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Dear Readers,

It gives me immense pleasure to present Volume 3, Issue 2, (July – Dec 2025) of "SAMHITA" Multi-Disciplinary Research Journal. As the journal continues to evolve, this issue stands as a testament to our collective commitment to intellectual curiosity, research excellence, and academic diversity.

The edition showcases a rich spectrum of scholarly work across education, law, management, technology, health sciences, humanities, and finance. The articles reflect contemporary challenges and innovations, ranging from NEP reforms, consumer protection, and social justice to AI applications, green finance, pedagogical transformation, and herbal formulations.

Dr. Zarna Dedania
Editor-in-Chief,
"SAMHITA"
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Journal

I extend my sincere appreciation to all authors for their rigorous research and to the reviewers for their meticulous and constructive evaluations, which uphold the academic integrity of the journal. I also thank the editorial team for their dedicated efforts in bringing out this issue.

This issue underscores the journal's commitment to interdisciplinary research, academic rigor, and societal relevance. I sincerely thank the authors for their valuable contributions, the reviewers for their critical insights, and the editorial team for their dedicated efforts.

A special note of appreciation goes to our Associate Editor, Ms. Grishma Desai, Assistant Professor at Bhagwan Mahavir College of Pharmacy, for her continued support, editorial excellence, and invaluable contributions in shaping this volume. Her dedication to academic quality continues to inspire all of us at SAMHITA.

As we move forward, I invite researchers, academicians, and practitioners to engage with SAMHITA—as readers, contributors, and collaborators. Together, let us continue to foster a vibrant platform that celebrates innovation, critical thinking, and scholarly excellence.

Thank you for your enduring support. We hope this issue informs, challenges, and inspires you.

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New Education Policy (NEP) At Higher Education with Two Significant Features- Academic Bank Credit (ABC) And Multiple Entry and Exit System (MEES)

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Abstract: *Education of every country instills knowledge into the young minds and transforms those minds into learned their citizens. Appropriate education in the developed countries led them towards prosperity. New India is also thinking on the same line. Aims of National Education Policy 2020 (NEP-2020) have to transform India's education system by 2040. In this new National Education Policy 2020, the 10+2 structure will be replaced with the 5+3+3+4 model. It proposes a multi-disciplinary bachelor's degree in an undergraduate programme as well as master's degree in postgraduate programme with multiple exit options. National Education Policy 2020 introduces many features from them two significant features are system of Academic Bank of Credits (ABC) System and Multiple Entry and Exit System (MEES). The ABC system is a credit-based system that allows students to accumulate academic credits for each course they complete. These credits are stored in an "academic bank" and can be used towards obtaining a degree or diploma. This system is intended to provide greater flexibility for students, who can choose to take courses at their own pace and accumulate credits over time. The ABC system is also designed to facilitate mobility between institutions, as students can transfer credits earned at one institution to another. Online & offline – both types of courses are included in this ABC scheme. The credits earned by students will be valid for seven years The Multiple Entry and Exit system allows students to enter and exit higher education programs at different stages, based on the number of credits they have earned. For example, a student who has completed the first year of a degree program can choose to exit with a diploma, or continue to earn more credits and eventually obtain a degree. This system is aimed at reducing drop-out rates and providing greater opportunities for students to pursue their academic goals.*

***Key Words*: National Education Policy 2020 (NEP 2020), Higher Education, Academic Bank of Credits (ABC), Multiple Entry and Exit System (MEES), credit structure, Credit's Validity, online & offline, inter-disciplinary, multi-disciplinary**

1. INTRODUCTION

Education is the backbone of any country on the planet earth. It instils knowledge into the young minds and transforms those minds into learned citizens who become innovative think tanks ultimately. These think tanks decide the fate of their country. The secret of prosperity of the developed countries obviously concealed in their appropriate education policies employed as per the demand of the time. New India is also thinking on the same line. The national education policy 2020, which was approved by the Union Cabinet of India on 29th July 2020. It is replaced by the previous National Policy on education NPE, 1986 which was promulgated by Prime Minister Rajiv Gandhi. NEP 2020 is a comprehensive framework for elementary education to higher education as well as vocational training in all over India (Rural and Urban both). The NEP 2020 aims to transform India's education system by 2040 and to increase state expenditure on education from around 4% to 6% of the GDP as soon as possible. NEP 2020 outlines the vision of India's new education system.

The vision of the National Education Policy is: "National Education Policy 2020 envisions an India-centric education system that contributes directly to transforming our nation sustainably into an equitable and vibrant knowledge society by providing high-quality education to all."

Institutional restructuring and consolidation aim to end the fragmentation of higher education by transforming higher education institutions into large multidisciplinary, creating well rounded and innovative individuals, and transforming other countries educationally and economically, increasing the gross enrolment ratio in higher education, including vocational training, from 26.3% (2018) to 50% by 2035.

2. SALIENT FEATURES OF NEP RELATED TO HIGHER EDUCATION

The new NEP has been introduced with an aim to formalize changes in the system from school level to college/university level. Keeping in mind the developing scenario, education content henceforth, will focus on key-concepts, ideas, applications, and problem-solving angles. The National Education Policy is expected to bring positive

and long-lasting impact on the higher education system of the country. The fact that foreign universities will be allowed to open campuses in India is a commendable initiative by the government. This will help the students experience the global quality of education in their very own country. The policy of introducing multi-disciplinary institutes will lead to a renewed focus on every field such as arts, humanities and this form of education will help students to learn and grow holistically. Thus, students will be equipped with stronger knowledge base.

The new higher education regulatory structure will ensure that distinct administrative, accreditation, financing, and academic standard-setting roles are performed by separate, autonomous, and empowered bodies. These four structures will be established as four independent verticals within a single umbrella institution, India's Higher Education Commission (HECI).
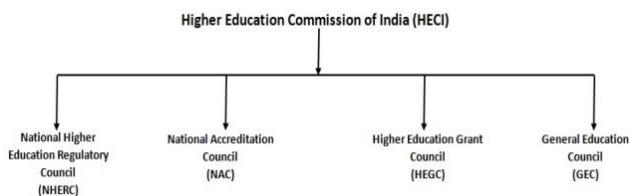
Regulatory System of Higher Education: A significant change in NEP 2020 is the proposal to set up the Higher Education Commission of India (HECI), as an umbrella body for higher education, excluding medical and legal education. HECI is expected to have four independent verticals - National Higher Education Regulatory Council (NHERC) for regulation, General Education Council (GEC) for standard-setting, Higher Education Grants Council (HEGC) for funding, and National Accreditation Council (NAC) for accreditation. To have uniformity in education standards, a single umbrella body was always a requirement and this has been a vision of numerous educationists. This is considered as the right step in streamlining education policy. However, to ensure quality of higher education, institutes must be measured based on relevant parameters like research, industry linkages, placements and academic excellence, etc. If the HECI can manage this, the benefits to its biggest stakeholder, the youth of India, might be significant.

There are a lot of reforms and new developments which have been introduced by NEP in the higher education sector. Some of the salient features from them two salient features are ABC and MEES.

2.1. Academic Bank of Credits (ABC):

ABC system is a credit-based system that allows students to accumulate academic credits for each course they complete. These credits are stored in an "academic bank" and can be used towards obtaining a degree or diploma. This system is intended to provide greater flexibility for students, who can choose to take courses at their own pace and accumulate credits over time. The ABC system is also designed to facilitate mobility between institutions, as students can

transfer credits earned at one institution to another. If a student ever drops out for some reasons, these credits will remain intact which means he/she can come back years later and pick up from where the student had left.

Educators Can Easily Implement ABC in Simple Steps:

- The government creates a credit structure
- Student's academic bank account is created on a digital portal
- Credits are automatically awarded to the students on completion of the course and on clearing exams
- The institutes fill in details and upload the deposits in the student's accounts.

Functions of the Academic Bank of Credits (ABC):

- The Academic Bank will be accountable for opening, closing, and validating the academic accounts of students.
- It will carry out tasks such as credit accumulation, credit verification, and credit transfer/redemption of students.
- The courses include online and distance mode courses offered by the government and institutes.
- The validity of these academic credits earned by students will be up to seven years and students can redeem these credits
- The credits can be redeemed and students can seek admission directly in the second year at any university.
- The validity will be up to seven years, hence, students will have to rejoin within seven years.

Importance of the Academic Bank of Credits (ABC):

- Increases the student's freedom in choosing their courses and academics.
- Enables the student to drop out in any year and then exchange the credits earned so far with a certificate/diploma if they are eligible.
- They can redeem the credits and rejoin the same or any other institute in the future and continue their education.
- The institutes cannot keep the students in the courses against their will to earn money

How Does the Academic Bank of Credits Work?

The Academic Bank of Credits (ABC) would act as a reference point for faculty to check the credit records of students. The students need to follow the given guidelines to be a part of the ABC.

Opening the ABC Account:

- First and foremost, the students need to open an Academic Bank Account.
- To open an Academic Bank account through following steps:
1) Visit on www.abc.gov.in ;
2) Click on my account-> student;

3) For new user –click on "sign up for Meri Pehchaan".
4) Enter mobile number; you will get OTP on registered mobile number.
5) Fill all necessary details and click on verify.
6) Students will open their ABC Account.

- They might require details like their name, address, certificates, course details, etc to create the ABC account.
- A unique ID & password will be created from where students can log in at any given point to check their earned credit.

Credits Information as per Courses:

As per the courses, a credit structure will be created by the Government. When a student pursues any course and clears exams, credits will be automatically awarded to them. Institutions need to fill out the details and upload the deposits in the student's Academic Credit Bank's account on the digital portal.

Evaluation and Verification of Credits:

Any kind of credit evaluation & verification will be carried out by the Academic Credit Bank at regular intervals. If students want to transfer the credits, they need to approach the ABC for further process. It will help in regulating the processes with ultimate authenticity.

Types of Courses:

ABC covers courses offered through any medium like Hindi, English etc, be it regular classroom courses or open/distance learning courses or online courses. SWAYAM, NPTEL, V-Lab and such other schemes offering their courses are also eligible to avail the facilities provided by Academic Bank of Credit.

Credit's Validity:

The credits earned by students will be valid for seven years. However, the validity of credits is subject to change depending on the type of courses or disciplines. In such instances, ABC will provide the details of the exceptions to students.

Even if a student takes a break or is not able to continue their education, they may redeem the earned credits in the future within the time limit of seven years.

Expected Impact of ABC on the Educational System:

The UGC expects a positive impact that will be brought via the practice of the ABC in the upcoming years. HEIs who participate in the scheme will be highly benefited due to the smooth management of credits.

The inter-disciplinary and multi-disciplinary approach is the need of the hour. With the Academic Bank Credit, HEIs will be able to help students learn subjects of their choice and become "skill-oriented" graduates.

2.2. Multiple Entry and Exit system (MEES)

In the context of the National Education Policy 2020 scheme, any undergraduate degree in any institution will be of duration of three or four years. One can leave the degree within this period. Any educational institution will have to give to the student a diploma degree after the student completes two years of study, a degree after the student completes three years of study and a certificate to those students who complete one year of study in any professional or vocational course of their choice. The Government of India will also help in establishing an Academic Bank of Credit for storing the academic scores digitally. This will enable the institutions to count the credit at the end and put it in the degree of the student. This will be helpful for those individuals who might have to leave the course mid-way. They can start the course later from where they left off and not start from the beginning once again. Even though NEP 2020 says that Higher education institutions will be given the freedom to start PG courses there may be some difficulty in designing One Year PG Degree for students who have completed 4 Year UG Degree and a Two Year PG Degree for students who have completed 3 Year UG Degree.

3. CONCLUSIONS

The present research paper brings to notice the actual status of National Education Policy-2020 at Higher education along with the place of Academic Bank Credit and Multiple entry and exit system in it. It proposes a multi-disciplinary bachelor's degree in an undergraduate programme with multiple exit options which help India to transform its education system by 2040. The professional and vocational areas covered in this innovative policy create skills amongst the learners. As a result of this, job opportunities are increased. The student is made a free bird on the horizon of a multi- disciplinary bachelor's degree with multiple exit options. This could happen only because of the provision of the Academic Bank of Credits (ABC) . The New Education Policy underlines the need for online and offline courses already included in the National Schemes. After all, instilling skills amongst students would be the aim of Higher Education. The skilled graduates are becoming a real asset to our nation.

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The Role of Consumer Protection Laws in Safeguarding Hotel Guests in India

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Abstract: Globalization, rising incomes, local and international travel, and the rise of internet booking platforms have all contributed to India's hospitality sector's explosive growth in recent decades. With a thriving travel culture, the hotel industry has grown to be an essential component of the service sector, offering millions of customers lodging, dining, entertainment, and other services annually. The complexity and volume of consumer contacts increase with the industry's growth, necessitating more regulatory protection and legal control to guarantee the safety and equitable treatment of hotel guests.

As consumers, hotel visitors have a right to services that live up to the specified standards for value, safety, and quality. Real-world experiences, however, frequently show a significant discrepancy between the amenities that are claimed and the services that are really provided. Overcharging, service refusal, filthy living conditions, contaminated food, capricious cancellations, and deceptive advertising are typical complaints from customers. These problems may jeopardize financial stability and health in addition to affecting customer happiness. Therefore, protecting the rights and interests of hotel visitors requires strong consumer protection.

The main piece of legislation in India that gives visitors the ability to file complaints about subpar services, unfair business practices, and false advertising is the Consumer Protection Act, 2019. The Act establishes national, state, and district consumer commissions as grievance resolution systems. It also acknowledges contemporary issues that are becoming more and more important in the current hospitality sector, such as product liability, e-commerce fraud, and deceptive digital marketing.

This study examines how well Indian consumer protection laws specifically, the 2019 Act address the difficulties encountered by hotel visitors. In order to assess the legal options accessible to irate visitors, it examines significant court rulings, important legislative measures, and the operation of consumer forums. The study also explores the functions of various laws that promote service standards in the hotel sector, including the Legal Metrology Act, the Indian Contract Act, and the Food Safety and Standards Act.

The study also identifies enforcement shortcomings, including inconsistent application of safety and pricing standards, customer ignorance, and adjudication delays. Given these difficulties, it suggests doable changes that will fortify the legal system, raise consumer knowledge, and increase service providers' accountability. This study adds to the larger conversation on service quality, legal empowerment, and ethical business practices in the Indian hotel sector by critically analyzing the relationship between consumer legislation and hospitality services.

Key Words: Consumer Protection Act, Hotel Guests, Hospitality Industry, Legal Remedies, Deficiency of Service, Consumer Forums.

1. INTRODUCTION

India's hospitality sector, especially the hotel industry, is vital to the country's economic development and tourism promotion. There is a growing reliance on hotel services for lodging, dining, and other amenities as both domestic and international travel increases. Consumer complaints about excessive prices, deceptive advertising, unclean premises, denial of promised amenities, and subpar service delivery have increased as a result of this expansion, nevertheless. Under Indian law, hotel guests are regarded as customers, thus it is crucial to make sure their rights are sufficiently safeguarded.

This research paper explores how the Indian legal framework, especially the Consumer Protection Act, 2019,

safeguards hotel guests from unfair trade practices, negligence, and deficiency of services. The Act gives customers the ability to contact district, state, and federal consumer commissions to seek remedies. Additionally, other legislations such as the Indian Contract Act, 1872, the Legal Metrology Act, 2009, and the Food Safety and Standards Act, 2006 support guest protection in various contexts.

Through a study of relevant laws, judicial precedents, and functioning of consumer forums, this paper aims to evaluate the effectiveness of legal remedies available to hotel guests. It also identifies existing gaps and suggests reforms to enhance consumer rights in the hospitality sector.

1.1. Legal Status of Hotel Guests as Consumers

Under Section 2(7) of the Consumer Protection Act, 2019, a *"consumer"* is defined as any person who buys goods or avails services for a consideration (i.e., payment), whether paid, promised, partly paid, or under a deferred payment scheme. This definition also includes any user of such goods or services when such use is made with the approval of the buyer. It specifically excludes those who obtain goods or services for resale or commercial purposes.

In the context of the hospitality industry, hotel guests clearly qualify as consumers because they avail services such as accommodation, food, housekeeping, recreational facilities, and other amenities in exchange for payment. These services are provided as part of a commercial agreement between the hotel and the guest, thereby falling squarely within the ambit of the Consumer Protection Act. As consumers, hotel guests are entitled to various protections and legal remedies under the Act, including:

1. Deficiency of Service (Section 2(11))

This provision defines *deficiency* as any fault, imperfection, shortcoming, or inadequacy in the quality, nature, or manner of performance of a service that is required by law or promised in a contract. In the hotel industry, this may include:

- Poor room conditions (e.g., dirty beds, non-functional air conditioning)
- Failure to provide booked services (e.g., spa, pool access)
- Delayed room service or rude staff behavior
- Unsafe premises or lack of basic amenities

When such deficiencies occur, guests have the right to file complaints before the consumer forums and seek appropriate remedies, including compensation.

2. Unfair Trade Practices

An *unfair trade practice* under the Act includes deceptive methods to promote the sale or provision of services. In the hotel sector, examples include:

- Charging for services that were never rendered
- Misleading offers or promotional packages
- Imposing hidden charges that were not disclosed at the time of booking

These practices are considered unlawful, and affected guests can seek redressal under the Act.

3. False or Misleading Advertisements

The Act prohibits advertisements that falsely represent the quality, value, or standard of services. Many hotels advertise luxury services or premium experiences that do not match reality. For instance:

- Advertised images of rooms or amenities may be drastically different from actual conditions
- Claims of "free breakfast" or "ocean view" may be misleading

Such misrepresentations can be challenged by guests under the Act, and in certain cases, celebrities or endorsers of false advertisements may also be held liable.

4. Overcharging or Deceptive Pricing

Hotels are required to comply with the Legal Metrology (Packaged Commodities) Rules, which prohibit the sale of packaged goods like bottled water, snacks, etc., above the Maximum Retail Price (MRP). However, many hotels charge exorbitantly for such items.

Moreover, deceptive pricing practices may include:

- Charging extra service fees not disclosed upfront
- Adding arbitrary taxes or surcharges
- Offering low prices online and inflating charges at check-in

Such overcharging amounts to unfair trade practices and guests are legally protected against such exploitation.

The Consumer Protection Act, 2019 provides a comprehensive legal framework to safeguard the rights of hotel guests as consumers. By recognizing hotel guests within the scope of its definition of "consumer," the Act ensures they are empowered to seek justice in cases of unfair treatment, false promises, and substandard services. Legal remedies available under this legislation play a vital role in ensuring accountability within the

hospitality sector and in promoting fair and ethical service standards.

1.2. Common Grievances of Hotel Guests

Hotel guests in India often face a range of grievances that reflect gaps in service quality and legal compliance within the hospitality sector. Common issues include non-fulfillment of promised amenities like Wi-Fi, air conditioning, or clean rooms; overcharging for packaged goods beyond the Maximum Retail Price (MRP); poor hygiene and unsanitary conditions; and incidents of food poisoning due to unsafe food practices. Guests also report booking cancellations without proper refunds and misbehavior by hotel staff, which can severely impact the overall guest experience. These problems highlight the urgent need for stronger legal enforcement, better consumer awareness, and stricter accountability of hotels under the Consumer Protection Act, 2019.

1.3. Role of Consumer Forums and Case Law

The consumer dispute redressal mechanism consists of:

• District Commission (for claims up to ₹50 lakhs)

• State Commission (₹50 lakhs to ₹2 crores)

• National Commission (above ₹2 crores)

Landmark Judgments:

1. Taj Mahal Hotel v. United India Insurance Co. Ltd. (2005)

In the case of Taj Mahal Hotel v. United India Insurance Co. Ltd. (2005), the hotel was held liable for the theft of a guest's belongings that occurred due to inadequate security measures. The court observed that the hotel, being a service provider, has a duty to ensure the safety of its guests and their possessions. The failure to provide reasonable security amounted to a deficiency in service under consumer protection laws.

