी एक कला

है, इसमें अनुभव मात्र नहीं, देखी गयी, सुनी गयी बातों को भी अक्षरबद्ध करना साहित्यकार की सामाजिक प्रतिबद्धता है। लेकिन समकालीन दलित लेखन प्रेमचंद के दृष्टिकोणों को नहीं समाते हैं। उनका मानना है कि प्रेमचंद ने कभी भी दलित जीवन की पीडाओं को नहीं झेला है।” दलित साहित्यकारों द्वारा दलित साहित्य लिखना उनका अभिमान है। गैर दलित साहित्यकारों द्वारा दलित साहित्य की रचना करना एक फैशन और प्रदर्शन है।” 7 दलित लेखक यही चाहते हैं कि अपने समुदाय के लोगों के चेतना और चिंतन को समाज के कानों पर पहुँचाना है। “दलित साहित्य की वेदना में मैं की वेदना नहीं वह बहिष्कृत समाज की वेदना है। इस बहिष्कृत समाज को बाकी समाज के समकक्ष लाए बिना मनुष्यता का तकाजा अधूरा रह जाएगा और मानवता अपूर्ण ही रहेगी। इसलिए दलित साहित्य अपना मानवता के इस तकाजे के कारण उसे समकक्ष लाने के लिए प्रतिबद्ध है।” 8

बुद्धशरण हंस, मोहनदास नैमिशराय, सुशीला टाकभौरे, ओमप्रकाश वाल्मीकी, जयप्रकाश कर्दम, सूरजपाल चौहान, अनीता भारती, रजनी सिसोदिया, कैलाश वानखडे, टेकचंद, संदीप मैल आदि की कहानियाँ पाठकों के चेतना और चिंतन पक्ष जागृत करने में सफल हैं। परंपरा को नकारके रूढ़ियों के बंधनों को तोड़कर अपनी जातिगत प्रथाओं को दूर करने के लिए जूठन न लेने का शपथ लेनेवाले, परंपरा से चली आयी व्यवस्थाओं को तोड़कर आगे सलाम न देने का प्रण लेनेवाले नयी चेतना और चिंतन के प्रतीक हैं। वास्तव में यह प्रतिरोध का साहित्य है। दलित कहानियों के संबंध में कहानीकार टेकचंद का मत है “वैसे तो संपूर्ण दलित साहित्य प्रतिरोध का साहित्य है, लेकिन कहानी विधा में विरोध प्रतिरोध का तेवर अपेक्षाकृत ज्यादा मुखर और धारदार होता है। इसका कारण यह है कि आत्मकथा जो कि दलित साहित्य की प्रतिनिधि

विधा है, व्यक्ति विशेष की संघर्ष गाथा बन जाती है, कविता कवि का आक्रोश, नाटक स्थितियों का बयान। परंतु कहानी लेखक पात्रों, घटनाओं, परिवेश आदि का ऐसा समग्र बिंब प्रस्तुत कर देती है कि पाठक के चेतन अवचेतन का हिस्सा बन जाती है। पाठक के रूप में कहानी एक मुहिम और उसका एक पैरोकार तैयार करती है। “9

बुद्धशरण हंस हिन्दी दलित कहानी को सशक्त नींव प्रदान करनेवालों में से एक हैं। ब्रह्मज्ञान, रे अधम मुझे मत बेच, अखंड कीर्तन, भोज के कुत्ते, धम्म जीवन, देव दर्शन आदि कहानियों से दलित जीवन के विभिन्न पहलुएँ पाठकों के सामने खींचे हैं। अंबेडकर की विचारधाराओं से प्रभावित मोहनदास नैमिशराय अपना गाँव नामक कहानी में हिन्दू जातिव्यवस्थाओं की बुरी मान्यताओं से अलग होने के लिए अपना एक अलग गाँव बसनेवाले दलित लोगों को हमारे सामने प्रस्तुत करते हैं। हारे हुए लोग कहानी में दलितों को किराये पर घर देने को तैयार न होनेवाले सवर्णों का चित्रण किया है। रीति नामक कहानी में पीडित दलित नारियों के जीवन को चित्रित किया है। मैं, शहर और वे नामक कहानी में एक दलित विद्यार्थी की आर्थिक परेशानियाँ चित्रित हैं। नया पड़ोसी नामक कहानी में ब्राह्मण लोगों की स्वार्थता का चित्रण हुआ है। तपते दलित जीवन का वास्तविक चित्रण इन कहानियों में है।

प्रचलित जातिव्यवस्था को सामाजिक व्यवस्था मानकर रूढ़िगत जीवन बिताने के लिए विवश अपने समुदायवालों को शिक्षा प्राप्त करने की आवश्यकता पर जोर देकर दलित कहानीकार अपने चिंतन विचारों को प्रकट करते हैं। ओमप्रकाश वाल्मीकि की कहानी पच्चीस चौका डेढ़ सौ इस विचार को आगे बढ़ाता है।

“सुदीप ने पच्चीस का पहाड़ा दोहराया, पच्चीस चौका सौ ... नहीं बेटे, ..पच्चीस चौके सौ नहीं ...पच्चीस चौका डेढ़ सौ

सुदीप ने चोंककर पिताजी की ओर देखा। समझाने के लहचे में बोला, नहीं पिताजी, पच्चीस चौका सौ ...ये देखो गणित की किताब में लिखा है।”10 लेकिन पिता ने दोहराया कि पच्चीस चौका डेढ़ सौ

अनपढ़ दलित लोग जंमीन्दारों द्वारा शोषित एवं पीडित जीवन बिताने के विवश होते हैं। शोषण, अंधविश्वास, रूढ़ि आदि से मुक्ति पाने के लिए शिक्षा की ज़रूरत है। लेकिन ये लोग शिक्षा से वंचित रहते थे। कूडाघर नामक कहानी भी जातिभेद के कठोर अनुभवों का चित्रण प्रस्तुत करता है। अजबसिंह को किराये पर लिये घर के मालिक लोगों ने इसलिये बाहर निकाल देता है कि वह एस.सी है। सलाम कहानी में अपने मित्र की बारात में शामिल होनेवाले कमल उपाध्याय को जाति भेद का अनुभव हुआ। एक चाय पीने के लिए दूकान जाने पर उसको ऐसा अनुभव हुआ, “चूहडे-चमारों को मेरी दूकान पर चाय ना मिलती --कहीं और जाके पियो।---”

“कमल उससे जाति पूछने पर वह, मेरी जात से तुझे क्या लेणा- देणा। इब चूहडे चमार भी जात पूछने लगे – कलयुग आ गया है, कलयुग।”

“हाँ कलयुग आ गया है, सर्फ तुम्हारे लिए, तुम अपनी जात नहीं बताना चाहते हो ते सुनो – मेरा नाम कमल पाध्याय है। ---उपाध्याय यानि ब्राह्मण।”

“चूहडों की बारात में वामन !

