ISSN: 2395-7212

Volume-X, Issue-1, April 2024 (Annual)

ENVISAGE

STUDENTS' RESEARCH JOURNAL

SVKM's Narsee Monjee College of Commerce and Economics (Autonomous)

JVPD Scheme, Vile Parle (W), Mumbai 400 056.

Details of Publication:

Name of publication	:	Envisage
ISSN Number	:	2395-7212
Editor in Chief	:	Dr. Parag Ajagaonkar
Place of Publication	:	SVKM's Narsee Monjee College of Commerce and Economics (Autonomous), JVPD Scheme, Vile Parle (West), Mumbai- 400056.
Periodicity	:	Annual
Published on	:	April of every year.
Correspondence E-mail	:	NMCollege@nmcce.ac.in

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ENVISAGE

Students’ Research Journal

Editorial

Envisage is an inter-disciplinary students' research journal. The research papers written by the students have been reviewed by the Research and Development Cell and edited under the guidance of faculty mentors. It is an initiative to give the students an opportunity to develop critical thinking skills and writing skills needed to succeed in academia. This journal is intended to provide a forum for students to explore their knowledge of current affairs and express their views on subjects relating to economics, trade, business, international affairs, new developments and social sciences.

The objectives of this research journal are as follows:

- To increase students’ knowledge and promote their interest in future career research.
- To provide a medium to explore their knowledge related to current affairs and express their views.
- To develop analytical and critical skills and enhance their academic exposure.
- To enrich the education through experiencing the research publication process.

The current issue contains research papers presented in national level Research Fair, conducted by the college every year. It also contains the research papers from the other research paper presentation competitions such as Epsilon (for Economics), DLLE and Avishkar (Research paper presentation competition of University of Mumbai). Besides these competitions many students also conduct case studies and various projects under the guidance of faculties on different topics. We are including here as many papers as possible only after we receive the consent from students for publishing their paper in Envisage issue.

Envisage also allows students to participate in the editing, review, and publication processes. We anticipate that Envisage will provide an interesting venue for young students to participate in research efforts in a variety of themes that foster the growth of students.

GUIDELINES FOR RESEARCHERS

"Envisage" strives to open the doors of research for young students and academicians. It presents to you papers from varied fields in a structured and organised manner.

Manuscript:

The manuscript has the following flow:

- Keywords and Abstract
- Introduction
- Objectives of the Research Study
- Research Methodology
- Research Data Analysis
- Recommendations and Conclusion
- Limitations of the Research Study
- References

Research

It includes research articles that focus on the analysis of economic, political, social, business and other related issues which impact the economy as well as society.

References

Through the text there are references and sources of knowledge which the authors have used. Citing those is important because good research is thought to be based on knowledge and empirical (observed) evidence.

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ENVISAGE
Students' Research Journal

Volume – X, Issue – I, April 2024 (Annual)

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Birdsong in the Bulldozers' Shadow: Can LIC Colony's Feathers Weather the Storm?

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This research paper won the First prize at Research Fair 2023-24: A national level Intercollegiate Research Paper Presentation Competition held by the Research Committee of SVKM's Narsee Monjee College of Commerce and Economics on 11th January 2024.

Abstract:

Amidst Mumbai's relentless urbanization, the once-vibrant avian chorus of LIC Colony, Borivali (west), a treasured urban haven, fell silent to the roar of a new construction project. This study quantifies the impact of this development on local biodiversity, meticulously tracking changes in bird species diversity and abundance through dedicated bird counts conducted before, during, and after the project's commencement. The findings paint a stark picture of ecological loss, revealing a significant decline in both species richness (number) and abundance. Beyond the raw data, the study analyses the ripple effects of construction, including dust pollution, highlighting its role in exacerbating habitat degradation and species displacement. This research serves as a critical reminder that even urban wildlife is not immune to the march of progress. The silenced melodies of LIC Colony's birds pose a crucial question: can Mumbai's future symphony harmonize progress with the songs of its diverse winged companions? As a birdwatcher who called LIC Colony my haven for years, witnessing the silenced chorus was a personal loss that fuelled this research.