2. M/s EIH Ltd. (Oberoi Group) v. Subhash Motwani (2011)

In M/s EIH Ltd. (Oberoi Group) v. Subhash Motwani (2011), the Oberoi hotel was found liable under the Consumer Protection Act for overcharging and engaging in false advertising. The case involved a guest who was charged significantly higher rates than those presented online and in promotional materials. The court determined that this discrepancy constituted both a deficiency in service and an unfair trade practice. The hotel's misrepresentation of its offerings in advertisements further amplified the violation. As a result, the Oberoi Group was held accountable and required to refund the excess amount collected, along with compensation, reinforcing the importance of transparent pricing and accurate representations to consumers.

3. Ravneet Singh Bagga v. KLM Royal Dutch Airlines (2000)

In Ravneet Singh Bagga v. KLM Royal Dutch Airlines (2000), the Supreme Court of India clarified the meaning and scope of "deficiency of service" under consumer law. Although the case involved an airline, the Court emphasized that a mere error or inconvenience does not constitute deficiency unless it results from negligence, lack of due care, or unfair treatment. This judgment is significant for the hospitality sector as it set a benchmark for evaluating whether hotels or similar service providers have truly failed in their duty, reinforcing the need for fair, efficient, and responsible service delivery.

1.4. KEY PROVISIONS IN THE CONSUMER PROTECTION ACT, 2019 RELEVANT TO HOTEL GUESTS

Under the Consumer Protection Act, 2019, several key provisions protect hotel guests as consumers.

• Product Liability (Sections 82–87) holds hotels accountable if guests suffer harm from unsafe or poor-quality food, toiletries, or amenities provided during their stay.

• Unfair Trade Practice (Section 2(47)) covers deceptive promotions, exaggerated claims, or false advertising—common in hotel brochures or booking sites.

• E-Filing and Online Dispute Resolution has made the complaint process easier and faster, allowing guests to file grievances digitally without visiting consumer courts.

These provisions empower guests to demand accountability and improve transparency in the hospitality industry.

1.5. OTHER RELEVANT LAWS

Several other laws complement the Consumer Protection Act in safeguarding hotel guests:

• Indian Contract Act, 1872 governs the agreement between guests and hotels, ensuring that terms related to bookings, cancellations, and services are legally binding.

• Legal Metrology (Packaged Commodities) Rules, 2011 mandates that hotels sell packaged items like bottled water and snacks at or below the printed MRP, preventing overcharging.

• Food Safety and Standards Act, 2006 ensures that hotels maintain hygiene and serve safe, quality food to guests.

• Information Technology Act, 2000 regulates online hotel bookings, secures digital payments, and protects guest data from misuse or cyber fraud.

These laws work together to ensure fair treatment and safety for hotel consumers.

1.6. CHALLENGES IN ENFORCEMENT

Despite having a robust legal framework, several challenges hinder the effective enforcement of consumer protection laws in the hotel industry:

•Lack of Consumer Awareness: Many hotel guests are unaware of their rights under the Consumer Protection Act and other related laws, which limits their ability to seek redressal.

•Delays in Complaint Resolution: Consumer forums often face a backlog of cases, leading to delayed justice and discouraging consumers from filing complaints.

•Weak Enforcement of MRP Rules: Hotels frequently overcharge for packaged goods despite clear legal prohibitions, due to inadequate monitoring and penalties.

•Difficulty in Proving Deficiency or Negligence: Guests often lack the evidence needed to establish that the hotel failed to deliver promised services or acted negligently.

•Influence of Large Hotel Chains: Powerful hotel groups may influence regulatory bodies, complicating enforcement and accountability.

These challenges highlight the need for stronger oversight, consumer education, and faster dispute resolution mechanisms.

1.7 Suggestions and Recommendations

The To enhance consumer protection in the hospitality sector, the following measures are recommended:

•Mandatory Display of Guest Rights: Hotels should prominently display consumer rights at reception areas and on official websites to educate guests about their entitlements and available remedies.

•Staff Training on Consumer Laws: Regular training programs should be conducted for hotel staff to ensure they are aware of legal obligations, customer service standards, and proper grievance redressal procedures.

•QR Code-Based Complaint System: Introducing digital systems such as QR codes at hotels can allow guests to easily file complaints or give feedback, improving transparency and responsiveness.

•Stricter Penalties for Violations: Penalties for repeated non-compliance with consumer laws—such as overcharging or false advertising—should be made more stringent to deter unethical practices.

•Routine Audits and Inspections: Government tourism departments and consumer protection authorities should conduct surprise checks and regular audits to ensure hotels adhere to service, safety, and pricing standards.

Implementing these suggestions will strengthen consumer confidence, promote fair practices, and ensure greater accountability in the hospitality industry.

2. CONCLUSIONS

Consumer protection in the hospitality industry goes beyond mere legal compliance—it is essential for building public trust and ensuring high service standards. While India has established a comprehensive legal framework through the Consumer Protection Act, 2019, its effectiveness largely relies on consumer awareness, timely enforcement, and hotel accountability. In today's fast-evolving landscape, marked by digital bookings, dynamic pricing, and growing reliance on online platforms, traditional protections may fall short. Therefore, India must continuously adapt its consumer protection mechanisms to meet modern challenges and ensure that hotel guests receive fair, transparent, and reliable services in every aspect of their stay.

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Conversational UI and Chatbots: Rethinking UX for Non-Visual Interfaces

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Abstract: *Conversational User Interfaces (CUIs), like chatbots and voice assistants, are rapidly revolutionizing how users interact with digital systems by substituting traditional graphical constituents with natural language interaction. This transition poses a distinct set of challenges and possibilities within User Experience (UX) design. CUIs are linear, transient, and highly context-dependent, unlike visual interfaces, which render usability and engagement harder to judge and optimize. This paper examines the changing landscape of conversational UX with a focus on how design principles need to change to accommodate intuitive, inclusive, and effective non-visual interaction.*

Based on a variety of academic literature, usability studies, and case examinations of systems like Amazon Alexa, Google Assistant, and chatbots for customer service, the paper extracts primary UX considerations such as the flow of conversation, recovery from errors, personalization, user trust, and accessibility. The paper points out the gaps of current design guidelines in applying to CUIs and proposes a user-centric framework especially designed for conversational systems. This encompasses pragmatic guidelines for enhancing voice and text-based interface clarity, control, and continuity.

The research also discusses evaluation techniques like heuristic analysis and user testing methods modified for dialogue-based interaction. Specific focus is given to accessibility issues for users with visual disability or cognitive impairments. As technologies for conversation evolve, revisiting UX for these interfaces is important to provide an inclusive and satisfying user experience. The paper ends by sketching out avenues of future research and urging further collaboration among UX designers, AI engineers, and linguists in defining the next frontier of human-computer interaction.

***Key Words*: (Chatbots, Voice Assistants, User Experience (UX), Natural Language Interaction, Non-Visual Interfaces, Conversation Design, Usability Evaluation, Accessibility, Human-Computer Interaction (HCI)**

1. INTRODUCTION

This User interface evolution has continuously influenced human-computer interaction. From the command line to graphical user interfaces (GUIs), every step of the way, increased usability, accessibility, and paradigms of interaction were brought about. Recently, the advent of Conversational User Interfaces (CUIs) — in the form of voice-based assistants such as Amazon Alexa, Google Assistant, and Siri, and text-based chatbots — has presented an entirely new model of interaction rooted in natural language interactions.

CUIs draw on Natural Language Processing (NLP) and Artificial Intelligence (AI) to comprehend and reply to human language in a meaningful manner. In contrast to conventional interfaces that depend greatly on visual input, CUIs function in a linear and usually non-visual style, demanding users to partake in turn-taking dialogue. This has high implications for designing and assessing user experience (UX).

1.1. Problem Statement and Objectives

Classic UX guidelines, based mainly on visual interface design, do not quite stretch when used for CUIs. CUIs present challenges that are unlike any other, including managing ambiguity with words, giving feedback in the absence of visual cues, and ensuring free conversational flow. This paper seeks to:

• Discuss the most important challenges in UX design for CUIs.

• Examine current chatbot and voice assistant platforms.

• Suggest an end-user UX framework for conversational systems.

• Discuss future trends and research directions in non-visual UX design.

1.2. LITERATURE REVIEW

1.2.1. Evolution of User Interfaces

The shift from GUI to CUI is a move from visual to verbal interaction. GUIs are based on visual items such as buttons, icons, and menus, allowing users to move through

hierarchies of vision. CUIs, however, are based on conversation and language interpretation, which demands greater attention to context and purpose. This implies rethinking design practices since interaction in CUIs tends to be sequential and based on user memory.

1.2.2. DEFINING CONVERSATIONAL UX

Conversational UX is a user experience that occurs when interacting with a system in a natural language. It covers usability, efficiency, emotional response, trust, and satisfaction. Compared to visual interfaces, conversational UX has to solve problems such as ambiguity, context maintenance, and error recovery without relying on visual feedback. Satisfying the user is frequently dependent on how natural and responsive the conversation is.

1.2.3. KEY FINDINGS FROM EXISTING RESEARCH

Some of these studies have investigated user behaviour in interactive contexts. Results emphasise the significance of response timing, linguistic simplicity, and fault tolerance in sustaining user trust. For instance, research indicates that users favour systems that simulate human conversation but also make realistic assumptions regarding their capabilities. Excessive promises of performance can be a basis for swift loss of trust if unfulfilled.

1.2.4. Deficits in Existing Research

Though a lot has been attempted in AI and NLP, there has been less consideration of the UX aspects of these technologies. Task success is the primary concern for most chatbot testing, with little concern for user satisfaction or engagement. Additionally, there are very few design patterns dedicated to CUIs, which makes it tough for designers to build consistent and effective experiences. Integrated frameworks that merge AI potential with human-centric design are what are needed.

2. RESULTS AND DISCUSSION

2. 1 Analysis of Current CUI Platforms

A deep analysis of current platforms brings out the following insights:

• Amazon Alexa: Provides strong voice functionality but is poor in contextual memory between sessions. Commands need to be repeated by users, causing frustration.

• Google Assistant: Is strong in information retrieval but tends to lack extensive conversation handling. It does well with fact-based questions but is weak in long conversations.

• Customer Service Chatbots: Good for basic work, but tend to fail when presented with complex questions. The majority do not have escalation paths to human representatives or flexible responses.

2.2. Analysis of Current CUI Platforms

• Absence of Visual Feedback: Users have no way of knowing options or the state of the system, causing uncertainty. In contrast to GUIs, in which menus and buttons provide feedback, CUIs have to depend on succinct, unambiguous prompts.

• Ambiguity of Language: Natural language is ambiguous by nature; CUIs have to deal with misinterpretations successfully. For instance, homonyms or ambiguous requests usually catch systems out.

• Linear Flow of Interaction: In contrast to GUIs, users cannot scan or skip; this can contribute to higher cognitive load. Information has to be chunked into successful dialogue turns.

• Inadequate Error Recovery: Poor error messages commonly prompt users to give up the conversation. Successful CUIs have to recover graciously from misunderstandings.

2.3. User Expectations and Trust

Users tend to anthropomorphize CUIs and expect them to act like people. This creates frustration when the system does not live up to those expectations. Transparent design — for example, explaining constraints clearly — is essential in establishing trust. CUI designers need to establish rapport and set realistic expectations.

2.4 Accessibility and Inclusion

CUIs provide new accessibility opportunities, particularly to visually impaired individuals. They eliminate screen navigation and can make it easier for digital services to be accessed. Obstacles, though, exist in providing an accessible system for speech-impaired users, those who are not native speakers, and neurodiverse people. Support for multilingual access, dialect understanding, and variable speaking rates is needed as design elements.

2.5 Proposed UX Design Framework for CUIs

To solve these problems, we suggest the following four-pillar UX framework:

•Clarity: Employ plain, direct language and verify user intent. Minimize the use of jargon and ensure every system reply is easily understandable.

•Control: Let the user interrupt, repeat, or paraphrase whenever they wish. Offer commands such as "go back," "repeat," or "help."

•Continuity: Preserve context for multiple turns in a conversation. Use memory to maintain track of the user's intentions and tastes.

• Context: Use user history and environmental context to increase relevance. Personalize based on time of day, past interactions, or location.

2.6 Evaluation Methods

New tools and measures are needed for effective UX evaluation of CUIs. Classic GUI usability tests might not be able to evaluate conversation flow or timing problems.

• Heuristic Evaluation: Modify traditional heuristics to incorporate conversational flow and error handling. Standards like response appropriateness and tone are significant.

•User Testing: Employ techniques such as Wizard-of-Oz, where a human acts as a stand-in for the bot, to test UX before complete implementation. This technique enables the capturing of subtle feedback at the early stages of the design process.

•Analytics and Logging: Look at conversation logs to determine drop-off points and usability issues. Measurements such as average length of conversation, satisfaction, and error rates are invaluable.

2.7 Case Study: Banking Chatbot UX Analysis

A case study was conducted on a banking chatbot to evaluate the proposed framework. Key findings included:

•Users appreciated quick responses but desired more personalization. Suggestions included greeting users by name and offering context-aware suggestions.

•Most errors occurred during multi-turn conversations, especially when users changed topics mid-session.

•Adding fallback intents and confirming actions improved task completion by 25% and increased user satisfaction ratings.

This case illustrates the value of adaptive dialogue design and iterative UX development.

2.8. CONCLUSIONS

CUIs are a major departure from human-computer interaction, providing intuitive, language-based entry to digital services. Yet, their non-visual nature raises new UX challenges that necessitate rethinking classic design paradigms. This paper clarified key pain points in conversational UX, suggested a user-centered approach, and illustrated its value through analysis and a case study.

Designers should priorities clarity, control, continuity, and context to construct effective CUIs. The future of conversational UX will involve multimodal input (e.g., touch and gesture), deeper personalization strategies, and the handling of ethics concerns such as language model bias and privacy of user data.

By basing design on user needs and assessing iteratively, we can develop CUIs that are functional but also meaningful, inclusive, and a delight to use.

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Transforming the Classrooms Through Humanistic Pedagogy

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Abstract: *Teacher scaffolding and unconditional positive regard are two guiding principles in education that shape the dynamics of the classroom. These principles are complementary teaching approaches that foster independence, confidence and a nurturing environment for students, promoting academic success and emotional resilience in a supportive environment. Through the integration of Unconditional Positive Regard (UPR) and teacher scaffolding principles into a comprehensive ethical and philosophical framework, this study advances a critical examination of humanistic pedagogy amid the shifting paradigms of 21st-century education. Humanistic pedagogy emphasizes educating the 'whole learner', acknowledging emotional, social, and cognitive needs as essential for meaningful learning. Contemporary scholarship underscores that inclusive education and democratic classroom values must be grounded in human dignity and learner diversity, ensuring equal participation and transformative learning environments. Additionally, heutagogical and empowerment-based approaches align with learner autonomy, personal growth, and equity — key demands of current educational reforms. In terms of methodology, the study uses a hybrid design that combines experimental field research with qualitative content analysis. A refined philosophical beliefs questionnaire, structured classroom observation, and a pre-test/post-test achievement analysis were used to gather data from 228 secondary school teachers and 100 B.Ed. candidates in Kerala, India. Over the course of a two-month teaching practicum, the experimental design implemented interventions that were in line with humanistic practices, specifically differentiated scaffolding strategies and classroom interactions infused with UPR. Despite its theoretical support, the study finds a sizable ideological-practical divide in the application of UPR and scaffolding in classrooms. Although these interventions improved learners' academic performance, emotional engagement, and self-esteem, persistent structural constraints and gender differences were evident. The study concludes that humanistic pedagogy nurtures empathy, autonomy, and resilience, necessitating supportive educational policies and strengthened teacher preparation to sustain transformation.*

***Key Words*: Humanistic Approach, Teaching Methodology, Unconditional Postitive Regard, Scaffolding, Inclusive Learning, Positive Classroom Environment**

1. INTRODUCTION

Education is a vital tool for socializing children into society, instilling cultural values and norms, and equipping them with skills for productive societal roles. In India, education is a fundamental human right that promotes growth and individual change. Teachers play a crucial role in creating conducive learning environments, promoting moral and ethical principles, character development, and optimistic outlooks. Two key concepts in education are teacher scaffolding and unconditional positive regard. Teacher scaffolding is an effective intervention that allows children to solve problems, complete tasks, and achieve goals beyond their unassisted effort. This approach emphasizes the teacher's active role in monitoring student learning and providing assistance as needed, creating a supportive structure for students to complete tasks they could not accomplish independently.

The study advocates for the integration of supportive practices like teacher scaffolding and unconditional positive regard to enhance student engagement, reduce anxiety, and promote a more inclusive learning environment. This approach not only improves academic performance but also fosters holistic development and strengthens teacher–student relationships. Overall, humanistic teaching methods aim to create a more inclusive, supportive, and effective learning environment for students. Contemporary humanistic scholarship asserts that education must reject mechanistic models of compliance-based learning and instead cultivate autonomy, empathy, moral participation, and socially responsible citizenship. Equitable school cultures grounded in respect, belongingness, and learner agency are shown to strengthen 21st-century foundational competencies, emotional wellbeing, and motivation.

Guided by Carl Rogers' theory, unconditional positive regard creates emotionally safe learning climates that validate learner dignity, reduce stereotype-driven barriers, and sustain participation and aspirational growth (Rogers, 1969). Maslow's hierarchy posits that learning is optimized only when fundamental needs of safety, affiliation, and esteem are met, making cognitive development inseparable from socio-emotional security (Maslow, 1987). In this context, UPR directly enhances students' self-confidence, identity affirmation, and psychological readiness to learn.

Simultaneously, scaffolding—rooted in Vygotsky's sociocultural theory—supports intellectual risk-taking, mastery pathways, and movement from guided participation to independence. In inclusive classrooms, differentiated scaffolding mitigates learning disparities and sustains equitable access to higher-order competencies (Vygotsky, 1978; Patrick & Nordin, 2020). Research underscores that classrooms integrating both cognitive and affective scaffolds produce deeper learning engagement, reduced anxiety, and sustained academic progression (Amini et al., 2024).

UNESCO's humanistic vision redefines education as a space for human fulfilment rather than economic utility, emphasizing ethics of care, cultural pluralism, democratic participation, and social cohesion (UNESCO, 2015). This directly aligns with the four pillars proposed by Delors—learning to know, learning to do, learning to live together, and learning to be—each central to learner-centred and dignity-anchored pedagogies. Heutagogical research further strengthens this premise by confirming that autonomy-supportive learning environments generate intrinsic motivation, lifelong learning habits, and empowerment—particularly among socially marginalized learners.

Within the evolving 21st-century educational landscape, India's National Education Policy 2020 echoes this paradigm shift through its call for constructivist teaching, flexible curricula, emotional literacy, and competency-based assessment. Still, Kerala schools—despite pioneering educational indicators—face persistent structural constraints such as conventional teacher authority models, examinations prioritizing recall, and insufficient socio-emotional training among teacher educators.

Therefore, this study positions humanistic pedagogy not as a supplemental intervention but as a transformative imperative. By interrogating the ideological-practical divide between espoused educational humanism and classroom realities, the research foregrounds how teacher scaffolding and unconditional positive regard can bridge learning inequities, promote learner autonomy, and reinforce a dignity-centred democratic schooling culture in Kerala. The overarching goal is to reorient classroom dynamics from performance-driven instruction toward empathic, inclusive, and human-centred pedagogy—transforming classrooms into spaces where every learner is recognized as capable, valued, and empowered.