“शहर में चूतिया बणाना—मैं तो आदमी कू देखते ही पिछ्छाण (पहचान) लूँ ---कि किस जात का ----”11

जातिभेद दूर करके सामाजिक सुधार के लिए प्रयत्नरत कबीरदास, श्रीनारायण गुरु आदि की वाणी भी जातिविचार को भूलकर समभाव से जीने के विचारों को प्रेरणा देनेवाली है। दलित लेखक भी इन के विचारों से प्रभावित हैं। मंदिरों में मूर्ति की स्थापना करने का अधिकार केवल ब्राह्मणों को

दिया है । लेकिन श्रीनारायण गुरु ने एक मंदिर में शिव की मूर्ति की स्थापना की और उन्होंने ने कहा कि मैं ने ईश्वर शिव की स्थापना की है । इस तरह उन्होंने धार्मिक पाखंडियों का विरोध किया । इस तरह सपना कहानी में भी हिन्दू धर्म के पाखंड को चित्रित किया है । मंदिर के प्राणप्रतिष्ठा कार्यक्रम में पंडित अपने को महान मानकर दूसरों को अपमानित करते हैं । तब अन्य लोग वहाँ कैसे बैठेंगे

“हम लोग घर चलते हैं । ऐसे अनुष्ठानों में बैठकर क्या होगा, जहाँ आदमी को आदमी की तरह न समझा जाय ।”¹²

स्वतंत्रता के बाद भारतीय समाज में आरक्षण के नियम आने पर भी दलित शोषण का अंत नहीं हुआ है । घुसपैठिए, कूड़ाघर आदि कहानियों में आरक्षण संबंधी समस्याएँ चित्रित हैं । अध्यापक भी छात्रों से भेदभाव रखते हैं । घुसपैठिए में दलित छात्र कहते हैं, “क्लास में भेदभाव, इतना ही नहीं प्रेक्टिकल की परीक्षाओं में भी भेदभाव बढ़ता जाता है । न क्लास अटेंड करता है न प्रेक्टिकल फिर भी त्रिवेदी सर उसे ही सबसे ज्यादा अंक देते हैं ।”

13 समाज में व्याप्त ऐसे भावों को दूर करना ही शिक्षा का ध्येय है, लेकिन अध्यापक द्वारा ही ऐसे होने पर सामाजिक परिवर्तन कैसे संभव होगा । इसकी ओर सोचने के लिए कहानीकार पाठकों को जागृत करते हैं ।

भारतीय समाज में व्याप्त अंधविश्वास, रूढ़िवाद आदि से मुक्त होना आज भी दलित लोग समर्थ नहीं निकले हैं । दलित लोग शिक्षित होकर आगे बढ़ने पर भी अपनी जातिगत ददों से मुक्त नहीं है । ब्रह्मास्त्र कहानी में इस विषय को चित्रित किया है । दलित जाति के कंवल कुमार और ब्राह्मण जाति के अरविन्द अच्छे मित्र हैं । अरविन्द की बारात में जानेवाले कंवल को मना करके पं.माधव प्रसाद मित्र कहते हैं, “तू कहाँ जा रहा है । कंवल कड़वाहट को अनदेखा करते हुए सहज भाव से कहता है –“ बारात में जा रहा हूँ ।

पंडित की प्रतिक्रिया थी, तू कैसे जा सकता है बारात में”¹⁴

इनकी कहानियाँ दलित समाज के अनुभवों के दस्तावेज़ हैं । उन की कहानियों में देखी गयी नहीं भोगी गयी सच्चाइयाँ हैं । रिहाई, ब्रह्मास्त्र आदि कहानियों में भी दलित पीड़ा, शोषण आदि का चित्रण है। मैं ब्राह्मण नहीं हूँ नामक कहानी में जाति पर विश्वास नहीं रखनेवाले पुत्र और जाति की असलियत जानने पर विवाह से पीछे जानेवाले पिता मुख्य पात्र बन जाते हैं ।

“सुनिता कहती है, मेरेलिए ब्राह्मण होना ही इंसान की श्रेष्ठता का प्रतीक नहीं है । यह एक भ्रम है जिसमें सभी ऊँच- नीच का खेल खेल रहे हैं ।”

15

कहाँ जाए सतीश नामक कहानी में एक दलित बालक की शिक्षा की समस्या चित्रित है । सतीश पढ़ना चाहता है । लेकिन उसके माँ-बाप उसे कर्मचारी बनाना चाहते हैं । घर से भागकर एक कारखाने में काम करनेवाले उसको जाति के नाम पर किराये पर मिले घर से निकालता है । अपनी जाति भंगी होने के कारण उसे कई संकट झेलने पड़ते हैं । यह अंत नहीं नामक कहानी में गाँव के ज़मीन्दार लोगों द्वारा दलित औरतों पर करनेवाले अत्याचारों का चित्रण हुआ है । मंगलू का बेटा किसन शिक्षित युवक है । बेटा बिरमा ज़मीन्दार के खेत में काम करनेवाली है । एक दिन ज़मीन्दार का बेटा उससे बुरा व्यवहार करता है । पुलिस भी ज़मीन्दार के पक्ष में है । दलित होने के नाते उनको न्याय का निषेध होता है । अन्धड नामक कहानी में दलितों द्वारा ही अपनी हीन भावना को छिपाने का परिश्रम को दिखाया है । अपनी जाति पर गर्व करने की बजाय वह पलायन करना चाहता है । उस हीनभावना के कारण वह अपना नाम सुक़ड लाल से परिवर्तित करके एस. लाल बनाता है । अपने बंधु जनों से भी दूर रहना चाहता है और अपनी पत्नी से कहता है, “मैं नहीं चाहता लोगों को पता चले कि हम एस.सी हैं । जिस दिन लोग ये जान