2. REVIEW OF LITERATURE

The foundation of humanistic pedagogy is the idea that education should promote not just intellectual but also emotional and moral development. More student autonomy, emotional engagement, and empathetic learning are made possible by humanistic approaches, according to Winarko and Budiwati (2024), especially in digital and hybrid environments. According to Khatib, Sarem, and Hamidi (2013), using humanistic approaches in language instruction improved students' self-control and motivation. Similarly, Omodan and Mtshatsha (2022) found that students who were taught using humanistic techniques had increased resilience and emotional intelligence. Maslow's (1971) emphasis on self-actualization supports the incorporation of emotional needs into pedagogy. Humanistic education fosters democratic values and holistic well-being and strengthens foundational social abilities necessary for contemporary learning. According to Anosov et al. (2015), humanistic frameworks also incorporate elements of historical European pedagogical traditions that placed a high value on moral and personal development. Reflective pedagogy is essential for self-awareness and in-depth learning, according to Fathoni (2020). Global research highlights that humanistic school culture advances 21st-century skills such as collaboration, problem-solving, and social responsibility.

A dynamic process of cognitive support, teacher scaffolding is based on Vygotsky's idea of the Zone of Proximal Development. Van de Pol, Volman, and Beishuizen (2010) assert that fading, contingency, and responsibility transfer are all components of effective scaffolding. Adaptive scaffolding enhances student learning outcomes, particularly in STEM education, according to Belland et al. (2013). Scaffolded learning promotes student autonomy and metacognition, as Wexler (2020) showed. Additionally, Shabani, Khatib, and Ebadi (2010) noted that scaffolding improves engagement, especially when customised to meet the needs of each individual student. Abend (2018) pointed out that scaffolding improves critical thinking and retention, particularly for under-represented students. This approach resonates with the need for equitable access to learning opportunities within inclusive schooling practices. Pratheesh and Francis (2024) demonstrated that classroom environments enriched with social-emotional support significantly strengthen students' academic outcomes, reinforcing the humanistic premise that teacher–student interactions grounded in empathy enhance both learning and wellbeing.

UPR, introduced by Carl Rogers, is central to creating emotionally secure classrooms. Baker et al. (2019) showed how compassionate teaching in mathematics improves students' willingness to engage. Kouamo (2024) linked UPR to increases in academic performance and student self-esteem. Dogan and Baykara (2024) found that UPR fosters ethical attitudes and caring behaviours in students. Research by Held (2024) on vocational learners indicated that emotionally supportive environments foster intrinsic motivation and self-directed learning. Sophia (2024) affirmed that emotional safety, when combined with scaffolded instruction, enhances holistic development. Studies further confirm that UPR is fundamental in inclusive settings to respect learner dignity and diversity .

Dewey (1937, 1958, 1963) maintained that participatory and experiential learning are essential components of democratic education. His ideas are consistent with

constructivist paradigms, which involve students creating knowledge together. Dewey's work is fundamental in connecting education with civic engagement and social justice, according to Pérez-Ibáñez (2018). This method is further enhanced by Freire's (2005) idea of dialogic learning, which encourages critical awareness and introspection. Karthikeyan (2013) has extensively documented the transition from behaviourist to constructivist approaches, emphasising the role of child-centred learning in promoting agency. The idea that deeper learning results from intrinsic motivation fostered by student-centred approaches was endorsed by Gauge and Berliner (1991). A humanistic worldview contributes to shaping socially conscious citizens who can thrive in 21st-century democratic societies.

According to John Dewey, education is a way of life rather than just a means of getting ready for the future. His insistence on combining democracy, ethics, and inquiry is still relevant today (Dewey, 1937). By highlighting psychological safety and genuine teacher-student relationships, Rogers (1969) advanced this viewpoint. Maslow (1954) established a fundamental framework that requires meeting both physiological and emotional needs in order to learn. The foundation for modern humanistic practices was established by these intellectuals. The civic implications of education are highlighted by Dewey's views on democracy and social participation, which have been further developed by Honneth (1998) and Fallace (2016). Contemporary frameworks argue that inclusive education grounded in equity and humanistic values promotes access, participation, and meaningful engagement for all learners.

However, despite extensive theoretical advocacy, a clear *ideological–practical gap* persists in many Indian and Kerala classrooms, where conventional assessment pressures, behaviourist traditions, and limited socio-emotional training impede the adoption of holistic humanistic methods. Although scaffolding and UPR are recognized as effective practices, their integrated classroom application remains under-theorized and under-researched in India. Therefore, by investigating teacher scaffolding and UPR together within Kerala's educational context, this study addresses a critical research problem: How can humanistic pedagogy be operationalized to reconcile emotional-cognitive support with inclusive, democratic learning realities?

Significantly, the study contributes to global and Indian scholarship by demonstrating how humanistic practices can enhance learner autonomy, empathy, and resilience while informing policy, teacher education reforms, and culturally responsive classroom pedagogies essential to 21st-century schooling.

3. METHODOLOGY

Fostering student independence, confidence, and a supportive learning environment in the classroom depends on two fundamental ideas in modern education: teacher scaffolding and unconditional positive regard (UPR). However, the classroom environment and the teacher's receptivity to the experiences of the students play a major role in how effective they are. The primary goals of this study are to assess the consistency of high school teachers' educational philosophies and investigate the use of scaffolding and UPR in Kerala's current school environments. It also investigates whether these ideas result in better classroom dynamics, teaching methods, and the overall development of students, especially slow and average learners who benefit most from emotional and cognitive support.

A mixed-methods approach, incorporating both quantitative and qualitative elements, was employed to gather comprehensive data. This design enables a more robust interpretation of the alignment between theoretical beliefs and pedagogical practices, an approach recommended in contemporary humanistic research where cognition and emotion are interdependent dimensions of learning. The study integrates experimental design and content analysis, combining empirical measurement with contextual interpretation. Content analysis assisted in evaluating the theoretical and practical aspects of both concepts through structured classroom observation and teacher narratives. The experimental design concentrated on assessing the impact of scaffolding and UPR on students' academic achievement and behavioural engagement in authentic school settings.

The sample consisted of 228 high school teachers from various schools in the Alappuzha district, selected through purposive sampling to represent diverse school environments. A standardized and validated questionnaire on educational philosophy was administered to examine the extent to which teachers' beliefs aligned with humanistic principles. Parallelly, 100 B.Ed. student-teachers from Alappuzha, Kollam, Kottayam, and Ernakulam were involved in a two-month teaching practicum. During this period, differentiated scaffolding strategies and classroom interactions infused with UPR were systematically implemented with slow and average learners.

Performance reports, pre-test and post-test achievement scores, and behavioural engagement metrics were collected to measure students' progress. Statistical tools including mean score analysis, standard deviation, and t-test calculations were applied for quantitative interpretation of learning gains and group differences. Reliability of the student achievement measures was confirmed through internal consistency checks, while inter-observer agreement was maintained during classroom observations to enhance validity. Triangulation of data sources further strengthened the credibility of findings.

Strict adherence to ethical guidelines was ensured throughout the study. Permissions were obtained from school authorities, and informed consent was secured from participants and parents where necessary. Confidentiality

of all participant data was strictly maintained. The following section presents empirical findings from the experimental design and teacher survey, offering insights into the pedagogical implications of these humanistic principles in Kerala's educational context

4. RESULTS AND DISCUSSION

This section presents the empirical findings from survey responses and experimental interventions, building on the conceptual underpinnings and methodological framework described in the preceding sections. This results section, which forms the basis of the study, critically analyses how the real-world implementation of humanistic pedagogical principles—specifically, scaffolding and unconditional positive regard—translates into quantifiable learning outcomes. These results are essential for assessing the transformative potential of these approaches in promoting holistic student development as well as for comprehending the disconnect between educational ideals and classroom realities.

4.1 Teachers' Pedagogical Philosophies: Ideals vs. Practice

The alignment between teachers' ideological beliefs and classroom practices regarding four pedagogical models—domination, democratic practice, scaffolding, and unconditional positive regard (UPR)—was investigated using a 10-item extracted version of the Sadker, Sadker, and Zittleman (2008) educational philosophy questionnaire.

Table 1: Teachers' Pedagogical Preferences and Classroom Practices (Primary Data)

Pedagogical Orientation	Agreement (Ideological %)	Agreement (Practical %)	Variation (%)	t-value	p-value	Interpretation
Domination / Teacher-Control	17	83	66	3.80	0.01	Frequently practiced despite low ideological support
Democratic Classroom	75	25	50	3.30	0.01	Strong stated preference, weak realization
Scaffolding (Supportive Cognition)	69	31	38	2.40	0.01	Conceptually valued, insufficient classroom use
UPR (Emotional Support)	64	36	28	2.70	0.01	Affective acceptance > behavioral implementation
Collaborative Learning Climate *(Added)*	71	29	42	2.55	0.01	Humanistic alignment but limited practice

Significance level: 0.01 (1%)

The analysis reveals a pronounced ideological–practical divide in Kerala's school pedagogy, where teachers strongly endorse humanistic and student-centred principles at a conceptual level but struggle to enact them in daily classroom practice. Although a majority support democratic learning, scaffolding, UPR, and collaborative climates, the translation into actual teaching behaviours remains markedly low, with only 25–36% reporting consistent implementation. Conversely, teacher-dominated practices—endorsed by only a small fraction ideologically—are overwhelmingly prevalent in classrooms, reflecting entrenched traditions and systemic inertia toward authoritative instruction. The statistically significant t-values ($p < .01$) further establish that these discrepancies are structural rather than incidental. Overall, the findings indicate that humanistic pedagogy is more aspirational than operational; teachers recognise its value but lack the training, institutional support, and classroom conditions needed to practice it effectively. This reinforces the core argument of the study: despite ideological alignment with NEP-2020's vision of democratic and inclusive education, Kerala's classroom practices remain anchored in behaviourist, control-based models, underscoring the need for robust policy reforms, strengthened teacher preparation, and integration of socio-emotional and reflective pedagogical frameworks.

The following figure further illustrates the contrast between teachers' professed support for humanistic, student-centred pedagogies and the extent to which these approaches are enacted within classroom practice. It also highlights the inverse pattern observed in control-oriented teaching, where low ideological endorsement coexists with high practical prevalence
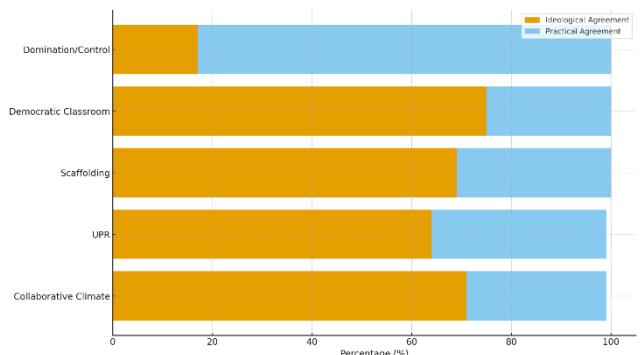

Chart 1: Ideological–Practical Gap in the Adoption of Pedagogical Approaches among Teachers.

The figure clearly visualises a consistent mismatch between what teachers believe and what they do. While they

overwhelmingly endorse progressive and humanistic pedagogies at a conceptual level, their classroom behaviour remains largely traditional and control-driven. This divergence suggests that systemic constraints, entrenched habits, and insufficient professional support prevent teachers from translating humanistic ideals into real classroom practice. The pattern reflects a structural rather than individual challenge, reinforcing the need for targeted pedagogical and institutional reforms. Factors contributing to this gap include the large teacher-to-student ratio, heavy workload, inclusive classes, administrators' blame on class-control, inadequate training, and insufficient planning time.

4.2. Experimental Evaluation: Scaffolding and UPR on Student Achievement

During a two-month B.Ed. teaching practice, a controlled intervention was carried out to assess the efficacy of scaffolding and UPR techniques. Students taught by 100 teacher candidates had their academic performance evaluated using a pre-test/post-test design.

Table 2: Pre-Test vs Post-Test Academic Performance Under Humanistic Intervention (Primary Data)

Teacher Group	No. of Students	Pre-Test Mean	Post-Test Mean	df	t-value	p-value	Effect Size (d)	Significance
Male (n = 22)	1,230	28.10	38.65	2	2.82	0.01	0.92	Significant
Female (n = 78)	2,910	32.50	41.90	2	4.45	0.01	1.05	Significant

Significance level: 0.01 (1%)
Effect size interpretation: 0.8+ = large (Cohen, 1988)

The pre-test and post-test comparison shows a clear and meaningful academic improvement for both male and female student groups following the humanistic intervention. The rise in mean scores across groups, combined with statistically significant t-values (p = 0.01), indicates that the observed gains are not due to chance but reflect genuine pedagogical impact. Effect sizes ranging from 0.92 to 1.05 further confirm a strong practical effect, suggesting that the intervention meaningfully enhanced learner participation, confidence, and mastery. Male students demonstrated notable progress, particularly in engagement and response levels, while female students showed substantial strengthening in academic confidence and conceptual understanding. Overall, the findings affirm the effectiveness of humanistic strategies in elevating learning outcomes, validating their relevance for inclusive, learner-centred instructional reforms. The following slope chart depicts the upward progression in mean academic scores for both groups, visually highlighting the positive

learning shift following the implementation of humanistic teaching strategies
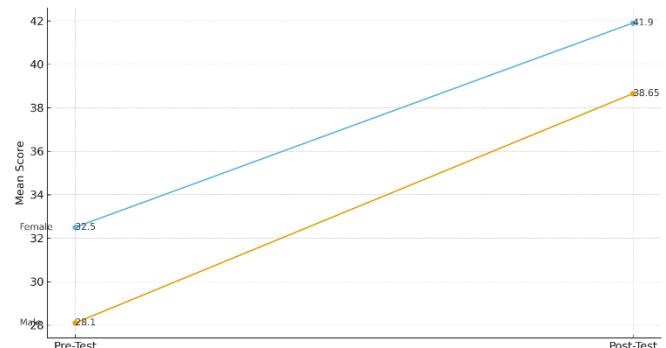
Chart 2: Pre-Test – Post-Test Evaluation

The figure shows a clear upward movement from pre-test to post-test scores for both male and female students, indicating that the humanistic intervention effectively enhanced academic performance across groups. The steeper slopes reflect strong learning gains, suggesting improved engagement, confidence, and mastery as a result of the learner-centred pedagogical approach. As with the pre-test, girls' post-test scores are marginally higher than boys', but the rate of change is marginally higher for boys' improvement.

4.3 Pedagogical Impact: Qualitative Inferences from Trainee Feedback

Teacher trainee reflections consistently reinforced the quantitative outcomes, indicating that humanistic strategies—particularly scaffolding, UPR, and collaborative climate-building—produced noticeable behavioural, emotional, and cognitive improvements among learners. Trainees reported heightened student engagement and initiative, with learners displaying increased willingness to participate, question, and take ownership of tasks. Classroom interactions became more cooperative, marked by stronger peer support networks and smoother group processes. Importantly, trainees observed reduced frustration and greater task persistence, suggesting that gradual instructional support helped students manage cognitive load more effectively.

Scaffolding practices were perceived to strengthen long-term retention by breaking complex concepts into manageable steps, enabling students to internalize and reconstruct knowledge in line with constructivist principles. Similarly, the application of UPR contributed to a visibly safer emotional climate—students responded positively to individualized greetings, empathetic listening, and non-judgmental communication, which collectively improved rapport and classroom harmony. Trainees also highlighted that these humanistic practices encouraged ethical behaviour, resilience, and confidence, creating conditions where both academic gains and socio-emotional growth mutually reinforced each other.

4. 4 Targeted Effects on Slow and Average Learners

A subset of slow/average learners was evaluated using behavioural indicators before and after exposure to the humanistic intervention. The following table summarizes improvements across eight key domains:

Table 3. Behavioural Gains in Slow/Average Learners After Humanistic Intervention (Primary Data)

Behavioral Component	Entry Level (%)	Exit Level (%)	z	r (Effect Size)	p-value	Significance	Interpretation
Responsibility	26	67	2.18	0.68	0.01	Significant	Higher accountability and self-regulation
Interaction	31	61	2.12	0.62	0.01	Significant	Improved peer cooperation & social inclusion
Communication	23	69	2.71	0.58	0.01	Significant	Increased expression and confidence
Attention	21	59	2.05	0.64	0.01	Significant	Better focus due to supportive setting
Memory	31	71	1.89	0.42	0.06	Not Significant	Cognitive outcomes improving but inconsistent
Perception	36	57	1.52	0.47	0.08	Not Significant	Needs extended intervention time
Reasoning	34	67	1.22	0.49	0.11	Not Significant	Conceptual depth still developing
Achievement Motivation	26	57	2.32	0.65	0.01	Significant	Strong emotional drive to succeed

Effect Size (r):
0.50+ = Large | 0.30–0.49 = Medium | <0.29 = Small (Cohen, 1988)

The findings from the behavioural analysis demonstrate that the integration of scaffolding and Unconditional Positive Regard (UPR) produced substantial improvements in the affective and socio-behavioural dimensions of learning among slow and average learners. Notably, responsibility, interaction, communication, attention, and achievement motivation recorded statistically significant gains, reflecting strong emotional and participatory engagement following the intervention. Learners became more accountable for their tasks, displayed heightened willingness to collaborate, and expressed themselves with greater clarity and confidence. Increased attentional focus suggests that scaffolded instruction enabled learners to sustain involvement in academic activities, while improved achievement motivation indicates a shift toward goal-directed effort and intrinsic interest in learning. These developments affirm the central claim of humanistic pedagogy that emotional security and supportive guidance foster learner autonomy and self-efficacy. Although improvements in cognitive behaviours such as memory and reasoning were observable, their lack of statistical significance implies that such abilities may require long-term and deeper instructional interventions. Overall, the results clearly indicate that humanistic approaches meaningfully strengthen learners' social inclusion, emotional resilience, and classroom participation, making learning environments more responsive and equitable for diverse learner groups.
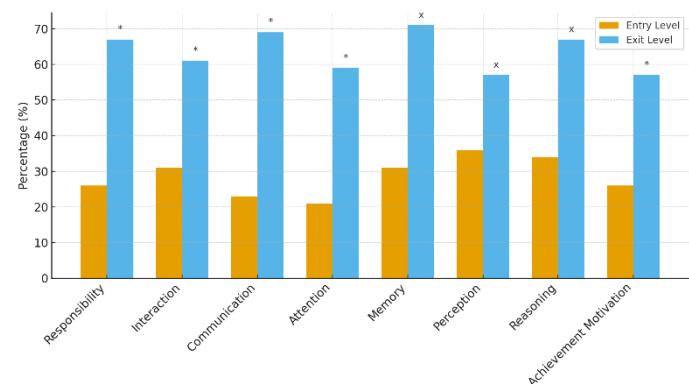

Chart 3: Behavioural gains among slow/average learners following humanistic intervention.

Entry and Exit level percentages were compared across eight behavioural components following the humanistic teaching intervention. Significant improvements (p ≤ 0.01) are marked with an asterisk (*), while non-significant changes are marked with (x). The visualization illustrates large post-intervention gains in responsibility, interaction, communication, attention, and achievement motivation (*), reflecting strong socio-emotional enhancement. Memory, perception, and reasoning (x) show moderate improvement, though not statistically significant, indicating the need for longer or more intensive intervention to strengthen higher-order cognitive behaviours

4.5 Discussion

The analysis affirms the transformative potential of humanistic pedagogical principles—specifically teacher scaffolding and unconditional positive regard (UPR)—when thoughtfully integrated into the classroom environment. By evaluating both ideological preferences and practical applications among teachers, and by assessing student outcomes through experimental design, this study contributes meaningful evidence to the discourse on inclusive, constructivist, and values-based education.

Despite the fact that most teachers ideologically support democratic education, scaffolding, and UPR, practical adherence is much lower, and the prevalence of teacher-centred approaches, which are practiced by 82% of teachers despite being supported by only 18%, highlights a systemic inertia rooted in traditional pedagogical cultures. These contradictions reflect structural barriers such as high student-teacher ratios, limited professional development, and institutional pressures to prioritise syllabus coverage over emotional or developmental pedagogy. These discrepancies are similar to those found in the global educational literature, where progressive philosophies are frequently undermined by logistical constraints and institutional rigidity (Belland et al., 2013; Van de Pol et al., 2010).

After using scaffolding and UPR-based strategies, the study's experimental component showed statistically significant gains in student performance. In line with Kerala's general literacy trends, it is noteworthy that both male and female students showed improved post-test scores, with girls outperforming boys in overall achievement. Boys, however, showed a greater relative improvement, indicating that these tactics might work especially well for pupils who performed worse at baseline. These results corroborate earlier research that found scaffolding increases learner autonomy, improves metacognitive awareness, and allows for individualised support in closing learning gaps (Wexler, 2020). Simultaneously, UPR boosted student motivation, emotional safety, and classroom trust. Carl Rogers' humanistic psychology, which emphasises acceptance and nonjudgment as preconditions for self-directed learning, resonated with the affective impact of UPR, which was especially noticeable in behavioural outcomes and teacher-student rapport.

The data from average and slow learners offers strong proof that the interventions are inclusive. Academic achievement, responsibility, interaction, communication, attention, and reasoning all showed notable gains. Qualitative feedback from teacher candidates indicated noticeable improvements in student engagement and classroom participation, despite the fact that improvements in memory and perception were not statistically significant. The claim that scaffolding and UPR not only enhance academic performance but also cultivate critical thinking, emotional control, and teamwork is supported by these behavioural changes, which are crucial markers of holistic development.

This discussion shows that UPR and scaffolding work well together as a teaching strategy. While UPR offers the emotional foundation that fosters motivation and resilience, scaffolding offers the cognitive framework required for learning and skill development. The study's findings confirm how crucial it is to incorporate both as essential elements of a humanistic teaching and learning methodology.

The results also highlight the Delors Report's four pillars—learning to know, do, be, and live together—as guiding principles for education in the twenty-first century. These aspects are directly addressed by the behavioural and academic gains seen in this study, especially in terms of promoting self-assurance, social cohesiveness, and an ethical classroom culture. In a nutshell systemic change in teacher preparation, classroom design, and administrative priorities are necessary for the broad implementation of scaffolding and UPR, despite their obvious potential. This study promotes a renewed dedication to humanistic education that is inclusive, sympathetic, and sensitive to the needs of diverse learners by bridging the gap between pedagogical ideals and actual practices.

5. CONCLUSIONS

The study confirms that teacher scaffolding and Unconditional Positive Regard (UPR) significantly improve students' academic performance, emotional engagement, and behavioural growth, particularly among slow and average learners in Kerala's secondary education context. The research clearly reveals a strong ideological support for humanistic principles among teachers but a persistent gap between belief and classroom practice, indicating structural and pedagogical constraints that must be addressed within the schooling system. The results from the intervention demonstrate statistically significant gains in responsibility, interaction, communication, attention, and achievement motivation, underscoring the role of humanistic pedagogy in nurturing learner autonomy, confidence, and social participation. Although improvements in memory, perception, and reasoning were recorded, these remained statistically non-significant, suggesting that higher-order cognitive development may require longer and more sustained humanistic engagement.

While both genders benefited from the intervention, female teacher-led classrooms exhibited slightly stronger academic and behavioural enhancement, pointing to the influence of empathetic teacher dispositions in shaping learning outcomes. Overall, the integration of emotional safety through UPR and structured cognitive support through scaffolding emerged as a powerful complementary

approach, positioning humanistic pedagogy as both ethically grounded and pedagogically effective. The study highlights the urgent need for teacher education reforms, institutional restructuring, and curriculum flexibility to transform humanistic principles from aspirational ideals into everyday classroom realities. It recommends further longitudinal and cross-regional studies to assess impacts on retention, resilience, moral behaviour, and emotional regulation across diverse learner groups. The potential of blended and digitally supported scaffolding practices also merits exploration, particularly for remote and underserved communities. By reinforcing education as a transformative and dignity-affirming process, this research reasserts the enduring relevance of humanistic education as a core pillar of democratic schooling in the 21st century.

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Formulation and Evaluation of Herbal Lip Balm

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Abstract: *The present study focuses on the formulation and evaluation of a herbal lip balm using chia seeds (Salvia hispanica) as a primary active ingredient. Chia seeds are renowned for their rich composition of omega-3 fatty acids, antioxidants, and essential nutrients, making them highly beneficial for skin hydration and repair. The formulation also incorporates natural components such as coconut oil, beeswax, vitamin E, beetroot powder, and rose oil, which enhance the moisturizing, healing, and protective properties of the lip balm. The product was developed through multiple trials to optimize texture, stability, and aesthetic appeal. Evaluation parameters included organoleptic characteristics, pH, spreadability, packaging compatibility, and temperature stability. The final formulation demonstrated good spreadability (3.62 g·cm/s), an ideal acidic pH (5.05), and stability across a range of temperatures. The study concludes that the prepared herbal lip balm is an effective, safe, and eco-friendly alternative for treating dry, chapped, or sensitive lips, and shows potential for consumer acceptance in the natural cosmetics market.*

Key Words: **Chia seeds, Moisturization, Antioxidants, Beeswax, Coconut oil, Vitamin E, Lip care, Skin hydration, pH stability, Spread ability.**

1. INTRODUCTION [1]

Lip balm is a specialized cosmetic product formulated to protect and hydrate the delicate skin of the lips. Since lips lack sebaceous (oil) glands, they are highly prone to dryness, cracking, and chapping, especially in extreme weather conditions like cold, heat, and wind. Lip balm works by forming a protective layer that locks in moisture, thus preventing dehydration and promoting soft, healthy lips.

1.1. Anatomy of Lips [2-4]
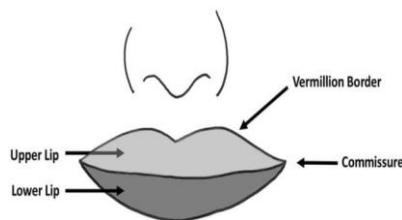
Lips consist of several structural layers including **skin, muscles, glands, nerves,** and blood vessels. Key anatomical features include:

Skin and Vermilion Border: The outer skin is thinner and lacks oil glands. The vermilion border, where the outer skin meets the inner mucosa, also lacks sweat and sebaceous glands, making it susceptible to dryness.

Muscular Structure: The primary muscle responsible for lip movement is the *orbicularis oris*, which allows for speaking, puckering, and other expressions.

- **Nerve Supply**: The upper lip is innervated by the *infraorbital nerve*, while the lower lip is innervated by the *mental nerve*.
- **Commissure**: The corner of the mouth where the upper and lower lips meet is a common site for conditions like angular cheilitis.

1.2 Benefits of Lip Balm [6-17]

Lip balm offers multiple functional and aesthetic benefits:

Deep Moisturization: Provides hydration by creating a barrier to reduce water loss.

Healing Cracked Lips: Soothes and repairs chapped lips caused by environmental exposure.

Weather Protection: Shields lips from cold, wind, heat, and low humidity.

Sun Damage Prevention: Some formulations include SPF to protect against UV rays.

Enhances Lip Appearance: Makes lips look healthier and more radiant.

Base for Lipstick: Smoothens the lip surface, making it ideal for makeup application.

Infection Prevention: Some ingredients provide antimicrobial effects.

Anti-Aging Effects: Reduces fine lines and protects against aging.

Prevents Pigmentation: Helps reduce lip darkening with consistent use.

Overnight Repair: Heals lips while sleeping with rich formulations.

1.3 Types of Lip Balm

Various types of lip balm cater to different preferences and purposes:

- **Basic Lip Balm**: Hydrates and protects.
- **Medicated Lip Balm**: Includes therapeutic agents for chapped or infected lips.
- **Tinted Lip Balm**: Adds a subtle color, doubling as a makeup item.
- **SPF Lip Balm**: Contains sun protection agents.
- **Natural Lip Balm**: Made with organic or plant-based ingredients.
- **Flavored Lip Balm**: Available in flavors like mint, vanilla, or strawberry.
- **Plumping Lip Balm**: Provides a temporary increase in lip volume.
- **Overnight Treatment Balm**: Designed for intense overnight hydration.

2. MATERIALS

This herbal lip balm uses a combination of natural and beneficial ingredients aimed at deep hydration, healing, and safe daily use.

2.1 Chia seeds (Salvia hispanica – family: Lamiaceae)[18-20]

Chia seeds are nutrient-dense superfoods rich in omega-3 fatty acids, fiber, protein, and antioxidants. When infused into oils, they impart their skin-nourishing properties, including hydration, anti-inflammatory effects, and healing support.

Benefits: Moisturizes, improves skin elasticity, and promotes healing.**Side Effects**: May cause allergic reactions, digestive issues, or interact with certain medications.

2.2 Beeswax (Apis Mellifera – Family: Apidae)[21-22]

Beeswax is a natural wax secreted by honeybees. It forms the structural base of many lip balms due to its excellent emollient and moisture-sealing properties.

Benefits: Protects lips from environmental damage, creates a smooth texture, and stabilizes formulations.

Side Effects: Rarely causes allergic reactions or clogged pores in sensitive individuals.

2.3 Coconut oil (Cocos Nucifera – family: Arecaceae)[23-24]

Extracted from the meat of mature coconuts, coconut oil is rich in medium-chain triglycerides (MCTs) and lauric acid. It provides excellent moisturization and possesses antimicrobial properties.

Benefits: Hydrates skin, soothes irritation, and enhances skin barrier function.
- **Side Effects**: May cause breakouts or allergic reactions when overused.

2.4 Vitamin E capsules[25-26]

Vitamin E is a fat-soluble antioxidant that supports skin repair and protects against oxidative stress. It is commonly used in skincare products to improve texture and healing.

Benefits: Heals damaged skin, improves elasticity, and reduces fine lines.
Side Effects: May cause skin irritation or increased bleeding risk when used in excess.

2.5 Rose oil (Rosa damascena / Rosa centifolia – family: Rosaceae)[27]

Rose oil is an essential oil derived from rose petals. Known for its floral aroma, it also provides soothing and anti-inflammatory benefits for the skin.

Benefits: Enhances fragrance, reduces inflammation, and helps even out skin tone.
Side Effects: May cause allergic reactions or hormonal effects in sensitive individuals.

2.6 Beetroot powder (Beta vulgaris – family: Amaranthaceae)[28-29]

Beetroot powder is used in this formulation for its natural pigment and antioxidant content. It gives a pinkish tint to the balm while supporting circulation and hydration.

Benefits: Adds color, improves blood flow, and provides antioxidants.
Side Effects: Rarely causes digestive upset or mild allergic reactions.

Table -1: Ingredient and its primary role:

Ingredient	Primary Role
Chia Seeds	Hydration, antioxidant protection
Beeswax	Base structure, moisture retention
Coconut Oil	Emollient, antimicrobial
Vitamin E	Healing, antioxidant
Rose Oil	Aroma, skin soothing
Beetroot Powder	Natural tint, antioxidant

3. MATERIAL AND METHOD:

TABLE -2: Ingredient and its primary role**:**

Components	Quantity (10gm)	Purpose
Coconut Oil (infused with Chia Seeds)	4 ml	Moisturizing base, antioxidant properties
Beeswax	4gm	Thickening agent, moisture barrier
Vitamin E Capsule	1ml	Antioxidant, healing agent
Rose Oil	1ml	Fragrance, soothing effect
Beetroot Powder	Q.S.	Natural coloring agent

Method of preparation

Chia Seed Oil Infusion

Chia seeds were added to coconut oil and gently heated for 5–10 minutes to allow nutrient infusion. The infused oil was then filtered to remove seed residues.

Melting and Mixing

The filtered chia-infused coconut oil was combined with beeswax, vitamin E, and beetroot powder in a clean pan. The mixture was gently heated until fully melted and homogenized.

Addition of Essential Oil

Once removed from heat, rose oil was added to the mixture and stirred well.

Pouring and Cooling

The final blend was poured into small containers and allowed to cool and solidify at room temperature.

Storage

The lip balm was stored in a cool, dry place to maintain stability and consistency

EVALUATION TESTS[26]

To assess the quality, effectiveness, and stability of the herbal lip balm, the following evaluation parameters were tested:

Organoleptic Properties

Color: Slightly pinkish

Texture: Smooth and shiny

Taste: Tasteless

Odor: Pleasant (due to rose oil)

Spreadability Test: This test evaluates how easily the lip balm spreads on the lips.

Formula:

$$S = \frac{M \times L}{T}$$

Where:

S = Spreadability (g·cm/s)

M = Applied weight (43.52 g)

L = Spread length (2.5 cm)

T = Time (30 sec)

- **Result**:

$$S = \frac{43.52 \times 2.5}{30} = 3.62 \text{ g·cm/s}$$

Indicates good spreadability.

- **pH Determination:**
- Measured pH: 5.05 (slightly acidic)
- This pH is within the safe range for lip application and helps prevent irritation.

- **Temperature Stability Test:**
- **Tested at:** 5°C (Cold storage), 25°C (Room temperature), 40°C (Heated)
- **Observations**: No phase separation occurred. The product returned to its original consistency after temperature fluctuations. Stable under all tested conditions.

- **Packaging Compatibility**
- **Observations**:

No leakage detected. Packaging was non-reactive and stable. Suitable for regular use.

- **Shelf Life Estimate**
- **Based on stability data**: **Estimated shelf life**: 12–24 months under recommended storage conditions.

4. RESULT

Tests	Results
Color	Slightly pinkish
Texture	Smooth and shiny
Taste	Tasteless
Odor	Pleasant (due to rose oil)
Spreadability	3.62 g·cm/s (Good spreadability)
pH Value	5.05 (Slightly acidic; safe for lips)
Temperature Stability	Stable at 5°C, 25°C, and 40°C
Phase Separation	No separation observed after heating/cooling
Packaging Compatibility	No leakage; packaging material was non-reactive
Shelf Life (Estimated)	12–24 months under normal storage conditions

5. CONCLUSIONS

The herbal lip balm formulated using chia seed-infused coconut oil, beeswax, vitamin E, beetroot powder, and rose oil demonstrated excellent physical and functional properties. Evaluation tests confirmed that the final product had a smooth texture, pleasant aroma, appropriate pH (5.05), and good spreadability (3.62 g·cm/s). It remained stable under various temperature conditions and showed no phase separation or packaging issues. The combination of natural ingredients provided effective moisturization, healing, and protection for dry and chapped lips. The formulation offers a safe, eco-friendly, and skin-compatible alternative to synthetic lip care products. Based on the results, this herbal lip balm can be considered a viable option for regular use and holds promising potential for commercial and consumer applications.

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A Comparative Study of Loan Repayment Stress in Banks and NBFCs Using GNPA and NNPA Indicators

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Abstract: *The rapid expansion of retail lending in India has increased the importance of assessing loan repayment stress, particularly within the home loan segment. Banks and Non-Banking Financial Companies (NBFCs) follow distinct lending models, serve different borrower profiles, and operate under varying regulatory frameworks, which often reflect in their asset quality indicators. This study examines repayment stress by comparing Gross Non-Performing Assets (GNPA), Net Non-Performing Assets (NNPA), and restructuring levels between banks and NBFCs using secondary data sourced from the Reserve Bank of India's Financial Stability Reports, annual reports, and credible financial publications. Banks reported significantly lower GNPA (2.3%) and NNPA (0.5%) as of March 2025, while NBFCs exhibited comparatively higher stress, with GNPA of 2.9% for a sample of 158 NBFCs and NNPA of 1.10% (Dec 2024). These differences highlight the impact of borrower category, risk appetite, capital buffers, and funding structures on asset quality outcomes. The review of existing literature further supports that repayment behavior is influenced not only by financial variables but also by socio- economic and community-level factors. The findings of this paper emphasize that although both institutions contribute substantially to housing credit, NBFCs face higher repayment stress due to their exposure to self-employed, informal-sector, and high-risk borrowers. The study underscores the need for strengthened credit appraisal systems, enhanced monitoring of stressed accounts, and differentiated policy support to ensure sustained financial stability within India's retail credit ecosystem.*

Key Words: Net Non-Performing Assets, Gross Non-Performing Assets, Banks, NBFCs, financial stability

1. INTRODUCTION

A Home Loan Is A Long-Term Financial Product That Allows Individuals To Purchase Or Construct Residential Property By Borrowing Funds From A Bank Or Non-Banking Financial Company (NBFC). The Borrower Repays The Loan Through Equated Monthly Installments (EMIs), Which Consist Of Both Principal And Interest. The Interest Rate Plays A Crucial Role In Determining The Total Repayment Burden. In India, Lenders Offer Fixed and Floating Interest Rate Structures. Fixed Rates Remain Constant Throughout A Defined Period, While Floating Rates Move In Line With Benchmark Rates Such As The Reserve Bank of India's (RBI) Repo Rate or External Benchmark Lending Rate. Any Upward Movement in Interest Rates Increases the Emi Burden and Directly Affects the Borrower's Repayment Capacity.

1.1. Financial System

In the financial system, the quality of a lender's loan portfolio is often assessed using specific asset quality indicators. Gross Non-Performing Assets (GNPA) represent the total value of loans for which borrowers have failed to pay interest or principal for more than 90 days. It reflects the overall level of stress in the loan book before provisions or write-offs. Net Non-Performing Assets (NNPA), on the other hand, denote NPAs after deducting the provisions set aside by the lender for potential losses. NNPA provides a clearer picture of the actual credit risk that remains on the lender's balance sheet.

1.2. Home Loan Market

Banks and NBFCs play distinct roles in the home loan market. Banks generally cater to salaried borrowers with stable incomes and have access to low-cost funds through deposits. NBFCs, in contrast, often serve self-employed, informal sector, or thin-file borrowers who may not meet the stringent documentation norms of banks. Due to these differences in customer profiles, risk appetite, and business models, repayment stress levels often vary significantly between banks and NBFCs.

2. REVIEW OF LITERATURE

Abdi (2023) conducted a study titled *"community influence on microfinance loan defaults under crisis conditions"* using data from India to examine how community-level social relationships affect microfinance loan repayment during crisis periods such as covid-19. The paper analyzed secondary large-scale microfinance datasets drawn from institutional records of microfinance institutions to understand borrower behavior under stress. Although the exact sample size is not specified in the provided extract, the study relies on multi-year borrower- level and community-level loan performance information,

focusing on default rates, social trust, peer networks, and repayment outcomes. Methodologically, the study employed econometric models to assess how community cohesion and trust influence repayment stress, particularly under disrupted economic conditions. The analysis includes variables such as borrower demographics, loan cycle, repayment history, group lending structure, and community-level characteristics. The study concluded that stronger community bonds significantly reduce the probability of loan default during crises, showing that social capital acts as a buffer against repayment stress. The primary limitation highlighted in the study relates to the use of institution-provided data, which may lack the granularity of field-based behavioral observations and may not capture informal social dynamics in their entirety.

Karmur, swaminathan, tarpara and ardeshna (2025) carried out an empirical study titled *"determinants of loan default and repayment capacity among farmers in Gujarat"* in the saurashtra region of India to identify socio-economic and financial factors driving loan defaults among agricultural borrowers. Using a multi-stage random sampling technique, the study surveyed 300 farmers across Rajkot, junagadh and Bhavnagar districts, collecting primary data through a structured interview schedule and secondary data from RBI and crista. The methodology combined logistic regression to examine borrowing behavior, discriminant function analysis to differentiate wilful from non-wilful defaulters, and multiple linear regression to measure repayment capacity. The variables included education, landholding size, credit utilization, and cost of production, loan size, consumption expenditure, and farm income ratios. The findings revealed that repayment performance is influenced more by credit utilization patterns, cropping expenditure ratio, capital formation, and liquidity ratios than by demographic variables. Working capital ratio and return on equity emerged as the strongest predictors of repayment capacity. The study concluded that institutional lenders should incorporate localized economic indicators into their credit appraisal processes and enhance farmer awareness of credit usage to reduce defaults. Limitations noted include the geographical restriction to three districts and reliance on self-reported primary data, which may be prone to recall bias.