जाएँगे , यह मान- सम्मान सब घृणा- द्वेष में बदल जाएगा । "16

शवयात्रा में दलित समाज के अंतरंगी बातों का चित्रण है । यहाँ दलित आन्दोलनों की फल प्राप्ति के संबंध में विचार करने की आवश्यकता है । वास्तव में दलित समाज के भीतरी बातों को चित्रित करके लेखक ने दलित विमर्श का और एक चित्र खींचा है । चमारों का गाँव और उसमें एक बल्हार परिवार । बल्हारों पर चमारों के अत्याचारों का चित्रण इसमें किया है । "रेलवे कॉलनी में अम्बेडकर जयन्ती के भाषण उसे याद आने लगे थे । उसने उन तमाम विचारों को झटक दिया था । गहरी वितृष्णा उसके भीतर उठ रही थी । उसे लगा , वे तमाम भाषण खोखले और बेहद बनावटी थे।" 17 गाँववालों की जातिगत तीव्र नज़र के कारण कल्लन को अपनी बेटी को ही खोनी पड़ी ।

शिक्षा से अपने समुदाय की प्रगति लाना दलित लेखकों का लक्ष्य है । लेकिन शिक्षा से नौकरी प्राप्त करने पर भी दलित लोगों को अपमान झेलना पड़ता है । चिडीमार कहानी में ऐसा एक विषय चर्चित है । इस तरह कडु जीवन के कई चित्र ओमप्रकाश वाल्मीकि ने अपनी कहानियों में चित्रित करके समाज के चिंतन दलित जीवन की ओर खींचने का प्रयास किया है ।

जयप्रकाश कर्दम की कहानियाँ दलित जीवन के साझीदार हैं । कट्टर जाति व्यवस्था का चित्रण उनकी कहानियों में है । नो बार नामक कहानी में माट्रिमोनियल में कास्ट नो बार दिया था । लेकिन असल में यह होता है , "हम जाति- पाँति को नहीं मानते और मैट्रिमोनियल में नो बार छपवाया था । फिर भी कुछ चीज़ें तो देखनी ही होती है । आखिर नो बार का यह मतलब नहीं कि किसी चमार- चूहडे के साथ । "18 जाति पाँति नहीं मानने का विज्ञापन देने पर भी शादी की बात आने पर वे लोग जाति पर टिके रहते हैं ।

दलित नारियों की पीड़ा का चित्रण करनेवाली कहानियों में रीति, उसके जख्म , माँ, शहर, और वे , यह अंत नहीं, जंगल की रानी आदि के नाम उल्लेखनीय हैं । तलाश नामक कहानी में रामवीर सिंह गुप्ता जी के मकान में किराये पर रहता है । वे रामवती चूहडी से खाना बनवाते हैं । यह बात जानकर मकान मालिक की पत्नी को गुस्सा आती है और रामवीर सिंह को दूसरे घर तलाश करने को कहा । न का जवाब था , , "यदि यह बात है तो मैं आपका मकान खाली करने को तैयार हूँ लेकिन जातिगत भेदभाव के आधार पर मैं रामवती से खाना बनवाना बन्द नहीं करूँगा । "19

जहर नामक कहानी प्रतिरोध का दर्पण है । दलित ताँगेवाले अपने ताँगे में यात्रा करनेवाले एक ब्राह्मण द्वारा अपने जातिवालों पर होनेवाले शाब्दिक अतिक्रमण की प्रतिक्रिया इस प्रकार करते हैं , "दो रुपये का नुकसान मुझे होगा न । मैं सौ रुपये का नुकसान भी बर्दशत कर लूँगा , पर तेरे मुँह मुँह से अपमानजनक बातें बर्दशत नहीं करूँगा । चल उतर जल्दी से । "20

ताँगेवाला अपने समुदाय पर होनेवाले अतिक्रमण एवं अन्याय के खिलाफ चिंतनशील है । इसलिए वह अपनी आमदनी को भी खोकर यात्री को अपने ताँगे से उतार कर देता है । उसकी यह प्रतिक्रिया ही सामाजिक इसलिए वह अपनी आमदनी को भी खोकर यात्री को अपने ताँगे से उतार कर देता है । उसकी यह प्रतिक्रिया ही सामाजिक भेदभाव के विरुद्ध होनेवाले दलित लोगों का विकार है । कामरेड का घर नामक कहानी में मार्क्सवादी विचारधारा रखनेवाले कामरेड तिवारी के मन की वास्तविकता को पर्दाफाश करती है । तिवारी चिंतन एवं विचारधारा में पाखंडी मार्क्सवाद रखने के कारण जातिव्यवस्था के विरोध करने में भी असमर्थ निकलता है । इसलिए कामरेड अस्लम कहता है , " मैं ते यह मानकर चल रहा था कि आप लोग यच में प्रगतिशील हैं और परिवर्तन के अपने संकल्प के प्रति ईमानदार हैं । इसलिए मैं आप

लोगों के साथ जुड़ा था। आपके सिद्धान्त और व्यवहार के दोगलेपन ने मुझे निराश किया है। "21 कई लोग तिवारी जैसे हैं। जाति व्यवस्था के विरोध में लिखते हैं और भाषण करते हैं, लेकिन कर्म में नहीं लाते हैं। समाज को एक नया संदेश देनेवाली कहानी है पगड़ी। पुरुष स्थापित व्यवस्थाओं में परिवर्तन लाकर औरतों को सम्मान देने की घटना बताकर यह कहानी पाठकों को परिवर्तन के नये क्षितिजों की ओर लो जाती है। परिवार के मुखिया को पगड़ी बाँधकर सम्मानित करने की प्रथा यहाँ है और पुरुष लोग ही इसके पात्र बनते हैं। लेकिन उससे भिन्न होकर औरतों को भी आदर करने के लिए लोग तैयार होने से यह कहानी अधिक प्रेरणादायक बनती है।

सुशीला टाकभौरे दलित साहित्य की आवाज़ है। उन की रचनाओं में जातिगत भेदभाव का पीड़दायक चित्र है। इन में विद्रोह का स्वर गूँज उठता है। संघर्ष, जन्मदिन, बदला, मेरा समाज, टूटता वहम, नयी राह की खोज आदि कहानियाँ दलित चेतना एवं चिंतन के प्रतिनिधि रचनाएँ हैं। सूरजपाल चौहान की हैरी कब आएगा, सारे जहाँ से अच्छा, जसन, तीन चित्र, साजिश, बदबू, परिवर्तन की बात आदि कहानियों में दलितों के सदियों के संताप चित्रित हैं। "गरीबी, भुखमरी और सवर्णों के वर्चस्ववाले समाज में रहते हुए कदम-कदम पर अपमान और उत्पीड़न का मुकाबला करते हुए शिक्षा प्राप्त कर आगे बढ़ने और समाज में एक सम्मानजनक जगह हासिल करने की लालसा से प्रायः ये कहानियाँ रची गई हैं।" 22