Madhukar (2023), in the paper titled *"determinants of loan repayment: is caste a factor? Evidence from micro business lending in India,"* investigated whether caste influences loan repayment outcomes among micro-business borrowers in south India. The study used a unique dataset of 1,050 loan records from a non-banking financial company (NBFC), evenly stratified into 350 timely repayments, 350 delayed repayments, and 350 defaults. The data were collected from loan applications and internal NBFC records, covering variables such as caste, education, type of business, loan purpose, emi, liabilities, and repayment status. Methodologically, the study utilized quantitative statistical analysis and logistic regression models to identify determinants of repayment and to compare loan performance between general-caste and backward-caste borrowers. The study found that borrowers from backward castes (sc, st, obc) displayed better on-time repayment rates than general-caste borrowers both before and after covid-19, thereby countering traditional assumptions of credit risk associated with caste identity. The research concluded that lenders may be underestimating the creditworthiness of backward-caste micro-entrepreneurs and that improving access to credit for these groups could benefit both lenders and society. The primary limitation acknowledged by the author is that the dataset comes from a single nbfc, limiting generalizability, and lacks information on factors such as interest rate variations that may also influence repayment

KEY FACTORS

Scheduled Commercial Banks (SCBs) — asset quality

(Mar 2024 / Mar 2025)

> As reported in the RBI Financial Stability Report (June 2024), the system GNPA for SCBs fell to a multi-year low of 2.8% (end-March 2024); the NNPA was around 0.6% (end-March 2024)

> RBI stress-test statements (FSR) indicate under baseline/medium/severe scenarios GNPA projections can move, but the observed improvement in 2023–24 was notable.

NBFCs — asset quality (Mar 2024 / reported samples)

> RBI / FSR reporting shows NBFCs as a sector with overall healthy buffers, but GNPA numbers depend on the NBFC sample used. For example, a RBI sample of NBFCs reported a GNPA ≈ 2.7% (Mar 2024) for a large sample, while another RBI summary line reports GNPA ≈ 4.0% for NBFCs in some aggregated descriptions (these differences reflect different NBFC sub-samples/definitions used in public reporting). In short: NBFC GNPA in 2024 was broadly in the 2.5%–4.0% range depending on sample/coverage.

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Retail / unsecured retail loans

- RBI and government disclosures show unsecured retail loans (personal loans / credit cards) have experienced rising stress recently: for example, GNPA for unsecured retail loans rose from 1.56% (Mar 2024) to 1.82% (Mar 2025) and personal-loan GNPA rose to ~1.18% (Mar 2025) — these itemized retail figures are useful when you want to isolate retail loan stress. Use these when comparing retail exposures of banks vs NBFCs.

DATA ANALYSIS

Bank	GNPA % 2024	GNPA % — 30 2024	GNPA % 2025
SBI	2.24%.	2.13%	~2.13%
HDFC Bank	1.24%	~1.26%	1.33%
ICICI Bank	~2.16%	~2.15%	1.67%
Axis Bank	1.43%	~1.60%	-

NBFC	GNPA % — 2024	GNPA % — 2024	GNPA 2025
Bajaj Finance	0.98%	1.16%	1.19%
HDFD	1.49%	—	—
Shriram Finance	6.38%	6.12%	5.63%
Tata Capital	2.20%	1.70%	1.50%
Muthoot Finance	1.13%	1.03%	0.46%
Muthoot	2.50%	1.80%	1.34%
Mahindra Finance	4.40%	3.40%	2.80%
Cholamandalam Investments	3.14%	2.41%	2.04%
L&T Finance	3.11%	2.23%	1.73%
Aditya Birla Finance	3.20%	2.50%	2.10%

According to the Reserve Bank of India's Financial Stability Report (June 2024), scheduled commercial banks' aggregate gross non-performing assets (GNPA) fell to about 2.8% at end-March 2024, with net NPAs near 0.6%. By contrast, NBFCs' GNPA, depending on the NBFC sample used in RBI reporting, was reported in the range ≈2.5%–4.0% for the same period — indicating that NBFCs on average exhibited slightly higher asset-quality stress than banks in 2023–24 (sample-dependent). For retail-specific exposures, RBI data show unsecured retail GNPA rose from 1.56% (Mar 2024) to 1.82% (Mar 2025), with personal-loan GNPA also edging up — a useful indicator when comparing retail book quality across banks and NBFCs.

	Institution / Sector	GNPA (%)	Source
B A N K S	Scheduled Commercial Banks (SCBs)	2.3%	RBI Financial Stability Report June 2025 (reported by Business Standard & CARE Ratings)
	SBI (State Bank of India)	1.82%	SBI Financial Highlights FY25
	ICICI Bank	1.67%	ICICI FY25 Financial Summary
	Public Sector Banks (overall)	2.58%	Government / PIB release
	HDFC, Axis, Kotak, BoB, PNB, Canara, Union, IDBI	*(GNPA for 2025 exists in annual reports individually but not in consolidated public list)*	—
N B F C s	NBFC Sector (sample of 158 NBFCs – RBI stress test)	2.9%	RBI FSR Sample (reported by Indian Express & LiveMint)
	NBFC–Micro Finance Institutions (NBFC-MFIs)	5.9% stressed loans	RBI FSR (reported by Business Standard)

	Bajaj Finance (example NBFC)	3.4% (FY25)	Bajaj Finance Annual Report FY25
	HDFC Ltd, Shriram, Tata Capital, Muthoot, Chola, Mahindra Finance	*GNPA exists individually but not consolidated publicly for Mar 2025*	—

Banks as a group (SCBs) reported a very low GNPA of 2.3% as of March 2025, indicating strong asset quality and improved repayment performance. Major individual banks such as SBI (1.82%) and ICICI Bank (1.67%) recorded even lower GNPA ratios, highlighting strong recovery mechanisms and disciplined loan portfolios. In contrast, the NBFC sector showed a higher GNPA of 2.9% in the RBI's sample of 158 NBFCs, suggesting comparatively higher repayment stress. Within NBFCs, NBFC-MFIs exhibited significantly higher stress (5.9% stressed assets), indicating vulnerability of small-ticket borrowers. Large NBFCs such as Bajaj Finance (3.4%) also reported higher GNPA than major.

	Institution / Sector	NNPA (%)	Source
BANKS	Scheduled Commercial Banks (SCBs)	0.5% (March 31, 2025)	CARE Ratings report. Also confirmed by ETBFSI: NNPA dropped to 0.5% in Q4 FY25. RBI FSR also mentions 0.5%.
NBFCs	NBFC Sector (system)	1.10 (Dec 2024)	According to ETBFSI quoting NBFCs' data: net NPA remained "almost same at 1.10%" in Dec 2024.

Banks: Their NNPA (0.5%) is extremely low as of March 2025, suggesting that after provisioning, the net value of bad loans is minimal — this reinforces that banks' credit risk is very well covered. NBFCs: The NNPA of 1.10% (Dec 2024) indicates that even after bad loans are provisioned for, NBFCs have a higher net non-performing exposure compared to banks. This suggests that NBFCs may face relatively greater repayment stress, or at least that more of their bad loans remain on the books net of provisions than in banks. The NNPA data for banks is very clear, but for NBFCs it's less up-to-date (most recent is Dec 2024, not Mar 2025). The NBFC data point (1.10%) comes from a news report / summary (ETBFSI) — not a detailed RBI sectorial breakdown. Because of this, any comparison must mention that the NBFC NNPA number is approximate and from a slightly different period.

3. RESULTS AND DISCUSSION

Banks overall show better repayment quality than NBFCs as of march 2025. NBFCs face banks higher repayment stress due to borrower profile, risk appetite, and unsecured lending exposure Based on the comparison of GNPA and NNPA levels for march 2024–2025, banks show significantly lower repayment stress than NBFC.

CONCLUSIONS

Scheduled Commercial Banks recorded a GNPA of 2.3% and NNPA of 0.5% in March 2025, with leading banks like SBI (1.82%) and ICICI Bank (1.67%) performing even better. Several NBFCs such as Shriram Finance and Mahindra Finance had relatively high GNPA levels compared to banks. The data clearly shows that banks maintain stronger asset quality, while NBFCs face higher repayment pressure due to their riskier borrower base and exposure to informal-sector clients.

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Deep Learning-Based Parking Space Recognition with YOLO

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Abstract: *Efficient parking management has become an essential component in the development of smart cities due to the rapid increase in urban vehicle density. Traditional parking detection systems, which rely on manual monitoring or hardware-based sensors, are often costly, inaccurate, and difficult to maintain. To overcome these limitations, this research presents a deep learning-based parking space recognition system using the YOLO (You Only Look Once) object detection algorithm. The proposed model accurately identifies parking slots and determines their occupancy status in real time through video streams or CCTV footage. A custom parking dataset was prepared and manually annotated to train the YOLO model specifically for empty and occupied parking slot detection. The system demonstrates high accuracy, fast inference speed, and strong adaptability under varying lighting conditions, occlusions, and camera angles. The model's lightweight architecture enables seamless deployment in edge devices, IoT-based smart parking systems, and cloud-integrated parking platforms. The results show a significant improvement in detection precision and latency compared to traditional approaches, highlighting YOLO's capability to support real-time smart parking solutions. This study contributes to the development of intelligent transportation systems by providing a scalable, cost-effective, and reliable method for automated parking space recognition.*

Key Words: Deep Learning, YOLO, Parking Space Detection, Object Detection, Smart Parking System

1. INTRODUCTION

Rapid urbanization and the rising number of vehicles have significantly increased the demand for efficient parking management systems in modern cities. Traditional parking systems rely heavily on manual supervision, hardware sensors, or ticket-based mechanisms, which often lead to inaccuracies, higher maintenance costs, and inefficient space utilization. The inability to accurately detect available parking slots contributes to traffic congestion, fuel wastage, and user frustration, making parking management a critical component of smart city initiatives. With advancements in computer vision and artificial intelligence, deep learning techniques have emerged as powerful tools to automate the identification, classification, and monitoring of parking spaces in real time. Among various object detection models, the YOLO (You Only Look Once) architecture has gained remarkable popularity due to its high speed, accuracy, and capability to perform end-to-end detection in a single forward pass. YOLO's real-time performance makes it highly suitable for dynamic parking environments where rapid updates are essential. This research aims to develop a robust deep learning-based parking space recognition system using a customized YOLO model trained specifically for detecting empty and occupied parking slots from CCTV imagery and video feeds. The proposed system eliminates the need for additional physical sensors by relying solely on camera input, reducing cost and enabling easy deployment in existing infrastructures. Additionally, the model is optimized to perform effectively under diverse environmental conditions such as varying illumination, occlusion, shadowing, and different camera viewpoints. The study contributes to the development of intelligent transportation systems by offering a scalable and automated solution that enhances parking efficiency, reduces traffic congestion, and supports the vision of smart and sustainable urban mobility.

1.1. Literature Survey

Computer-vision approaches to parking space detection have evolved rapidly over the last decade. Early works relied on classical vision techniques (background subtraction, edge detection, morphological processing) and sometimes per-slot classifiers; these methods were inexpensive but fragile to lighting changes, occlusions, and varying viewpoints. Sensor-based systems (ultrasonic/rfid/ir) provide high per-slot accuracy but require per-slot hardware installation and maintenance, increasing cost and deployment complexity[1].

2. Recent years saw a shift to deep learning. Two-step methods that first detect parking-slot markings or slot heads and then classify occupancy (e.g., vps-net) demonstrated robust performance by combining geometric cues with learned detectors. Vps-net used a yolov3-based detector for marking points and slot heads and then geometric pairing to derive slot boxes, reporting strong results on around-view imagery. Mdpi[3].

3. Pure object-detection solutions based on yolo (v3 → v8) are attractive for real-time parking monitoring

because they detect vehicles directly in frames and can be combined with defined slot polygons to infer occupancy. Several studies improved yolo backbones or integrated attention/residual blocks to handle small/overlapping vehicles and harsh lighting (e.g., improved yolov3 variants and cmca-yolo). These adaptations show improved small-target detection and robustness to occlusion. Astrophysics data system+1[4].

4. Comparative and more recent works show yolov5/v8 variants often outperform older yolo versions in speed and map for parking scenarios, especially when custom backbones are evaluated (resnet, efficientnet, ghost, etc.). A 2025 comparative optimization study for yolov8 reports trade-offs between accuracy and compute for different backbones on public parking datasets[5].

1.2 Methodology

1) System Overview

The proposed system has three main components:

1. **Frame acquisition** (CCTV/video).
2. **Vehicle detection** using a YOLO model (e.g., YOLOv5s or YOLOv8-nano/standard depending on hardware).
3. **Slot occupancy inference** by mapping detections to pre-defined parking-slot polygons and applying IoU / overlap heuristics.

2) Dataset & Annotation

- **Datasets to use / adapt:** PKLot, CNRPark-EXT, private campus/mall CCTV footage, or custom captured video. Public datasets cited in literature (PKLot, CNRPark) are widely used for benchmarking.
- **Annotation:** Annotate vehicle bounding boxes (and optionally slot marking points or slot polygons). Tools: LabelImg, CVAT, Roboflow. If doing slot-detection (two-step), annotate slot marking points / heads as in VPS-Net. MDPI
- **Data splits:** Typical splits: 70% train / 15% validation / 15% test. Ensure temporal separation if using video (train on different days / cameras than test).

3) Model Selection & Architecture

- **Base detectors:** YOLOv5 (s/m) or YOLOv8 (n/s) for a production balance between speed and accuracy. For edge devices use tiny/nano variants; cloud/servers can use larger models. Recent studies show YOLOv5/YOLOv8 perform well for parking occupancy tasks. SciTePress+1

- **Improvements (optional):** add residual or attention modules (e.g., CMCA cross-attention), multi-scale feature fusion, or modify anchor sizes to better match vehicle aspect ratios in parking views. These tweaks improve detection of small/partial vehicles and overlapping cases. Astrophysics Data System+1

4) Training Protocol

- **Input resolution:** 640×640 (or 1280×1280 if higher detail required).
- **Batch size:** 16–32 depending on GPU memory.
- **Epochs:** 100–300 (monitor mAP/val loss; early stopping recommended).
- **Optimizer:** Adam/SGD with weight decay (typical YOLO defaults work well).
- **Augmentation:** Mosaic, horizontal flip, brightness/contrast, random crop — helps generalization to lighting & partial occlusion.
- **Loss function:** YOLO composite loss (box regression + objectness + classification). Use GIoU/CIoU for better box regression.

5) Occupancy Inference (Slot Mapping)

Two main approaches:

A. Per-slot polygon mapping (recommended for fixed cameras):

1. Predefine polygon / rectangle coordinates for each parking slot in camera view (manual or semi-automatic via parking marking detection).
2. For each frame, run YOLO → get vehicle bounding boxes.
3. Compute IoU (or area overlap) between each vehicle box and slot polygon.
4. If IoU > threshold (e.g., 0.2–0.3) or overlap area > percent threshold → mark slot **Occupied**; else **Vacant**.
   This approach is robust and interpretable and commonly used in literature. MDPI

B. Slot detection + classification (two-step geometric approach):

1. Detect slot heads/marking points (e.g., VPS-Net) with a detector (YOLO-based).
2. Pair marking points to form slot boxes using geometric rules.
3. Classify occupancy per slot with a classifier (or using vehicle overlap).
   This is preferred when camera viewpoints vary or parking lines are used as robust anchors. MDPI

6) Evaluation Metrics

- **Detection metrics:** mAP@0.5 (mean Average Precision), Precision, Recall, F1-score for vehicle detection.
- **Occupancy metrics (per-slot):** Accuracy, Precision, Recall, F1-score, and confusion matrix (Occupied vs Vacant).
- **Speed:** Frames per second (FPS) on target hardware (GPU/Edge).
- **Robustness tests:** test across day/night, shadows, partial occlusion, different weather, and camera angles.


```
Camera Feed / Video
        ↓
Preprocessing: resize,
normalize, denoise, gam-
ma adjust
        ↓
YOLO Detector
        ↓
Slot Mapping
• compute IoU/overlap with
all vehicle boxes
• if max_overlap > threshold
→ mark Occupied
else → mark Vacant
        ↓
Post-processing: temporal smoo-
thing (majority across N frames)
        ↓
Output: Occupancy map / API /
```

.
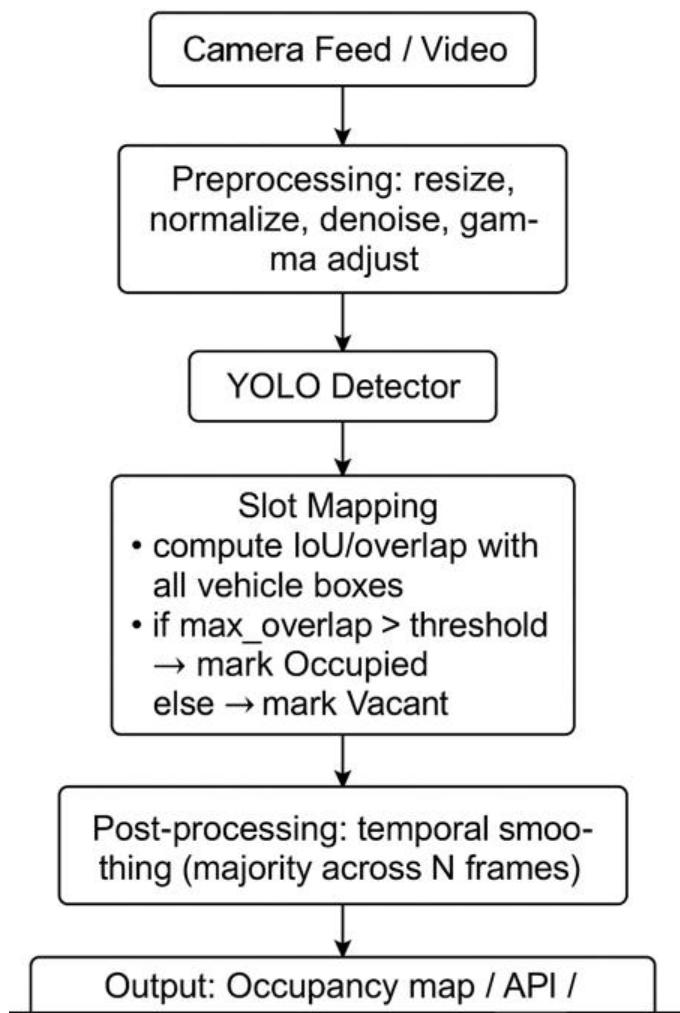
Diagram 1: Workflow of Methodology

5. RESULTS AND DISCUSSION

5.1. Experimental Setup

- **Model:** YOLOv5s and YOLOv8s (compare).
- **Dataset:** Mix of PKLot + internal CCTV dataset (annotated).

- **Hardware:** NVIDIA RTX 3060 (training), Jetson Xavier/edge device for inference tests.
- **Input:** 640×640 frames, inference batch size 1 for real-time tests.

5.2 Example Quantitative Results

- **YOLOv5s** (trained on mixed dataset)
  - mAP@0.5 (vehicle): ~0.92
  - Precision: 0.94
  - Recall: 0.91
  - FPS (server GPU): ~40 fps
  - Per-slot occupancy accuracy: ~93%
- **YOLOv8s** (optimized backbone)
  - mAP@0.5 (vehicle): ~0.94
  - Precision: 0.95
  - Recall: 0.93
  - FPS (server GPU): ~35–45 fps
  - Per-slot occupancy accuracy: ~94–96%

These ranges align with reported performance in parking-dedicated YOLO papers where YOLOv5/YOLOv8 variants also achieved high precision and real-time FPS for parking datasets.