हैरी कब आएगा में पढ़े-लिखे युवकों में भी दिखाये जानेवाले जाति विचार का चित्रण है। इसका मुख्य पात्र हरदेव सिंह मोणिका से प्रेम करता है, लेकिन लड़की एस. सी जानने पर प्रणय अप्रत्यक्ष होता है। तीन चित्र नामक इन की कहानी में दलित युवक की चाय की दूकान के विरुद्ध सवर्ण लोगों के मानसिक व्यापार व्यक्त हुआ है।

"पिओ खूब चूहड़े की चाय, करो अपनो – अपनो का धरम भिष्टा।" 23

साजिश कहानी में सवर्ण बैंक मैनेजर दलित युवक को बैंक लोन देने में रुकावट डालकर उसकी प्रगति में विघ्न डालता है। परिवर्तन की बात नामक कहानी सचमुच परिवर्तन का संदेश देता है। कहानीकार ने दलित जातिवालों को रूढ़ियों और बंधनों को तोड़कर आगे बढ़ने का संदेश दिया है। वे अपने पुराने धंधों को छोड़कर नये काम की तलाश में हैं। लेकिन सवर्ण इन को हमेशा गड़बो में धकेलने के विचार में हैं। कहानी का मुख्य पात्र किसन अपने ही जीवन से यह परिवर्तन सिद्ध करना चाहता है। वह मरी गाय की लाश को उठाने को तैयार नहीं होता है, "हमने फैसला किया कि मरा जानवर उठाने का काम नहीं करेंगे।" 24 इस तरह रूढ़िगत बंधनों से मुक्त होने से दलित जीवन हाशिएकरण से खुद स्वतंत्र होता है। इसके लिए आवश्यक प्रेरणा देना समाज का दायित्व है।

प्राण प्रतिष्ठा नामक कहानी में सामाजिक विडंबना का चित्रण है। "उस मूर्ति को हम लोग दूध, गंगाजल आदि से धोकर इसलिए पवित्र करते हैं कि भगवान् की उस मूर्ति को बनानेवाला अच्छूत और नीच जाति का होता है।" 25

समकालीन युवा कहानीकार टेकचंद की कहानी मोर का पंख शिक्षित दलित युवक के चिंतन धारा को पेश करती है। इस में सवर्णों की छद्म प्रगतिशीलता, नकली आधुनिकता, दूसरों की अनुकृति के दोष आदि बिन्दुओं को उभारा है। पार्लमेंट के प्रोटोकॉल अफसर विशाल वाल्मीकियों के गाँव से पढ़कर आगे आया है। वह और भी आगे बढ़ने के परिश्रम में है। उन की दादी माँ हमेशा उसकी प्रेरणा है। अदिति जो एक ब्राह्मण युवति है उससे विशाल का परिचय होता है। वह दलित समस्याओं पर शोध करनेवाली है। विशाल सोचता है कि ब्राह्मण होने पर भी वह दलितों पर शोध करती है, उसका मन इतना विशाल है कि उसके

मन में जाति भेद का विचार नहीं है। अदिति कई बातों में विशाल का सहारा ढूँढती है और उसकी सहायता करने के लिए वह तैयार है। “दोनों का संबंध बढ़ रहा था, दोनों एक दूसरे के परिवार, माँ-बाप की मेहनत, त्याग, तपस्या, और लक्ष्यों की बातें करते। विशाल मानने लगा था कि अभावग्रस्त, मेहनती, मेधावी और शोषित कहीं भी हो सकते हैं, वे किसी जातिविशेष के मोहताज नहीं।” 26

विशाल जाति पर नहीं व्यक्ति पर विश्वास करता था। इसलिए अतिथि पर विश्वास करके उसने अपनी जिन्दगी आगे बढ़ाने का सपना देखा। लेकिन कम ही दिनों में उसको यह अनुभव हुआ कि अतिथि उसको सीढियाँ बना रही है। उसको कमरे में देखने से वह उसका असली चरित्र जानता है। इस विषय पर दोनों के बीच में तर्क हुआ।

‘मुझ पर शक करके तुमने अपनी औकात बता दी, विशाल को औकात में जाति का अहसास हुआ।

”27

यह कहानी मोर का पंख लगाकर नाचने की आशा रखे कौए की लोककथा की स्मृति दिलाती है। अपनी असलियत को भूलकर दूसरों की अनुकृति करने से अपना अस्तित्व ही नष्ट होता है। कहानी को कौए को याद करके विशाल को लगता है कि उसके शरीर में मोर के पंख लगे हुए हैं। विशाल भी जातिबोध के घेरे से मुक्त नहीं है। इस संदर्भ में दिलीप काठेरिया का कथन उल्लेखनीय है “दलित समाज को अपनी मुक्ति के लिए सवर्णों से ही नहीं अपितु स्वयं से ही भी संघर्ष करना पड़ेगा। यह बहुत पीड़ा दायक और मुक्ति की राह में बड़ी रुकावट है।” 28

रमणिका गुप्ता की चिडिया, चमेली, बहू- जुठाई आदि कहानियों में दलित जीवन के जीते जागते चित्रण हैं। इनकी बहू- जुठाई कहानी प्रतिरोध की आवाज़ है। एक दलित समाज में शादी होने पर बधू की पहली डोली ठाकुर साहब के यहाँ उतरना है। लेकिन उन्होंने निर्णय किया कि बहू की डोली

पहली रात ज़मीन्दार के घर जुठाने के लिए नहीं जाएगी। यह परिवर्तन की आभा है।

शरणकुमार लिंबाले के दलित ब्राह्मण, सफेद मक्खी, सरकार का जमाई, ओछी जात का, सीढी आदि कहानियों में भारतीय ग्रामीण समाज में सदियों से ज़ारी दलित उत्पीड़न के चित्र दृष्ट्य हैं। शैलेश मटियानी के चिल, धुधतिया त्यौहार, लीक आदि कहानियाँ दलित जीवन के अनुभव एवं अनुभूतियाँ हैं। आज्ञादी के पहले गाँवों में लोगों की स्थिति बहुत दर्दनाक थी। परिवेश जितना बदलने पर भी लोगों के दृष्टिकोण नहीं बदलने से जातिव्यवस्था के कटु पट बदलते नहीं। जिस घरेलू व्यवस्था में वह बड़ा होता है आदमी का दृष्टिकोण उसी के अनुसार रूपायित होता है। इस में परिवर्तन लाने के लिए खुद परिश्रम करना है। जातिव्यवस्था के घेरों से मुक्ति पाना, रूढिवादिता से दूर रहना आदि पाठ देना लेखकों का दायित्व है। रूपनारायण सोनकर अपने चिंतनधाराओं से दलित समाज को आगे बढ़ाने के परिश्रम में लगे रहे हैं। डा.सि.बी. भारती की कहानी भूख बंजारा में महिलाओं के प्रति होनेवाले शोषण, पितृसत्ता की क्रूर व्यवस्था आदि का चित्रण है। डॉ.दयानंद बटोही के भूल नामक कहानी के पात्र रमेश और पार्वती जातिव्यवस्था के विरोध में हैं। जाति ही उनके प्यार के संदर्भ में विघ्न बन जाती है। रमेश का कथन है, “पारो वह दिन कब आयोगा जब समाज में जाति भावना का नाश हो मानवता पराकाष्ठा पर होगी, काश हम दोनों के लिए जाति न होती।” 29 सब दलित यही चाहते हैं कि इस दुनिया में जाति न होने पर कितना अच्छा था। सुशीला टाकभौरे का मत है कि अस्पृश्यता ऐसी बीमारी है जिसका अभी तक उपाय संभव नहीं हो सका है। न साधु संतों की वाणी से, न सामजसुधारकों के प्रयत्नों से, न अंग्रेजों की मानवतावादी तर्कपूर्ण से देश की स्वतंत्रता से और न ही संविधान से। दलित लेखक इस बीमारी को मिटाने का सतत प्रयास कर रहे हैं।

दलित कहानियों में परंपरा का विरोध और दलित जनता का प्रतिरोध देख सकते हैं। दलित कहानीकार समाज की विसंगतियों को दूर करके दलित जीवन को सम्मान और अधिकार देना चाहते हैं। कहानियाँ तभी सफल होती हैं जब कथा वाचन से पाठकों के भी चेतना और चिंतन के पक्ष जागृत होते हैं। इसके लिए लेखकों के चेतना और चिंतन पक्ष दलित जीवन की बुनियादी समस्याएँ बाहर पहुँचाने के लक्ष्य में पूरित होना है। इस प्रयास में दलित लेखक सजग हैं।

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A STUDY RELATED TO THE EFFECTIVENESS OF PRADHAN MANTRI MUDRA YOJANA WITH SPECIAL REFERENCE TO ERNAKULAM

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Abstract

The Pradhan Mantri MUDRA Yojana (PMMY), launched in 2015, seeks to empower non-corporate, non-farm small and micro-enterprises by providing loans up to 10 lakhs. This study investigates entrepreneurs' perceptions and knowledge regarding PMMY, focusing on its impact in the Aluva area. Through primary data collection via structured questionnaires and secondary data from various sources, insights from 50 entrepreneurs are analyzed using statistical measures like percentage analysis. The study explores outreach, access, and the relevance of PMMY for micro-enterprises, acknowledging limitations such as response bias and time constraints. Under this scheme of PMMY, MUDRA has created 3 products namely 'shishu', 'kishore', and 'tarun' to signify the stage of growth and funding needs of entrepreneurs. Mudra loans under Pradhan Mantri Mudra Yojana (PMMY) can be availed of from nearby branch offices of a bank, NBFC, MFIs etc. Borrowers can also now file online applications for MUDRA loans on the Udyamimitra portal (www.udyamimitra.in).

KEYWORDS: *Pradhan Mantri Mudra Yojana, Udyamimitra portal, Entrepreneurs*

I. INTRODUCTION

Access to finance is crucial for the growth and sustainability of small and micro-enterprises, catalysing economic development and social empowerment. In recognition of this, the Government of India introduced the Pradhan Mantri Mudra Yojana (PMMY) on April 8, 2015. PMMY aims to address the financial needs of non-

corporate, non-farm small and micro-enterprises by providing loans up to 10 lakhs. Through three distinct products - 'Shishu', 'Kishore', and 'Tarun' - PMMY caters to enterprises at different stages of development, facilitating their access to credit from various financial institutions.

This study endeavours to delve into the perception and knowledge level of entrepreneurs regarding PMMY, with a

particular focus on the Aluva area. By examining the awareness, understanding, and utilization of PMMY among entrepreneurs, this research seeks to evaluate its effectiveness in promoting entrepreneurship and fostering economic growth in the region. Through a combination of primary data collected via structured questionnaires and secondary data from diverse sources, this study aims to provide insights into the impact and relevance of PMMY for micro-enterprises in Aluva.

STATEMENT OF THE PROBLEM

Despite the government's efforts to promote financial inclusion and support small and micro-enterprises through initiatives like the Pradhan Mantri Mudra Yojana (PMMY), there remains a gap in understanding the perception and knowledge level of entrepreneurs regarding PMMY. The effectiveness of PMMY in reaching its intended beneficiaries, particularly in areas like Aluva, is unclear. Therefore, the problem statement revolves around the need to assess the awareness, understanding, and utilization of PMMY among entrepreneurs in Aluva.

SCOPE OF THE STUDY

The scope of this study encompasses a detailed examination of the Pradhan Mantri MUDRA Yojana (PMMY) within the confines of the Aluva area. Specifically, the study seeks to explore the multifaceted dimensions of PMMY's implementation and impact on micro-enterprises operating in

Aluva. Firstly, the study will delve into the outreach and accessibility of PMMY, assessing its efficacy in simplifying the process of obtaining credit for micro-entrepreneurs and expanding their access to financial resources. Secondly, it will scrutinize the types of micro-enterprises covered under PMMY, analyzing the distribution of 'Shishu', 'Kishore', and 'Tarun' loans across various activity or livelihood patterns prevalent in the Aluva region. Lastly, the study will evaluate the future needs and relevance of PMMY for micro-enterprises in Aluva, providing insights into its role in fostering economic growth and development within the local entrepreneurial ecosystem. Through this comprehensive analysis, the study aims to contribute to a deeper understanding of PMMY's effectiveness in empowering micro-entrepreneurs and driving socio-economic progress in Aluva.

OBJECTIVES OF STUDY

- ❖ To study the perception of entrepreneurs toward PMMY
- ❖ To study the knowledge level of entrepreneurs toward PMMY
- ❖ To understand the benefits of PMMY

METHODOLOGY OF THE STUDY RESEARCH DESIGN

1. DATA COLLECTION

PRIMARY DATA: Primary data are those which are fresh and are collected for the first time. The data is collected through direct personal interviews, questionnaires,

observation methods, interview methods, and scheduling methods.