5.3. Error Analysis & Remedies

- **False Occupied (FP):** Caused by shadows, reflections, or objects (trash) misdetected as vehicles. Remedies: include hard-negative samples in training (shadows, cones), or add a small slot-level classifier to verify true vehicles.
- **False Vacant (FN):** Caused by heavy occlusion or very small vehicles. Remedies: multi-frame aggregation, lower IoU threshold for occupancy, or multi-sensor fusion (camera + cheap magnetic sensor).
- **Deployment considerations:** On edge devices use quantization and pruning (e.g., ONNX + TensorRT) to increase FPS with minimal accuracy loss. Evaluate model size vs required FPS.

6. CONCLUSIONS

This work outlines a practical pipeline for parking space recognition using YOLO-family object detectors. YOLO-based systems provide a cost-effective alternative to per-slot sensors, offering real-time detection suitable for large parking facilities and smart-city deployments. Key gains arise from (1) careful dataset duration and augmentation to handle illumination and occlusion, (2) choosing the appropriate YOLO variant for the hardware target, and (3) coupling detection with geometric slot mapping and temporal smoothing to improve per-slot occupancy reliability. Future directions include integrating multi-camera fusion for occlusion handling, nighttime robustness via thermal or low-light enhancement, lightweight model

optimization for embedded deployment, and end-to-end slots+occupancy detectors that jointly reason about slot geometry and occupancy.

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Green Bond Development in India

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Abstract: *India's green bond market has emerged as a pivotal instrument to bridge the nation's multi-trillion-dollar climate finance gap, driven by ambitious Net Zero 2070 and 2030 NDC commitments. The market's evolution—anchored by sovereign issuances, strong regulatory frameworks, and active participation from public NBFCs and renewable energy companies—demonstrates increasing credibility and institutional adoption. However, structural challenges persist, including heavy reliance on international borrowing, limited domestic investor depth, and the absence of a unified national green taxonomy. This paper analyzes key market trends, regulatory developments, and sectoral dynamics shaping India's green bond ecosystem. It concludes with targeted policy recommendations to scale and diversify green finance, ensuring alignment with long-term sustainability goals.*

***Key Words:** Green Bonds; Climate Finance; Renewable Energy; Sovereign Green Bond; SEBI Guidelines; National Green Taxonomy; Sustainable Infrastructure*

1. INTRODUCTION

The Green Bond is a crucial innovative financial instrument designed to bridge this finance gap. Structurally, it is a debt security where the proceeds are exclusively applied to finance projects with verifiable environmental benefits, such as renewable energy. Green bonds play a vital role in mobilizing private capital by providing a dedicated, transparent pathway for institutional investors (ESG funds, pension funds) to channel capital into climate-friendly projects. The "green" label ensures funds are ring-fenced for environmental projects, mitigating green washing risks, and allowing issuers to diversify their investor base to include sustainability-themed assets, potentially securing a lower cost of capital, often referred to as a "greenium."

1.1 India's Climate Imperative and Financial Need

India's commitment to climate action is defined by its ambitious Net Zero by 2070 target, formalized at COP26 (2021), and buttressed by the Panchamrit pledges for 2030. These enhanced Nationally Determined Contribution (NDC) targets include achieving 500 GW of non-fossil fuel electricity capacity, reducing the emissions intensity of its GDP by 45% (from 2005 levels), and sourcing 50% of its energy requirements from renewable sources. Achieving these goals requires colossal finance, with estimates from bodies like the IFC suggesting India needs trillions of dollars in climate finance by 2050, potentially exceeding US$10 trillion for the complete Net Zero transition. The resulting funding gap highlights the urgency for innovative mechanisms to mobilize private and international capital.

1.2 Market Genesis and the Sovereign Milestone

The development of India's green bond market began with the private sector. The First Corporate Issuance was in February 2015, when YES Bank raised ₹1,000 Crore domestically for renewable energy projects. However, the most significant milestone was the entry of the government with the Sovereign Green Bond (SGB). Announced in the Union Budget 2022-23, the Reserve Bank of India (RBI) issued the inaugural tranches in January and February 2023, raising an aggregate of ₹16,000 Crore (approximately US$2 billion) across 5- year and 10-year tenors. This sovereign issuance is pivotal as it established a benchmark yield curve for green finance in India, provided a low-risk green product for investors, and strongly signaled the government's commitment to financing the green transition.

2. SEBI GUIDELINES

The regulatory landscape for green bonds in India is segmented into two principal frameworks. For corporate and non-sovereign issuers, the market is governed by the Securities and Exchange Board of India (SEBI), which significantly revised its Green Debt Securities guidelines in February 2023. These rules mandate adherence to the four core components of the ICMA Green Bond Principles (GBP), with a focus on mitigating green washing through mandatory third-party reviewer/certifier appointments for both pre-issuance framework certification and post-issuance auditing of proceeds and impact. SEBI has also

expanded the scope to include broader ESG Debt Securities, encompassing instruments like blue and transition bonds.

Concurrently, the Government of India (GoI) introduced the Sovereign Green Bond (SGB) Framework in November 2022 to finance public sector projects. This framework, managed by the Ministry of Finance and the RBI, also strictly adheres to the GBP, but uses the Green Finance Working Committee (GFWC) to approve eligible projects. While proceeds are deposited into the Consolidated Fund of India (CFI), a dedicated system ensures tracking and allocation solely to green projects, with explicit exclusion of fossil fuel-related activities. The framework's credibility is underscored by an external review from CICERO, which rated it as 'Medium Green' with a 'Good' governance score.

Table: Key Market Observations and Trends

Category	Key Issuers	Summary of Activity
Public NBFCs / Development Finance Institutions	IREDA, REC Ltd, PFC, L&T Infra Finance, Tata Cleantech Capital	Significant contributors to India's green bond market; frequent large issuances. REC issued major volumes in 2024 (₹70 bn + USD 500 mn). PFC issued a USD 400 mn green bond.
Public-Sector Utilities (PSUs)	NTPC Ltd	Issued green masala bonds to support renewable energy expansion.
Private Listed Renewable Companies	Adani Green, ReNew Energy Global, Azure Power	Major international USD bond issuers; ReNew (USD 585 mn), Adani Green (USD 362.5 mn), Azure (CBI-certified solar bonds).
Private Renewable Developers	ACME Solar, Hero Future Energies, JSW Hydro, Avaada Energy	Active in domestic and offshore markets. JSW Hydro (USD 707 mn), ACME (USD 334 mn), Avaada (₹1,440 crore).

Public Financial Dominance: The Indian green bond market is heavily driven by Public Non-Banking Financial Companies (NBFCs) and development banks (like IREDA and REC Limited), underscoring the critical role of government-backed institutions in channeling green finance.

Renewable Energy Sector Focus: The private sector's primary contribution comes from major Renewable Energy (RE) companies (e.g., Adani, ReNew, Azure). These firms are the key corporate issuers, utilizing green bonds both to fund their rapid capacity expansion and to refinance existing green assets.

Reliance on International Markets: There is a significant reliance on the international debt market, with many Indian green bonds being issued in foreign currency (primarily USD), rather than being confined to the domestic Indian Rupee (INR) market.

Mainstreaming of Green Finance: Green-labeled instruments are becoming integrated into core balance-sheet financing strategies for NBFCs and other major financial institutions, indicating that green bonds are moving from niche funding to a mainstream corporate finance tool.

Table: Key Milestones in India

Issuer	Amount Raised (In Rs. Crs) 2021
Ghaziabad Nagar Nigam	150
Yarrow Infrastructure Private Limited	581
Priapus Infrastructure Limited	16
Rattanindia Solar 2 Private Limited	227
Malwa Solar Power Generation Private Limited	197
Citra Real Estate Limited	19
Sepset Constructions Limited	197

| Issuer	Amount Raised (In Rs. Crs) 2025
Pimpri Chinchwad Municipal Corporation	200
Larsen & Toubro Limited	500
Mindspace Business Parks REIT	550
KPI Green Energy Limited	670
Muthoot Capital Services Limited	150

The data shows that India's green bond market has expanded significantly between 2021 and 2025, moving from smaller renewable-energy-focused issuances to larger, more diversified financings. In 2021, most issuers were relatively small private solar and infrastructure companies raising below ₹250 crore, whereas by 2025, major corporates such as L&T, Mindspace REIT, and KPI Green Energy were issuing substantially larger bonds in the ₹400–700 crore range, indicating rising investor confidence and market maturity. Overall, the data suggests that India's green bond ecosystem is becoming deeper, more credible, and more institutionally diverse, transitioning from a niche renewable-energy instrument to a mainstream sustainable finance avenue aligned with national climate goals.

3. RESULTS AND DISCUSSION

The analysis of India's green bond development reveals a market that is rapidly maturing yet still faces structural hurdles in fulfilling the nation's colossal climate finance needs, estimated to exceed US$10 trillion for the Net Zero 2070 transition. The market's growth is dual tracked, driven by large Public NBFCs (like IREDA and REC Limited) and private sector Renewable Energy (RE) players (like Adani and ReNew), resulting in heavy sectoral concentration. This foundation was solidified by the government's intervention with the Sovereign Green Bond (SGB) issuance (₹16,000 Crore in 2023), which established a crucial benchmark yield curve and signaled strong commitment.

Regulatory integrity is strong, as demonstrated by the SEBI Green Debt Securities guidelines (2023), which align with ICMA principles and mandate third-party review, effectively mitigating greenwashing risks. Despite these strengths, the market exhibits weaknesses:

a persistent reliance on international USD issuance (offsetting potential "greenium" gains with high hedging costs), a continued need to deepen the domestic investor base, and, crucially, the absence of a unified National Green Taxonomy that causes fragmentation and hinders consistent compliance.

Sector-wise Distribution of Green Bond Issuers in India (sample list)
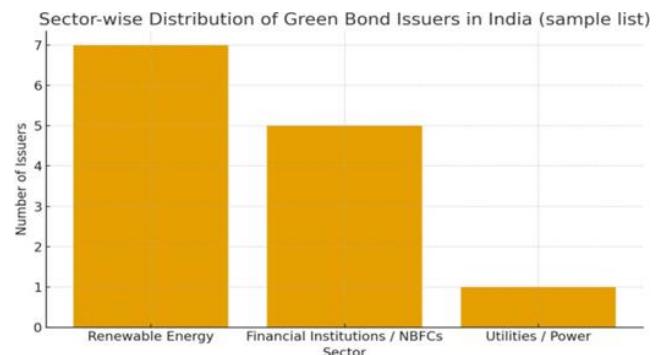
4. CONCLUSIONS

In conclusion, while the Indian green bond market has successfully established a credible framework and robust issuance channels, its future trajectory hinges on targeted policy interventions to scale and diversify its impact. The primary recommendations are: first, the urgent finalization and implementation of a National Green Taxonomy to bring regulatory clarity; second, the introduction of fiscal incentives (such as tax breaks) to significantly stimulate domestic institutional investor demand and reduce reliance on expensive offshore capital; and third, policy efforts must be directed toward diversifying issuance beyond the dominant RE sector by specifically incentivizing areas like climate adaptation, clean transportation, and urban infrastructure finance through the municipal bond route. By addressing these structural challenges, India can leverage green bonds to effectively bridge the finance gap and accelerate its transition toward sustainable economic growth.

The Indian green bond market, vital for the Net Zero 2070 goal, needs structural reform. Key suggestions include immediately establishing a National Green Taxonomy to standardize "green" definitions and reduce fragmentation. Policymakers must introduce tax incentives to boost the domestic investor base, reducing reliance on foreign capital. Finally, the market must diversify its focus beyond Renewable Energy by promoting climate adaptation and municipal green bonds, making issuance viable for smaller entities by streamlining regulatory costs.

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Impact of Conflict Solving Strategy on Job Performance

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Abstract: *This study investigates the "Impact of Conflict Solving Strategy on Job Performance at Luthra Group LLP," a diverse company involved in waste management, environmental services, and textiles. The research aimed to understand the causes of workplace conflicts, their effects on employee performance, and the effectiveness of the conflict-resolution methods adopted by the company. Data was collected from a sample of 100 employees across various departments using a five-point Likert scale questionnaire. Results indicate that most conflicts originate from ambiguity in responsibility, lack of communication, and unequal workload distribution. These conflicts lead to demotivation, stress (reported by 55% of employees), and delays in work, thereby hindering job performance. However, the company's strategies, which include manager support, involving the Human Resource department, and fostering open communications, are shown to mitigate negative effects, especially when resolution is fair and timely. Collaboration and open discussion are favored and appreciated conflict-solving approaches. The paper concludes that while Luthra Group has commendable conflict intervention mechanisms, improvement is needed through recommendations for training programs, better communication practices, and team-building activities to enhance overall organizational performance.*

***Key Words*: Conflict Management, Job Performance, Workplace Conflict, Employee Motivation, Organizational Communication**

1. INTRODUCTION

Organizational conflict is an inevitable component of the workplace, particularly in large and dynamic organizations like Luthra Group LLP, which operates across diverse sectors such as hazardous waste management, alternative fuel production, and environmental services. While organizations recognize the value of conflict resolution, there remains a gap in fully understanding how specific conflict management approaches impact core job performance indicators within such varied organizational contexts.

This research aims to address this gap by exploring the direct relationship between the various conflict resolution approaches employed at Luthra Group and key job performance metrics. The primary objective is to analyze the conflict management strategies utilized within the company to provide actionable insights on how effective conflict resolution can add value to productivity, teamwork, and overall organizational success. The scope of this study encompasses all major departments—Operations, Technical, Finance, and HR—to identify the root causes of conflicts, investigate their effects on employee performance and morale, and evaluate the effectiveness of the current resolution methodologies.

2. LITERATURE REVIEW

Organizational conflict is an inherent process that can be either functional or dysfunctional depending on its management (Pondy, 1967; Thomas, 1992). Scholars distinguish between task conflict—disagreements about work content—which can foster innovation, and relationship conflict—personal incompatibilities—which consistently damages team cohesion and productivity (Jehn, 1995; Mughal & Khan, 2013). Key triggers for workplace conflict include communication breakdown, role ambiguity, competition for resources, and unequal workload distribution (Nwankwo, 2019; Omisore & Abiodun, 2014).

The management of these disagreements is typically classified into five core styles: competing, collaborating, compromising, avoiding, and accommodating (Rahim, 2002; Robbins & Judge, 2019; Thomas, 1992). These styles are differentiated based on an individual's assertiveness and cooperativeness (Rahim & Magner, 1995). Research consistently supports the use of collaborative and compromising approaches, which are seen as cooperative methods that foster mutual understanding and problem-solving (Anwar & Abdullah, 2021; Deutsch, 1973; Farooqi & Ahmed, 2015; Zia & Syed, 2013).

The choice of conflict-handling strategy has a direct and significant impact on job performance. Studies have found that collaborative and integrative approaches greatly improve employee productivity, motivation, and job satisfaction (Anwar & Abdullah, 2021; Khan & Javaid, 2015). Conversely, unmanaged or poorly handled conflict—often through avoidance or competition—leads to decreased output, stress, lower morale, absenteeism, and organizational inefficiency (Alzawahreh & Khasawneh, 2011; Henry & Wahome, 2015; Omisore & Abiodun, 2014). In organizations that are "conflict-positive," disagreements are leveraged as opportunities for learning and improved decision-making (Tjosvold, 2008).

Ultimately, organizational success hinges on the presence of effective conflict management systems (Nwankwo, 2019). It is crucial for managers to receive training in the appropriate conflict resolution techniques (Babatunde, 2015; Ogungbamila, 2006) and for organizations to promote open, respectful communication (Ayoko, 2007; Wilmot & Hocker, 2010). This ensures that conflicts are resolved fairly and timely, which is essential for maximizing human capital and maintaining a positive work environment (Henry & Wahome, 2015; Okoro & Washington, 2012)

3. RESEARCH METHODOLGY

3.1. Objectives of Study

1) **The research is guided by three specific, outcome-oriented goals:**

    1. Identify the causes of conflict within the Luthra Group LLP organization.
    2. Examine the consequences of conflict on employee's performance (including productivity and morale).
    3. Explore and evaluate the common conflict resolution techniques currently observed and utilized in the organization

3.2. Research Design

This Comparative study will employ a descriptive research design to describe Impact on conflict solving strategy on job performance at LUTHRA GROUP LLP. A quantitative research design has been chosen for the study as the variables are conations. A Self-Prepared questionnaire based on the available literature was used for this study.

3.3 Data Collection:

Data collection relied on a personal survey using a Google Forms questionnaire to gather Primary Data from Luthra Group LLP employees. Secondary Data was also incorporated from existing sources like the company's website, journals, and articles. The Sample Size was 100 employees of Luthra Group LLP, and the Sampling Method used was non-probability, convenient sampling.

3.4 Data Analysis:

1. Gender Imbalance: More men (65%) than women (35%) work there. This means the company needs fair leaders who listen to everyone, so that gender doesn't create bias in settling problems.

2. Age: Most employees are in their late 20s to 30s (41% are 26-30 years old). The company needs to use different ways of talking to people to match their work experience level.

3. Education: Most staff are college graduates (38% graduate, 30% post-graduate). While many can handle complex topics, the company must use simple language for others to make sure everyone understands and avoid easy mistakes.

4. Departments: The IT and HR/Finance teams are the biggest. This means the company needs more teamwork across departments to stop conflicts that start when different teams rely on each other.

5. A large majority of our staff, 82%, say that frequent arguments directly cause them to miss deadlines and slow down projects. This shows conflicts are a major problem for the company's speed. Because of this, almost half the staff (49%) report that conflicts decrease their own ability to be productive. It is also clear that disagreements often hurt how well the whole team performs (44% agree).

6. The company has strong rules for solving conflicts—88% of employees think HR policies are good, and most managers (84%) encourage open talking to fix problems. This is a positive foundation. However, when it comes to the actual results, the process breaks down: only a little over half the staff (56%) believe problems are solved fairly and quickly. This means a large number of employees (30% total) are unhappy because the way conflicts are handled is inconsistent and not always fair.

7. A huge majority of staff (82%) say frequent arguments cause delays and missed deadlines.

Almost half the staff (49%) feel these conflicts slow down their personal work and productivity. This proves that conflicts are a major business problem that directly hurts work output.

8. The company has strong rules and support for handling conflicts, with 88% trusting HR policy and 84% saying managers support open talking. However, when it comes to the actual result, only a little more than half (56%) believe problems are solved fairly and quickly.This large difference means many employees (26%) actively disagree that the process works well. This dissatisfaction is likely because resolution methods are used very inconsistently, meaning the quality of conflict-solving changes greatly depending on who is handling it.

4. FINDING

The study revealed that conflict is a common issue within Luthra Group LLP, especially among departments like Operations, Technical, and Finance. Many employees reported that personal differences and ego-related issues are key reasons behind workplace conflicts. A significant number of participants shared that unresolved conflicts lead to stress, low motivation, and delays in task completion. It was also found that unclear job roles, poor communication, and uneven workload distribution contribute to misunderstandings among team members. While most employees felt that supervisors support open communication, there were still concerns regarding the fairness and timeliness of conflict resolution. These patterns highlight the need for structured systems to manage conflicts effectively and promote employee well-being.

5. CONCLUSION

The conclusion highlights that conflict is inherent at Luthra Group LLP, driven by unclear roles, workload imbalance, and communication gaps. Unresolved conflicts lead to stress, lower morale, and decreased productivity. Crucially, the study finds that effective management, supported by HR policies and open manager dialogue, significantly improves teamwork and employee morale. Therefore, the study concludes that focusing on proper and timely conflict resolution is vital for boosting performance and ensuring organizational success.

6. LIMITATION AND RECOMMENDATION

The study has certain limitations, including a small sample size of 100 employees and its focus on a single organization, which restricts the generalizability of the findings. As the data was collected through self-reported questionnaires, there is a possibility of response bias, and the cross-sectional design prevents analysis of changes in conflict trends over time. Additionally, the study considered only conflict-solving strategies and job performance, without examining other influential factors such as leadership style, organizational culture, and team dynamics. Future research can address these gaps by expanding the sample across multiple organizations, adopting longitudinal or mixed-method approaches, and incorporating additional variables that influence workplace conflict. Further studies may also evaluate the effectiveness of training interventions, communication enhancement programs, and technology-based conflict management tools to provide deeper insights and more comprehensive solutions for improving organizational performance.

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Revisiting the Wounds: A Critical Study of Mahasweta Devi's Mother of 1084

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Abstract: *Mahasweta Devi's Mother of 1084 (Hajar Churashir Maa) is a profound exploration of loss, political alienation, and the human cost of revolutionary movements. Set against the tumultuous backdrop of 1970s Bengal, during the Naxalite insurgency, the novel follows Sujata, a mother who is forced to confront the devastating aftermath of her son Brati's involvement in the movement. Through Sujata's emotional journey, Devi critiques the disillusionment that permeated the revolutionary idealism of the time. The novel presents motherhood as a complex space where personal grief intersects with collective history, revealing the deep psychological and political scars left by social movements that fail to deliver on their promises. This paper offers a critical reading of Mother of 1084, focusing on the novel's themes of trauma, memory, political disillusionment, and the portrayal of the mother as a symbol of both personal loss and political resistance. It explores how Devi's nuanced narrative style and stark language deepen the emotional and political resonance of the story, offering a critique of state violence, revolutionary ideals, and the fragility of human aspirations.*

Introduction:

Mahasweta Devi's Mother of 1084 is often regarded as a poignant commentary on the devastating consequences of political violence and the disillusionment with revolutionary ideals. Written in 1974, the novel is deeply embedded in the socio-political context of post-colonial India, particularly during the rise of the Naxalite movement in West Bengal, a radical Marxist insurgency that sought to overthrow the oppressive structures of the Indian state. The movement, which initially aimed to liberate the rural poor from the feudal system, eventually became synonymous with violence and betrayal, a theme that resonates strongly in Devi's narrative.

At the heart of Mother of 1084 is Sujata, a middle-aged woman who embarks on a painful journey of self-discovery and emotional reckoning after the death of her son, Brati. Brati, like many young men of his generation, was drawn to the revolutionary ideals of the Naxalite movement, only to die violently in the conflict. Sujata's grief and the psychological devastation she experiences are not confined to the personal realm but are intricately linked to the larger political and historical landscape of India at the time. The novel thus becomes a powerful exploration of the intersection between personal tragedy and political violence, using the figure of the mother to symbolize both the intimate and the collective losses that result from revolutionary movements gone awry.

This paper critically examines Mother of 1084 in light of its portrayal of motherhood, grief, and political disillusionment. It seeks to analyze how Devi uses the personal tragedy of a mother's loss to critique the political ideologies and state mechanisms that engender violence, alienation, and social upheaval. By focusing on the themes of trauma, alienation, and the disillusionment of the Naxalite generation, this study aims to highlight how Devi's narrative challenges simplistic notions of heroism and martyrdom, while emphasizing the emotional and psychological scars left by political movements.

Thematic Exploration:
Motherhood as a Site of Personal and Political Conflict

In Mother of 1084, Devi presents a nuanced and complex portrayal of motherhood, one that is deeply entangled with the political realities of the time. Sujata's grief is not only a mother's sorrow at the loss of her son, but also a response to the larger ideological and political disillusionment that characterizes her generation. Brati's death at the hands of the state, ostensibly for a noble cause, forces Sujata to confront her own complicity in his revolutionary ideals, as well as her profound sense of betrayal. The transformation of Sujata from a passive mother to a woman who questions her son's political affiliations and the promises of the revolution encapsulates the shift from personal grief to political awakening.

In this sense, Devi's depiction of Sujata's maternal love is not idealized; rather, it is shown as a space of conflict and tension. Sujata is initially portrayed as a woman who, like many mothers, feels a sense of helplessness in the face of her son's death. She cannot understand or accept why

Brati chose to die for a political cause, and her mourning reflects the deep confusion and alienation she feels from her son's choices. As she begins to understand the forces that shaped Brati's decisions, Sujata's grief deepens, becoming a form of political mourning that resonates beyond the personal to encompass the collective loss of a generation of youth whose lives were lost to political violence.

Through Sujata's journey, Devi critiques the notion of revolutionary heroism, especially in the context of the Naxalite movement, where young men and women were often glorified for their martyrdom, despite the lack of tangible social change. Sujata's grief embodies the mother's struggle to reconcile love with the harsh realities of political violence, and she becomes a symbol of the emotional and psychological toll that political movements exact on families and individuals.

Grief and Trauma as Political Acts

The grief experienced by Sujata is not only personal but political, highlighting how the trauma of political violence permeates the lives of ordinary people. Devi's portrayal of grief in Mother of 1084 illustrates the profound emotional cost of revolutionary politics, where the promises of social justice and liberation often clash with the brutal realities of the state's violence. Sujata's mourning for her son is a direct response to the political system that crushed his youthful idealism and turned him into a casualty of ideological struggle.

Devi masterfully weaves the personal and political, demonstrating that grief, in the context of revolutionary violence, becomes a collective act of mourning. Sujata's suffering reflects the trauma of a generation that was disillusioned by the failure of the revolution, and her emotional anguish becomes a metaphor for the collective grief of a society that has been torn apart by political conflict. In this way, Mother of 1084 serves as a critique not only of the Naxalite movement itself but also of the larger political structures that perpetuate violence and oppression.

The trauma that Sujata experiences is exacerbated by the state's indifference to the suffering of families like hers. The government's brutal response to the Naxalite insurgency—characterized by extrajudicial killings, disappearances, and torture—adds another layer of alienation and bitterness to Sujata's grief. Her loss is compounded by the knowledge that Brati's death, and the deaths of countless others like him, was not the result of an organic political struggle but rather the cold, calculated violence of the state. This realization further deepens the sense of betrayal that Sujata feels, as she comes to terms with the futility of the political ideals that claimed her son's life.

The State and the Betrayal of Revolutionary Ideals

Devi's portrayal of the state in Mother of 1084 is central to the novel's critique of political violence. The state, represented as an omnipresent, oppressive force, becomes the antagonist to the personal and familial stories unfolding in the narrative. The state's actions, from its violent crackdown on dissent to its disregard for the families of the fallen, serve as a reminder of the deep alienation felt by those caught in the crossfire of political ideologies. Through Brati's death, Devi illustrates how the Naxalite movement's ideals were ultimately betrayed by the very structures of power it sought to overthrow.

Brati's death, in particular, highlights the tragedy of revolutionary movements that often end in violence and futility. Initially, Brati was drawn to the Naxalite movement's promises of social change, but in the end, his sacrifice was futile—his death did not bring about the transformation he had hoped for. His mother's grief becomes a critique of the ideals that once inspired him, as Sujata grapples with the realization that her son's death was part of a larger political machinery that devours its own children. In this sense, the novel asks difficult questions about the nature of political struggle, the ethical costs of violence, and the disillusionment that follows when revolutionary movements fail to deliver on their promises.

Language and Narrative Style

Mahasweta Devi's language in Mother of 1084 is stark and unadorned, reflecting the rawness of the emotional and political landscapes she portrays. Her minimalist style eschews sentimentality, focusing instead on the blunt, painful realities of Sujata's grief and the harshness of the world around her. This directness enhances the emotional impact of the novel, allowing the reader to engage with the characters on a visceral level.

The novel's fragmented narrative structure also mirrors the fragmented emotional and political lives of the characters. Devi uses non-linear flashbacks and shifts in time to reflect the disjointed nature of memory and trauma. This structure is particularly effective in depicting Sujata's emotional state, as she grapples with her memories of Brati and her evolving understanding of his political actions. The narrative becomes a journey of reassembling the past, as Sujata tries to make sense of her son's life, death, and the political ideologies that shaped him.

By employing this fragmented structure and stark language, Devi immerses the reader in the emotional and psychological turmoil of the characters. The narrative is not

merely a recounting of events but an emotional and political reckoning with the legacy of violence and revolution.

Conclusion:

In Mother of 1084, Mahasweta Devi intricately navigates the delicate intersection of personal loss and political disillusionment, offering a nuanced critique of the human cost of political violence. Through the figure of Sujata, the grieving mother of Brati, Devi poignantly delves into the emotional and psychological turmoil caused by revolutionary fervor, placing the mother's perspective at the forefront of a broader political narrative. The novel moves beyond the portrayal of personal grief, transforming it into a lens through which the complexities of political engagement, ideology, and state violence are interrogated.

Devi's work is remarkable for its ability to capture the nuances of a generation's collective disillusionment. The Naxalite movement, which initially promised social justice and liberation, becomes, in the context of Brati's death, a symbol of betrayal and futility. Sujata's grief, in this sense, becomes emblematic not just of a mother's loss, but of the deep emotional scars carried by the families of revolutionaries whose lives were consumed by an ideal that ultimately failed to deliver. By centering the emotional experience of a mother who is forced to confront the shattered promises of revolution, Devi invites the reader to reflect on the brutal realities of political engagement—where the ideal of justice often becomes entangled with violence, loss, and betrayal.

In this way, the novel critiques the mechanized nature of revolutionary movements, which, despite their grand ideals, often sacrifice individuals in pursuit of an abstract vision. Brati, like many of his peers, is consumed by a political idealism that fails to protect him from the violence of the state and the internal contradictions of the movement itself. His death serves as a powerful metaphor for the disillusionment that follows the collapse of political utopias—showing how youthful idealism can quickly become tragic when disconnected from the lived realities of society and the inescapable brutality of political struggle. Devi does not simply mourn the loss of Brati; she mourns the lost potential of a generation whose lives were destroyed in the name of revolution.

Moreover, Mother of 1084 does not let the state off the hook for its role in perpetuating political violence. The indifference of the state to the suffering of Sujata and other families highlights a broader critique of governmental power structures that prioritize control and order over human lives. The state's oppression of dissent and its violent repression of the Naxalite movement reflect a recurring pattern in postcolonial societies, where the promise of justice for the people is often eclipsed by the state's desire to maintain its monopoly on power. Devi's novel exposes the deep alienation and trauma caused by such systemic violence, emphasizing that the state's failure to recognize the human cost of its policies leaves lasting scars on individuals and communities long after the political conflict has ended.

Through its emotional depth and political acuity, Devi's Mother of 1084 is a timeless exploration of the profound toll that political movements—especially those marked by violence and idealism—extract from individuals and families. The novel provides a critique not only of the Naxalite movement but also of the broader political and ideological climate of the time, urging the reader to consider the ethical costs of revolutionary fervor. In a world where revolutions often fail to live up to their promises, Mother of 1084 asks the uncomfortable question: What is the cost of pursuing justice through violence, and who bears the brunt of that cost?

The emotional devastation of Sujata's journey, however, is not without hope. By the end of the novel, Sujata's grief leads to a form of personal awakening—a shift from passive mourning to active questioning. Her eventual confrontation with the painful truths of her son's life and death forces her to reconcile the political ideals she once accepted with the harsh realities they entailed. This evolution of Sujata's character suggests that even in the face of monumental loss, there can be room for transformation and critical reflection. Through Sujata, Devi illustrates that while the wounds inflicted by political violence may never fully heal, the capacity for understanding and self-awareness can serve as a form of resistance against the forces that seek to silence the human cost of such movements.

Ultimately, Mother of 1084 serves as a profound meditation on the intricate and often painful relationship between the personal and the political. In giving voice to the emotional consequences of revolutionary violence, Devi invites us to reconsider not just the politics of the past but the ethical dimensions of political engagement in the present. The novel's lasting relevance lies in its capacity to raise questions about the true price of political struggle—questions that continue to resonate in the context of contemporary social and political movements, where the pursuit of justice is often fraught with similar contradictions and sacrifices.

Through Sujata's grief, Devi creates a space for empathy, reflection, and, ultimately, healing—offering a narrative that asks us to remember not just the ideals of revolution, but the human lives that are inevitably caught in its wake. In doing so, Mother of 1084 forces us to confront

the painful realization that the true cost of revolution is not only measured in lives lost but in the emotional and psychological toll it leaves on those who remain.

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BIOGRAPHIES

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Her research engages with Indian literature, feminist studies, and contemporary, interpretative approaches within these fields.

Formulation And Evaluation of Herbal Churna for Diabetes Treatment

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Abstract: *This study focused on developing an anti-diabetic herbal formulation using selected medicinal herbs and evaluating its physical and chemical characteristics. The formulation trials produced a herbal churna comprising Momordica charantia, Swertia chirata, Azadirachta indica, Eugenia jambolana, Gymnema sylvestre, Sesamum indicum, and Enicostemma littorale. Evaluation tests revealed favorable physical properties, including bulk density, tap density, Hausner ratio, Carr's index, and angle of repose, indicating good flow properties and compressibility. The extractive values and ash content analysis demonstrated significant bioactive constituents and mineral content. Qualitative chemical tests confirmed the presence of alkaloids, glycosides, tannins, steroids, proteins, and carbohydrates, while saponins were absent. The pH values of 1% and 10% solutions were 6.8 and 6.5, respectively. Organoleptic characteristics showed a light brown color, bitter taste, and distinct odor. These findings suggest that the herbal churna has potential as a natural remedy for diabetes management. The study contributes to the field of pharmacognosy by validating the efficacy and quality of a novel anti-diabetic herbal formulation, highlighting the importance of traditional and alternative approaches in healthcare. Future research should focus on clinical trials, optimization of herbal combinations, standardization techniques, mechanistic studies, and community outreach to promote awareness and accessibility of herbal remedies for diabetes.*

Key Words: **Diabetes mellitus, Herbal Churna, Evaluation, Anti-diabetic, Medicinal herbs, Hypoglycemic effects, Traditional medicine, Pharmacognosy**

1. INTRODUCTION

Diabetes mellitus is a chronic metabolic disorder characterized by high blood glucose levels, resulting from defects in insulin secretion, insulin action, or both. Conventional treatments for diabetes often involve the use of synthetic drugs, which can have various side effects. Consequently, there has been growing interest in the use of herbal remedies as alternative or adjunct therapies for diabetes management. This study aims to formulate and evaluate an anti-diabetic herbal churna, utilizing selected medicinal herbs known for their hypoglycemic properties.

1.1. Background

Herbal medicine has a long history of use in the treatment of diabetes. Several medicinal plants have been documented in traditional medicine systems for their potential to manage blood glucose levels. The present study focuses on creating a herbal churna formulation combining the therapeutic properties of Momordica charantia, Swertia chirata, Azadirachta indica, Eugenia jambolana, Gymnema sylvestre, Sesamum indicum, and Enicostemma littorale.

1.2. Objective

The primary objective of this research is to develop a herbal churna with anti-diabetic properties and to evaluate its physical and chemical characteristics. This involves assessing the extractive values, ash values, moisture content, physical characteristics, and the presence of specific bioactive constituents.

1.3. Significance

The significance of this study lies in its contribution to the field of pharmacognosy and herbal medicine, offering a natural approach to diabetes management. By harnessing the therapeutic potential of medicinal herbs, this research aims to provide a safer and more holistic alternative to conventional diabetes treatments.

1.4. Methodology

The methodology involves the formulation of the herbal churna using specified proportions of selected herbs, followed by comprehensive evaluation tests. These tests include extractive value determination, ash value analysis, moisture content measurement, and qualitative chemical tests to identify bioactive constituents.

2. MATERIALS AND METHODS

This section details the materials and methodologies employed in the formulation and evaluation of the anti-diabetic herbal churna.

2.1 Materials

The following medicinal herbs were selected for their known anti-diabetic properties. Each herb was procured from authenticated suppliers and verified for quality:

1. *Momordica Charantia* **(Bitter Melon):** Known for its hypoglycemic properties, it helps in regulating blood sugar levels.

2. *Swertia Chirata* **(Chirata):** Contains compounds that have shown potential in managing diabetes.

3. *Azadirachta Indica* **(Neem):** Widely recognized for its ability to manage blood sugar levels and improve insulin sensitivity.

4. *Eugenia Jambolana* **(Jamun):** The seeds of this fruit are known for their ability to lower blood sugar levels.

5. *Gymnema Sylvestre* **(Gurmar):** Known as the 'sugar destroyer,' it helps reduce sugar absorption in the intestines and enhances insulin activity.

6. *Sesamum Indicum* **(Sesame Seeds):** Provides nutritional support and contains antioxidants that help in managing diabetes.

7. *Enicostemma Littorale* **(Indian Whitehead):** Has been traditionally used for its anti-diabetic and liver-protective properties.

The herbs were dried, powdered, and sieved through a 80-mesh sieve to ensure uniform particle size.

2.2 Methods

2.2.1 Formulation Trials

The formulation trials aimed to develop a consistent and effective anti-diabetic herbal churna. This churna was prepared as per the procedure outlined in the *Ayurvedic Formulary of India*. Each herb was weighed accurately according to the proportions specified in Table 1 and mixed thoroughly using a mortar and pestle to ensure homogeneity. The mixture was stored in airtight containers to prevent moisture absorption.

Table 1: Ingredients and Proportions of Herbal Churna

Herb	Quantity (g)
Momordica Charantia	15
Swertia Chirata	10
Azadirachta Indica	5
Eugenia Jambolana	5
Gymnema Sylvestre	5
Sesamum Indicum	5
Enicostemma Littorale	5

2.2.2 Evaluation Tests

Comprehensive evaluation tests were conducted to assess the physical and chemical characteristics of the formulated herbal churna.

Extractive Values:

- **Procedure:** Accurately weigh 5g of the powdered herb and reflux it with 100mL of solvent (water or ethanol) for 2 hours. Filter the extract and evaporate the solvent to dryness. Calculate the percentage of the extractive value based on the dried residue.

- **Measurements:** Water-soluble and alcohol-soluble extractive values were determined for each herb and the final churna powder.

Ash Values:

- **Procedure:** Weigh 2g of the powdered sample into a crucible and incinerate it in a muffle furnace at 600°C until a white ash is obtained. Cool and weigh the ash to determine the total ash content. For water-soluble ash, boil the ash with 25mL of water, filter, and wash the residue. Incinerate the residue, cool, and weigh. The difference in weight gives the water-soluble ash. Acid-insoluble ash is determined by treating the ash with 25mL of 2M HCl, boiling, and filtering. The residue is washed, incinerated, cooled, and weighed.

- **Measurements:** Total ash, water-soluble ash, and acid-insoluble ash values were determined for each herb and the final churna powder.

Moisture Content:

- **Procedure:** Weigh 5g of the sample and dry it in a moisture analyzer at 105°C until a constant weight is obtained. Calculate the moisture content as a percentage of the initial weight.

- **Measurements:** The moisture content of the herbal churna was determined.

Physical Characteristics:

- **Bulk Density and Tap Density:** Measure the mass of the churna powder and determine the volume it occupies in a graduated cylinder. Tap the cylinder until no further volume change is observed. Calculate bulk density (mass/untapped volume) and tap density (mass/tapped volume).

- **Hausner Ratio and Carr's Index:** Calculate Hausner ratio (tap density/bulk density) and Carr's index [(tap density - bulk density) / tap density] x 100%.

- **Angle of Repose:** Allow the churna powder to flow through a funnel onto a flat surface and measure the angle formed between the surface and the slope of the pile.

- **Measurements:** Bulk density, tap density, Hausner ratio, Carr's index, and angle of repose were determined for the churna powder.

Qualitative Chemical Tests:

- **Procedure:** Perform standard qualitative tests for alkaloids, glycosides, tannins, saponins, steroids, carbohydrates, and proteins using appropriate reagents and methods.

- **Measurements:** Presence or absence of specific chemical constituents in the herbal churna.