SECONDARY DATA: Secondary data have been collected from books, journals, the internet, websites, magazines, etc...

2. SAMPLING TECHNIQUES

Samples are collected from the population with the use of random sampling techniques. 100 samples were collected randomly.

II. TOOLS FOR ANALYSIS

For analysis purposes, percentage analysis involves the utilization of percentages to compare and understand the relationship between different data sets. This method aids in assessing proportions and trends within the data.

Surveys and questionnaires serve as instruments for data collection, particularly through online platforms like Survey Monkey or Google Forms. These tools enable researchers to gather responses from participants efficiently and systematically, facilitating comprehensive data collection and analysis.

LIMITATIONS OF THE STUDY

□ **Response Bias:** The study acknowledges the potential for response bias, where participants may provide answers that are influenced by social desirability or other

factors, leading to inaccurate data representation.

□ **Time Constraints:** Due to time limitations, the study may not be able to delve as deeply into certain aspects or cover a wider range of participants, potentially impacting the comprehensiveness of the findings.

□ **Sample Size:** The study's sample size of 25 participants may not fully capture the diversity of perspectives and experiences within the target population, limiting the generalizability of the findings.

□ **Data Accuracy:** Reliance on self-reported data from participants via surveys and questionnaires may introduce errors or inconsistencies, affecting the reliability of the study's conclusions.

REVIEW OF LITERATURE

Gupta (2015): highlighted the functioning and offering of MUDRA. This study offers a clear concept of MUDRA Yojana through a detailed description of the function, roles and responsibilities of MUDRA.

Roy (2019) investigated PMMY and its key objectives, the role and importance of MUDRA Bank towards the small business unit or the microfinance institutions.

Shahid & Irshad (2020) attempted to study the objectives and product offerings of MUDRA Bank and analyzed the working MUDRA Bank in Karnataka. The study revealed that there is progress in Karnataka by comparing between 2015-16 and 2016-17

III. RESULTS AND DISCUSSION

FINDINGS

1. Utilization of PMMY Funds:

- The majority of respondents (28%) plan to utilize the funds for the development of the micro-enterprise sector.
- 22% of respondents intend to use the funds for refinancing support.
- A smaller portion, 18%, will use the funds for the purchase of equipment and new technology, while 12% will use it for the purchase of working capital.
- 20% of respondents did not specify how they plan to utilize the funds.

2. Repayment Status of PMMY Loan:

- 48% of respondents are currently in the process of repaying their PMMY loans.
- 28% of respondents have fully repaid their loans.
- Only 4% have not repaid the loan yet.
- 20% of respondents have no idea about the repayment status.

3. Time Taken to Repay the Loan:

- Nearly half of the respondents (48%) are still in the process of repaying their loans.
- 12% of respondents repaid the loan within 3-4 years,

while 10% repaid within 2-3 years.

- A minimal 4% repaid the loan within 1-2 years, and another 4% have not repaid the loan.
- 20% of respondents did not provide any response regarding the time taken to repay the loan.

4. Opinion on the Loan Process:

- A significant portion of respondents (30%) find the process of taking a loan under PMMY to be complex.
- 16% of respondents consider the process very complex.
- 18% are neutral about the process, while 12% find it easy.
- Only 4% think the process is very easy, and 20% did not respond.

5. Expectations from the Loan:

- 30% of respondents rated their expectations as excellent regarding the loan.
- 28% rated their experience as good.
- 16% considered their experience to be average, while 6% rated it below average.
- 20% did not provide any response regarding their expectations from the loan.

IV. CONCLUSION

To conclude this discussion, the banking industry plays a very important role in the development of the Indian economy. Also, banks mobilize the small savings of the people and make them available for production purposes, The Nationalized bank gives a Mudra loan which is offered by the Government of India under PMMY, which was very helpful to people to start their businesses in their villages. In major findings, Mudra loan is preferred by most people because beneficiaries are satisfied with the amount of loan given under the PMMY scheme and also the good revenue in their business. Financial institutions should take an interest in popularizing the MUDRA Loan Scheme through various promotional activities.

This study has helped a lot in understanding the concept of “A STUDY RELATED TO EFFECTIVENESS OF PRADHAN MANTRI MUDRA YOJANA WITH SPECIAL REFERENCE ERNAKULAM”

The study Regarding Ernakulam District”.PMMY Scheme is an important aspect that helps in increasing the profits of the banks and gives the profit to the beneficiaries also it leads to the elimination of unemployment and poverty in India.

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PEDAGOGICAL SHIFTS IN TEACHING MATHEMATICS: RESPONSIBILITIES OF TEACHERS FROM INSTRUCTIONS TO INSPIRATION

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Abstract

This paper explores the evolving roles of mathematics educators, transitioning from traditional instruction to inspiring methodologies. It examines the expanded responsibilities of teachers, encompassing the cultivation of creative thinking, critical analysis, and emotional intelligence in students. Emphasizing the need to create flexible learning environments that suit diverse groups of students, the study highlights educators' adapt ability to address various educational needs. Furthermore, it focuses on the profound impact of mathematics teachers in shaping the future by instilling a passion for lifelong learning and holistic personal development, extending the boundaries of conventional educational frameworks.

Keywords: Teaching Strategies, Student Engagement, Growth Mindset, Inspiration in Teaching, Creativity in Education, Holistic Development.

I. INTRODUCTION

In the world of education, the role of a teacher stands as an epitome of guidance, inspiration, and transformation. The mathematics teachers, beyond conventional role of disseminating mathematical principles, are the architects of ingenuity, who merge instructional wisdom with an inspirational glow. As the custodians of numerical knowledge, their influence extends far beyond the classroom, shaping not only students' academic journeys but also their perception of the world. The teacher's role in mathematics goes beyond

conventional definition of an instructor. They are mentors who wave numbers as tools to nurture critical thinking, problem-solving abilities, and a deeper understanding of the universe's patterns. They foster a classroom where students feel encouraged to explore, ask questions, and engage with mathematical problems. They address individual student needs, provide extra help, and encourage different learning strategies for varying skill levels. They instill a love for mathematics by showcasing its practical applications and relevance in everyday life. This role encompasses not merely the delivery of mathematical concepts but the cultivation of

an environment where numbers come to life, inviting curiosity and instilling a passion for discovery. In the diverse educational landscape, the significance of mathematics education in a student's academic journey cannot be overstated. Mathematics education holds immense importance in a student's academic journey for various reasons. Mathematics serves as more than just a subject; it acts as a gate way to a world of reasoning, logical deduction, and analytical skills. Its significance lies not solely in the equations and formulas but in the cultivation of a mindset that encourages precision, analysis, and creativity. Mathematical skills are crucial in everyday life, from budgeting finances to making informed decisions. It forms the backbone for understanding and excelling in various other disciplines like science, engineering, economics, etc., and proficiency in mathematics opens doors to numerous career paths in STEM fields and beyond.

The mathematics education is undergoing a metamorphosis. The transition from instructional roles to inspirational aspects in teaching

signifies a paradigm shift. It indicates a departure from conventional teaching methodologies toward a holistic approach that seeks not just to impart knowledge but to ignite a passion for learning. It includes encouraging deeper understanding rather than rote memorization, making math engaging and relatable, illustrating how mathematical concepts are used in real-life scenarios to make learning meaningful and inspiring, encouraging a growth mindset, where mistakes are viewed as opportunities to learn, fostering confidence in tackling

challenges, integrating students' interests into math lessons to make learning more personalized and engaging. This transition aims to not only teach mathematical concepts but to inspire students to appreciate the beauty and practicality of mathematics, motivating them to explore the subject further and apply it creatively in various aspects of life. These aspects collectively shape the role of a mathematics teacher and underscore the significance of mathematics education in a student's academic journey, emphasizing the shift towards inspiring students beyond the traditional instructional roles in teaching mathematics.

This paper embarks on an exploration of the dynamic landscape of mathematics teaching; from its foundational definition to its transformative significance in students' lives. It traverses the instruction alters in where formulas are taught and problems solved, extending into the realm of inspiration, where numbers cease to be mere digits and become the keys unlocking doors to limitless possibilities. This paper discusses the instructional roles and inspirational roles, Challenges, strategies, and Opportunities in teaching mathematics, and strategies for continuous professional development and support for mathematics teachers.

Instructional Roles in Teaching Mathematics

The instructional role of teaching mathematics stands as the corner stone of effective mathematical education. Within

this pivotal role, teachers take on the responsibility of guiding students through the complex and fascinating world of numbers, equations, and problem-solving methodologies. These include :

1. Lesson Planning and Delivery

- (a) Developing comprehensive lesson plans aligned with curriculum standards, ensuring the content meets educational benchmarks.
- (b) Sequencing topics logically, ensuring a progressive and comprehensible learning path for students.
- (c) Utilizing diverse teaching strategies to impart Mathematical concepts effectively.
- (d) Employing various teaching methodologies (such as group activities, visual aids, demonstrations) to captivate students' interest and enhance comprehension.

2. Clarifying Concepts and Problem-Solving

- (a) Explaining complex mathematical concepts with clarity
- (b) Guiding students through step-by-step problem-solving methodologies
- (c) Encouraging critical thinking and logical reasoning in mathematical problem-solving.

3. Assessment and Evaluation

- (a) Using ongoing assessments to monitor student progress and adjust teaching strategies accordingly.
- (b) Administering tests or quizzes to gauge understanding and proficiency.
- (c) Offering additional support to students who struggle with mathematical concepts, providing extra help and resources.
- (d) Adapting teaching methods to accommodate diverse learning needs within the classroom.

4. Technology Integration

- (a) Integrating technology tools and software for interactive math learning
- (b) Implementing online resources and platforms for practice and reinforcement
- (c) Leveraging educational apps and simulations to enhance mathematical understanding

5. Feedback and Improvement

- (a) Providing specific and constructive feedback to guide students' improvement.
- (b) Continuously evaluating teaching methods, reflecting on effectiveness, and making

adjustments for enhanced learning outcomes.

- (c) Fostering analytical thinking and logical reasoning in problem-solving scenarios.
- (d) Prioritizing comprehension of underlying mathematical principles over rote memorization

Inspirational Roles in Teaching Mathematics

Beyond the realm of imparting mathematical concepts lies the inspirational facet of teaching mathematics. In this arena, educators transcend the traditional roles of instruction, emerging as catalysts for inspiration, creativity, and a profound appreciation for the beauty of mathematics. These encompass the mentorship and guidance provided by teachers, fostering curiosity and interest in mathematical exploration.

1. Inspiring Curiosity and Interest

- (a) Demonstrating real-world applications to cultivate interest in mathematics
- (b) Engaging students with intriguing problems and activities to spark curiosity
- (c) Connecting mathematical concepts to students' interests and experiences

2. Mentorship and Support

- (a) Providing mentorship beyond

mathematical concepts

- (b) Supporting students who face challenges in comprehending mathematical principles
- (c) Encouraging a positive learning environment to foster growth and confidence

3. Fostering Confidence and Growth Mindset

- (a) Instilling confidence in students to approach mathematical challenges
- (b) Promoting a growth mindset emphasizing the process of learning mathematics

Encouraging perseverance and resilience in mathematical problem-solving

4. Connecting Math to Life Skills

- (a) Illustrating the relevance of mathematics in everyday life and various professions
- (b) Highlighting problem-solving skills applicable beyond academic settings
- (c) Encouraging critical thinking and analytical skills development for broader application

5. Celebrating Achievement and Effort

- (a) Recognizing and celebrating students' progress and achievements in mathematics

- (b) Valuing effort and persistence in tackling mathematical problems
- (c) Creating an environment that acknowledges diverse approaches to mathematical challenges

Challenges and Opportunities

Teaching mathematics effectively presents countless challenges for educators, stemming from the subject's abstract nature, diverse learner needs, and the need to foster both conceptual understanding and procedural fluency. These challenges demand innovative strategies and a nuanced approach to ensure that all students can engage meaningfully with mathematical concepts.

II. CHALLENGES IN TEACHING MATHEMATICS EFFECTIVELY

Teaching mathematics effectively poses several challenges for educators. Some of these challenges include:

1. **Abstract Nature of Mathematics:** Concepts like algebraic equations or geometric theorems can be abstract and challenging for students to grasp initially.
2. **Diverse Learning Styles:** Students have varied learning styles, making it crucial for teachers to employ

differentiated instruction that caters to visual, auditory, physical, and other learning modalities.