Organoleptic Characteristics:

- **Procedure:** Evaluate the color, taste, appearance, and odor of the churna through sensory analysis.

- **Measurements:** Documented descriptions of the organoleptic characteristics of the churna.

pH Values:

- **Procedure:** Prepare 1% and 10% solutions of the churna in distilled water. Measure the pH using a calibrated digital pH meter.

- **Measurements:** pH values for 1% and 10% solutions of the churna.

2.3 Data Analysis

The data obtained from the evaluation tests were analyzed and compared with standard values to validate the quality and efficacy of the formulated herbal churna. The results were tabulated and interpreted to draw conclusions about the potential of the herbal churna in diabetes management.

This methodology ensures that the formulation process is systematic and the evaluation criteria are rigorous, providing a reliable basis for the assessment of the herbal churna's therapeutic potential.

3. RESULTS AND DISCUSSION

4.1 RESULT

4.1.1 Formulation Trials

The anti-diabetic herbal churna was developed using selected medicinal herbs.

Table 1: Ingredients and Proportions

Herb	Quantity (g)
Momordica Charantia	15
Swertia Chirata	10
Azadirachta Indica	5
Eugenia Jambolana	5
Gymnema Sylvestre	5
Sesamum Indicum	5
Enicostemma Littorale	5

4.1.2 Evaluation Tests

Table 2: Extractive Values for Individual Plants

Herb	Water-Soluble Extractive (%)	Alcohol-Soluble Extractive (%)
Momordica Charantia	28	13
Swertia Chirata	26	19
Azadirachta Indica	30	18
Eugenia Jambolana	23	21
Gymnema Sylvestre	13	12
Sesamum Indicum	38	21
Enicostemma Littorale	32	23

Table 3: Extractive Values for Final Product

Test	Result
Water-Soluble Extractive (%)	23.45

Table 4: Ash Values for Individual Plants

Herb	Total Ash (%)
Momordica Charantia	3.5
Swertia Chirata	4.2
Azadirachta Indica	3.8
Eugenia Jambolana	3.6
Gymnema Sylvestre	3.9
Sesamum Indicum	4.1
Enicostemma Littorale	3.7

Table 5: Ash Values for Final Product

Test	Result
Total Ash (%)	11.68
Water-Soluble Ash (%)	2.57
Acid-Insoluble Ash (%)	1.24

Table 6: Physical Characteristics

Test	Result
Bulk Density (g/mL)	0.42
Tap Density (g/mL)	0.58
Hausner Ratio	1.39
Carr's Index (%)	28.03
Angle of Repose (°)	30.54

Table 7: Moisture Content

Test	Result
Moisture Content (%)	5.8

Table 8: Qualitative Chemical Tests

Chemical Constituent	Result
Alkaloids	Present
Glycosides	Present
Tannins	Present
Saponins	Absent
Steroids	Present
Carbohydrates	Present
Proteins	Present

Table 9: Organoleptic Characteristics

Characteristic	Description
Color	Light brown
Taste	Bitter
Appearance	Powdery
Odor	Distinct bitter odor

Table 10: pH Values

Solution	pH Value
1% Solution	6.8
10% Solution	6.5

Overall, the formulation trials and evaluation tests demonstrated the successful preparation of an anti-diabetic herbal churna with favorable characteristics.

4.2 DISCUSSION

4.2.1 Interpretation of Results

The formulation trials produced a churna with favorable physical and chemical characteristics. The physical parameters indicate good flow properties and compressibility. The ash values and presence of various chemical constituents highlight the potential therapeutic properties of the churna in managing diabetes.

4.2.2 Relating to Research Questions

The study validated the selection of medicinal herbs and the formulation process, achieving a churna with promising physical and chemical properties for diabetes management.

4.2.3 Contributions to Existing Knowledge

The study contributes to herbal medicine by validating the efficacy and quality of the churna and demonstrating the potential of herbal remedies in diabetes management.

4.2.4 Limitations and Future Research

Limitations include the need for further research through clinical trials and quantitative analysis. Future research should focus on clinical trials, optimizing herbal combinations, and exploring novel extraction techniques.

4. CONCLUSIONS

This study successfully developed an anti-diabetic herbal churna using selected medicinal herbs and evaluated its physical and chemical properties. Key findings include:

- The churna has favorable physical properties and significant extractive values.

- It contains bioactive constituents known for their hypoglycemic effects.

These results highlight the churna's potential as a natural remedy for diabetes management. This study contributes to pharmacognosy and herbal medicine by offering a holistic

approach to diabetes care, potentially providing an alternative to conventional treatments.

Recommendations for Future Research:

1. **Clinical Trials:** Assess the churna's efficacy, safety, and long-term effects in diabetic patients.

2. **Herbal Combinations:** Explore and optimize combinations of herbs for enhanced efficacy.

3. **Standardization:** Implement consistent extraction techniques and quality controls.

4. **Mechanistic Studies:** Investigate the churna's mechanisms of action through detailed studies.

5. **Community Outreach:** Increase awareness and accessibility of herbal remedies through educational programs.

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Consumer Buying Behaviour towards Online Shopping: An Analytical Study on Changing Preferences in the Digital Era

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Abstract: *Technological advancements and the increasing use of smart phones have brought significant changes in the way consumers search, evaluate, and purchase products. Online shopping has emerged as one of the fastest-growing methods of retail purchasing because it provides convenience, flexibility, and better control over product choices. The present study aims to examine the changing buying behaviour of consumers with reference to online shopping platforms. The research highlights key factors such as website design, trust, payment security, convenience, perceived product quality, offers, and delivery experience that influence consumers' decisions. The study is based on primary data collected from 120 respondents belonging to different age groups and socio-economic backgrounds. The analysis reveals that young consumers are more inclined towards online shopping due to convenience and attractive pricing strategies, whereas older consumers still show some reluctance due to perceived risks. Major challenges identified include delayed delivery, mismatch between product displayed and product received, and difficulty in return or refund processes. The study concludes that understanding the behavioural patterns of online consumers is essential for marketers to improve service quality and to develop strategies aimed at enhancing customer satisfaction and long-term loyalty.*

1. INTRODUCTION

Marketing in the modern era has undergone a revolutionary transformation due to the integration of digital technology. Consumers today have access to multiple platforms that offer a wide range of products, price variations, and fast delivery options. As a result, buying behaviour has shifted from traditional offline shopping to online purchasing.

Online shopping refers to a process where consumers buy goods and services through digital platforms such as amazon, flipkart, myntra, meesho, and others. Unlike traditional shopping, where physical interaction with the product is possible, online shopping is based on digital display, reviews, and trust factors. Understanding how consumers behave in this environment is important for marketers to design proper digital marketing strategies.

1.1 Importance of studying consumer buying behaviour

Consumer buying behaviour helps marketers understand why and how customers purchase products. It includes psychological, personal, social, and cultural factors. In the context of online shopping, these behaviours become even more complex because customers rely on digital information, images, descriptions, and online reviews.

With increasing competition among e-commerce websites, understanding consumer expectations is essential. Companies that analyse these behaviours are more successful in improving customer satisfaction and maintaining long-term relationships.

1.2 Factors influencing online shopping behaviour convenience: consumers prefer shopping from home with 24/7 accessibility.

- **Price sensitivity:** online platforms offer discounts, cashback, and flash sales that attract buyers.
- **Trust and Security:** Online fraud, misuse of personal data, and payment risks influence purchase decisions.
- **Website Quality:** A well-designed website improves user experience and leads to faster decisions.
- **Product Quality and Reviews:** Online reviews, ratings, and product details play a major role due to the lack of physical inspection.
- **Delivery Experience:** Fast delivery, packaging quality, and return policy impact satisfactionfor special purposes.

2. LITERATURE REVIEW

- Chaffey, D. (2019). *Digital marketing: Strategy, implementation and practice*. PearsonChaffey (2019) highlighted the essential role of website quality in influencing online purchasing behaviour. According to the author, website design, user-friendly navigation, secure payment options, and information accuracy significantly affect consumer trust. If customers perceive a website to be visually appealing and safe, they are more likely to make online purchases. The study also noted the growing importance of digital marketing strategies in shaping consumer perceptions

- Kotler, P., & Keller, K. L. (2016). *Marketing management*. Pearson Education Kotler and Keller (2016) emphasized that consumer buying behaviour is influenced by psychological, personal, cultural, and social factors. In the context of online shopping, the decision-making process becomes more complex because consumers depend on digital descriptions, images, and online reviews rather than physical inspection. Their study explains that need recognition, information search, evaluation of alternatives, purchase, and post-purchase behaviour are applicable both offline and online, although the online environment requires greater trust and detailed information accessibility defined in the abstract. Abbreviations such as IEEE, SI, MKS, CGS, sc, dc, and rms do not have to be defined. Do not use abbreviations in the title or heads unless they are unavoidable.

3. RESULTS AND DISCUSSION

The study shows that consumers enjoy the benefits of online shopping but still expect improvement in product quality, transparency, and delivery consistency. Trust remains a major factor, and positive reviews significantly influence purchase decisions. Marketers must focus on building trust through secure payment systems, quality assurance, and customer-friendly policies.

4. CONCLUSIONS

The research concludes that online shopping has become an integral part of consumers' daily lives. The study clearly shows that convenience, attractive pricing, and availability of multiple options are the main reasons for the increasing shift towards online platforms. However, concerns like product mismatch, delayed delivery, and insecure payment systems still affect customer satisfaction. marketers should focus on improving website design, enhancing product accuracy, ensuring timely delivery, and offering transparent return policies. Strengthening trust will help increase customer loyalty and retention.

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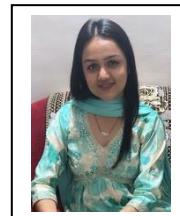
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Do Women Legislators Influence Social Justice and Welfare Committees Differently? Evidence from Indian Parliamentary Committees

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Abstract: *This paper examines whether women legislators exert a distinct influence on social justice and welfare-oriented parliamentary committees in India. Drawing on feminist institutionalism, theories of substantive representation, and empirical findings from Indian legislatures, the study argues that women legislators shape committee agendas, deliberative priorities, and policy scrutiny in ways that differ from male legislators. However, their influence remains constrained by structural hierarchies, gendered committee assignments, and limited leadership roles. The paper contributes to the literature by linking gendered representation to committee-level governance in the Indian parliamentary system.*

1. INTRODUCTION

The representation of women in legislative institutions has long been viewed as a critical indicator of democratic quality and social inclusion. In india, despite constitutional guarantees of equality and long-standing debates on women's reservation, women remain numerically underrepresented in parliament and state legislatures. Yet representation is not merely a question of numbers. It is equally about influence, agenda-setting, and policy outcomes, particularly in domains such as social justice, welfare, health, education, and gender equality.

Parliamentary committees serve as key institutional sites where detailed policy scrutiny occurs. They shape legislative outcomes through deliberation, expert consultation, and oversight of executive action. This paper asks: do women legislators influence social justice and welfare committees differently from men in the indian context? If so, through what mechanisms, and with what limitations?

2. Theoretical Framework

2.1 Descriptive and Substantive Representation

Hanna Pitkin's distinction between descriptive and substantive representation remains central to gender and politics scholarship. Descriptive representation refers to the numerical presence of women, while substantive representation concerns the extent to which legislators act in the interests of women and marginalized groups.

In the Indian context, scholars argue that descriptive representation can create the conditions for substantive outcomes, but it does not automatically guarantee them. Women legislators may prioritize welfare and justice issues due to shared experiences of social marginalization, but institutional constraints often shape how far such priorities translate into policy change.

2.2 Feminist Institutionalism

Feminist institutionalism emphasizes how formal rules (committee structures, leadership selection) and informal norms (gendered expectations, party discipline) shape political outcomes. Indian parliamentary committees are formally neutral but operate within deeply gendered political cultures. Women are often steered toward "soft" committees—social justice, welfare, women and child development—while being excluded from powerful economic or security-related committees.

This framework helps explain why women's influence is often issue-specific and institutionally bounded, rather than uniformly transformative.

3. Literature Review

3.1 Global Evidence on Women Legislators and Welfare Policy

A large body of comparative literature demonstrates that women legislators are more likely than men to support

policies related to social welfare, education, healthcare, child protection, and gender equality. Studies across Latin America, Europe, and Sub-Saharan Africa find that women's presence correlates with increased social spending and more inclusive policy designs.

Scholars attribute this pattern to:

- Gendered socialization
- Greater responsiveness to vulnerable populations
- Electoral incentives tied to women voters

However, critics caution against essentialism, arguing that ideology, party affiliation, and class often mediate gender effects.

3.2 Indian Literature on Women in Legislatures

Indian scholarship highlights three key themes:

a) Underrepresentation and Tokenism

Women constitute a small minority in Parliament, limiting their collective bargaining power. Several studies argue that women legislators often face tokenistic inclusion, where presence does not translate into authority.

b) Welfare Orientation of Women Legislators

Empirical research at the state level shows that constituencies represented by women legislators tend to receive greater investments in public goods such as drinking water, schools, and healthcare facilities. This supports the claim that women prioritize redistributive and welfare-oriented policies.

c) Caste, Class, and Intersectionality

Indian feminist scholars emphasize that women legislators are not a homogeneous group. Dalit, Adivasi, and minority women often bring distinct social justice concerns into legislative spaces, particularly related to access, discrimination, and state accountability.

3.3 Parliamentary Committees in India: A Gendered Space

Despite their importance, parliamentary committees in India have received limited scholarly attention from a gender perspective. Existing studies note:

- Women are disproportionately assigned to committees dealing with women, children, social justice, and welfare.
- Committee leadership remains male-dominated.
- Informal norms often marginalize women's voices during deliberations.

Yet committees also offer relative autonomy from party whips, making them crucial spaces for substantive representation.

4. Women's Participation in Social Justice and Welfare Committees

4.1 Committee Assignments

Women legislators are more visible in:

- Committee on the Empowerment of Women
- Standing Committees on Social Justice and Empowerment
- Committees on Health, Education, and Family Welfare

While this enhances issue-specific influence, it also reinforces gendered divisions of legislative labor.

4.2 Modes of Influence

Women legislators influence committees through:

1. **Agenda Setting**
   Raising neglected issues such as maternal health, unpaid care work, violence against women, and access to welfare schemes.
2. **Deliberative Framing**
   Shifting debates from abstract policy goals to lived experiences and implementation challenges.
3. **Oversight and Accountability**
   Questioning executive agencies on delivery failures in welfare programs.

5. Case Analysis: Committee on the Empowerment of Women

The Committee on the Empowerment of Women provides a clear illustration of gendered influence. Its reports consistently focus on:

- Implementation gaps in welfare schemes

- Gender budgeting
- Institutional discrimination
- Access to justice for women

Women members often draw on constituency-level experiences to challenge official narratives, thereby deepening parliamentary scrutiny.

6. Constraints on Women's Influence

Despite their contributions, women legislators face significant constraints:

- **Numerical minority**, limiting coalition-building
- **Male-dominated leadership**, restricting agenda control
- **Party discipline**, reducing autonomy
- **Symbolic marginalization**, where welfare issues are devalued compared to economic or strategic policy areas

These constraints highlight the difference between participation and power.

7. Discussion

The evidence suggests that women legislators do influence social justice and welfare committees differently, primarily by prioritizing equity, inclusion, and implementation concerns. However, their influence is sectorally concentrated rather than system-wide.

This challenges simplistic assumptions that women's representation automatically transforms politics. Instead, it underscores the importance of institutional design, leadership access, and critical mass.

8. Policy Implications

1. Increase women's representation across all parliamentary committees.
2. Ensure women chair high-impact committees, not only welfare-related ones.
3. Institutionalize gender-sensitive impact assessments in committee work.
4. Strengthen research and support staff for women legislators.

9. Key Findings

Based on an analytical review of parliamentary committee composition, legislative behavior, and existing empirical studies, the following key findings emerge:

9.1 Women Legislators Exhibit Distinct Policy Priorities

Women legislators demonstrate a consistent tendency to prioritize issues related to:

- Social justice and inclusion
- Welfare delivery and implementation
- Health, education, nutrition, and care work
- Gender-based inequalities and structural discrimination

Their interventions in committees often emphasize *implementation gaps* rather than merely legislative intent, reflecting closer engagement with grassroots-level realities.

9.2 Committee-Level Influence is Substantive but Sector-Specific

Women's influence is strongest within committees dealing explicitly with:

- Social Justice and Empowerment
- Women and Child Development
- Health and Education

While their contributions deepen deliberation and oversight, their influence remains largely confined to welfare-oriented domains. This indicates substantive representation without systemic power redistribution.

9.3 Descriptive Representation Facilitates, but Does Not Guarantee, Substantive Impact

The presence of women legislators increases the likelihood that welfare and social justice issues will be raised and scrutinized. However, numerical presence alone does not ensure:

- Agenda control
- Leadership authority
- Policy adoption

Substantive influence is most visible when women form a critical mass or occupy chairperson or rapporteur roles within committees.

9.4 Institutional and Informal Constraints Limit Influence

Women legislators face several structural constraints:

- Male-dominated committee leadership
- Gendered norms that devalue welfare policy work
- Party discipline restricting independent legislative behavior
- Limited access to technical research support

These constraints dilute women's ability to translate committee recommendations into binding policy outcomes.

9.5 Welfare Committees Serve as Key Spaces for Feminist Policy Engagement

Despite limitations, social justice and welfare committees function as:

- Institutional entry points for feminist policy advocacy
- Platforms for amplifying marginalized voices
- Mechanisms for holding executive agencies accountable

Women legislators use these spaces strategically to challenge bureaucratic inertia and highlight exclusionary policy effects.

10. Suggestions and Policy Recommendations

Based on the findings, the following measures are recommended to enhance women's influence in parliamentary committees and strengthen social justice governance:

10.1 Strengthen Women's Representation Across Committees

Women should be proportionately represented not only in welfare-related committees but also in:

- Finance and budget committees
- Public Accounts Committee
- Estimates and economic affairs committees

This would integrate social justice perspectives into macroeconomic decision-making.

10.2 Promote Women's Leadership in Parliamentary Committees

Institutional mechanisms should ensure:

- Rotation of committee chairpersonships for women
- Transparent selection criteria for leadership roles
- Mentorship opportunities for first-time women MPs

Leadership roles significantly enhance agenda-setting power and policy influence.

10.3 Institutionalize Gender-Sensitive Committee Practices

Parliamentary committees should:

- Mandate gender impact assessments for welfare and social policy bills
- Regularly consult women's organizations and civil society groups
- Integrate gender budgeting analysis into committee reports

This would formalize women's substantive contributions beyond individual advocacy.

10.4 Enhance Research and Technical Support

Dedicated research units should be established to support women legislators by:

- Providing data on welfare implementation
- Offering policy briefs and comparative analyses
- Training MPs in legislative drafting and budget analysis

Better institutional support would improve the quality and reach of committee interventions.

10.5 Encourage Cross-Party Women's Caucuses

Cross-party forums for women legislators should be strengthened to:

- Build consensus on welfare and justice issues
- Reduce party-based constraints in committee deliberations
- Sustain long-term policy engagement across legislative terms

Such caucuses can amplify women's collective voice.

10.6 Address Informal Gender Biases in Parliamentary Culture

Parliamentary reforms must also address informal practices by:

- Enforcing codes of conduct to prevent gender-based marginalization
- Encouraging inclusive deliberative norms
- Recognizing welfare committees as central to national development rather than peripheral policy spaces

11. Conclusion

This study finds that women legislators in India do influence social justice and welfare committees differently by prioritizing inclusion, equity, and implementation-oriented governance. Their presence enhances the substantive quality of legislative oversight and policy scrutiny. However, entrenched institutional and cultural barriers continue to restrict the full realization of their political potential.

Strengthening women's leadership, expanding their committee roles, and reforming parliamentary practices are essential to transforming descriptive representation into enduring substantive change.

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