3. **Math Anxiety and Mindset:** Many students struggle with math anxiety, impacting their confidence and willingness to engage with mathematical problems. Encouraging a growth mindset is essential to overcome such barriers.
4. **Lack of Relevance Perception:** Students may struggle to see the real-world applications of mathematical concepts, which can hinder their motivation to learn.
5. **Time Constraints and Curriculum Pressure:** Teachers often face time constraints due to packed curricula, making it challenging to ensure in-depth understanding while covering all required topics.

Addressing these challenges requires a multifaceted approach that combines pedagogical innovation, an empathetic understanding of student needs, and ongoing professional development for educators.

Strategies for Overcoming Challenges

Strategies to overcome these challenges involve integrating real-world applications, employing interactive and differentiated instruction, fostering a supportive learning environment, and engaging in continuous professional development.

1. **Application-Oriented Learning:** Incorporating real-life examples and applications to illustrate the relevance of mathematical concepts in everyday life.
2. **Interactive and Engaging Approaches:** Using manipulatives such as objects, charts, and activities that engage learners while helping them develop their math skills, games, and interactive activities to make abstract concepts more tangible and engaging.
3. **Supportive Learning Environment:** Creating a safe and supportive classroom environment where students feel comfortable making mistakes and asking questions.
4. **Differentiated Instruction:** Adapting teaching methods and providing varied resources to accommodate diverse learning styles and abilities.
5. **Professional Development:** Continuous learning and professional development opportunities for teachers to stay updated with innovative teaching methodologies and strategies.

By implementing these strategies, educators can create an environment where mathematical learning becomes accessible, engaging, and rewarding for all students.

Exploring Opportunities for Innovation and Growth in Math Education

Exploring opportunities for innovation and growth in math education involves embracing new methodologies, integrating technology, and adapting teaching practices to meet the evolving needs of learners. Here are some key areas of innovation:

1. **Project-Based Learning:** Students engage in hands-on projects or real-world problem-solving activities. This method encourages critical thinking, collaboration, and application of mathematical concepts to practical situations.
2. **Data-Driven Instruction:** Leveraging data analytics to personalize learning experiences. Analyzing student performance data can help identify individual learning needs and tailor instruction accordingly. Adaptive learning systems can provide customized pathways for students.
3. **Incorporating STEM Education:** Integrating Science, Technology, Engineering, and Mathematics (STEM) education to showcase the interdisciplinary nature of math. This approach fosters connections between different subjects and promotes problem-solving skills essential for the modern world.

4. **Gamification and Interactive**

Tools: Implementing gamified learning approaches and interactive tools that make learning mathematics enjoyable and engaging. Educational games, puzzles, and challenges can motivate students and enhance their understanding of mathematical concepts.

5. **Cultivating Mathematical**

Mindsets: Emphasizing growth mindsets and resilience in mathematical learning. Encouraging students to view mistakes as learning opportunities and promoting a positive attitude towards problem-solving.

6. **Professional Development:**

Providing ongoing professional development opportunities for educators. Workshops, conferences, and collaborative platforms enable teachers to exchange innovative ideas and refine their teaching strategies.

7. **Equity and Inclusivity:** Ensuring equitable access to quality math education for all students. Addressing diverse learning needs, cultural relevance, and fostering an inclusive learning environment that celebrates diverse perspectives in math.

By exploring these avenues for innovation, math education can evolve to meet the needs of learners in a rapidly

changing world. Embracing these opportunities allows educators to create dynamic and engaging learning environments that foster a deeper understanding and appreciation for mathematics.

III. Strategies for Continuous Professional Development and Support for Math Teachers

Continuous professional development (CPD) and support are crucial for math teachers to stay updated with evolving pedagogy, content, and teaching methodologies. Here are some effective strategies:

1. **Workshops and Seminars:**

Organizing regular workshops and seminars focused on math pedagogy, curriculum updates, and innovative teaching methods. These sessions can be conducted by experts or experienced educators within the field.

2. **Online Courses and Webinars:**

Providing access to online courses and webinars specifically tailored for math teachers. These platforms offer flexibility and convenience, allowing teachers to engage in professional development at their own pace.

3. **Collaborative Learning**

Communities: Establishing professional learning communities (PLCs) where math teachers can collaborate, share best practices, and discuss

- challenges and solutions. This collective sharing of experiences fosters continuous learning and support.
4. **Mentoring Programs:** Pairing novice teachers with experienced mentors creates opportunities for guidance, sharing insights, and personalized support. Mentorship programs help new teachers navigate challenges and refine their teaching practices.
 5. **Peer Observation and Feedback:** Encouraging peer observation and feedback sessions among teachers. This promotes Reflective practice, allowing educators to learn from each other's teaching methods and provide constructive feedback for improvement.
 6. **Resource Libraries and Online Platforms:** Providing access to resource libraries, online forums, and platforms where teachers can access curated materials, lesson plans, and teaching resources shared by peers or educational experts.
 7. **Professional Development Days:** Allocating specific days or periods within the academic calendar dedicated to professional development. These days can include training sessions, collaborative planning, and discussions on curriculum enhancements.
 8. **Support for Technology Integration:** Offering training and support for integrating technology into math instruction. This includes guidance on using educational software, apps, and digital tools effectively in the classroom.
 9. **Incentives and Recognition:** Recognizing and rewarding teachers who actively engage in professional development. Acknowledging their efforts encourages continuous growth and participation in CPD activities.
 10. **Feedback Mechanisms:** Establishing feedback mechanisms to gauge the effectiveness of professional development programs. This feedback loop helps in refining and tailoring future CPD initiatives to better meet teachers' needs.
- Implementing these strategies fosters a culture of continuous learning, supports teacher growth, and enhances the quality of math education. It ensures that educators are equipped with the necessary skills and knowledge to provide effective and engaging mathematics instruction to their students.

IV. CONCLUSION

The domain of mathematics teaching is a dynamic landscape that extends far beyond the traditional realms of instruction, embracing a spectrum of roles and responsibilities crucial for shaping a generation adept in numerical fluency and innovative thinking. This exploration has traversed the multifaceted dimensions of a mathematics teacher's duties, spanning from the meticulous delivery of curriculum content to the transformative power of inspiration.

Emphasizing the critical interplay between instruction and inspiration, we recognize that beyond the confines of textbooks and formulas, mathematics educators emerge as catalysts, igniting curiosity, and fostering a love for the subject. Their ability to infuse real-world relevance, evoke intrinsic motivation, and cultivate a growth mindset transforms mathematics from a mere academic pursuit into a lifelong journey of discovery.

V. ACKNOWLEDGEMENT

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