Keywords: Urban biodiversity, Construction impact, Avian decline, Species richness, Dust pollution, LIC Colony, Mumbai, Environmental sustainability, Conservation, Urban planning.

Introduction:

The true cost of living in a city is more than the rent...

A once vibrant avian haven is falling under the shadow of the cacophony of construction sites. LIC Colony is one of the greenest parts of Borivali west, spreading over an area of 0.35 kilometres square, it's a home to the melodious chorus of chirping birds of various species. Surrounded by a rapidly developing area of Borivali west, it now has construction sites at the heart of the Colony's greenery, that is, 3 new residential buildings are being constructed with all the noisy machines and Equipment creating a havoc among the urban biodiversity of the area... the dust also disturbs the food chain of this oasis.

The research investigates the impact of these construction sites on the biodiversity of the small locality using dedicated bird counts before and during the different phases of construction. Quantifying the footprint of the buildings' construction on the avian community of LIC Colony is intended through the research.

The Air Quality Index (AQI) of Mumbai city is reaching historical highs, despite which the number of constructions projects of mega, big, medium and small scales is increasing rampantly which is causing the air quality to further deteriorate. The cost is not only borne by the two-legged and two-handed residents of the second most populous city of India, but also by the feathered, furry and scaly residents of the financial capital.

The paper discusses the counts of various avian species and will study other factors to explain the differences in counts over the period studied herein.

Scope of Research:

The research focusses on the study of impact of Construction activities on urban avian biodiversity and finding the cause for the same.

Aims and Objectives of the Research:

1. To study the impact of construction sites on avian biodiversity in urban areas by observing and quantifying the impact of construction sites in the locality under study.
2. To study the causes for the impact if any
3. To study which phase of construction of a building causes the greatest impact on avian biodiversity in the locality so studied.

Methodology:

Hypothesis:

H0: The dust and noise from construction sites does not adversely affect the avian biodiversity of the place.

H1: The dust and noise from construction sites adversely affects the avian biodiversity of the place.

A Multifaceted Approach: This research employed a mixed-methods approach to comprehensively analyse the impact of construction activity on avian biodiversity in LIC Colony, Borivali (west), Mumbai. The study utilized both quantitative and qualitative data collection techniques to gain a nuanced understanding of the issue.

Data Collection:

Quantitative Data Collection:

Bird Counts: A standardized bird count protocol was implemented, involving species-wise observations conducted for two consecutive weeks during three distinct phases:

(1) pre-construction, (May, 2021)

(2) during initial construction (one active site) (December, 2021), and

(3) during peak construction activity (three active sites) (December,2023).

Counts were undertaken at three time points each day (morning 7-8 AM, afternoon 2-3 PM, evening 5-6 PM) to account for daily bird activity patterns.

Qualitative Data Collection:

Semi-structured Interviews: Individual interviews were conducted with a purposive sample of residents (n = 2) (a resident and a shopkeeper) and construction site officials (n = 3) (for details of the construction projects) in LIC Colony. These interviews employed semi-structured guides to elicit perspectives on:

- Perceived changes in bird populations and behaviour post-commencement of construction.
- Potential factors influencing avian decline (noise, dust, habitat disturbance).
- Experiences and concerns regarding the construction project's impact on local ecology.

Data Analysis:

Quantitative data:

Bird count data was analysed using descriptive statistics (species richness, abundance) and inferential statistics to identify statistically significant differences in bird populations across the three phases.

Qualitative data:

Interview transcripts were thematically analysed to identify recurring themes and patterns in residents' and officials' perceptions and experiences.

Integration of Data:

The findings from both quantitative and qualitative data were triangulated to provide a more comprehensive understanding of the impacts of construction on avian biodiversity. This mixed-methods approach enabled the study to not only quantify the decline in bird populations but also explore the underlying factors and perspectives associated with this change.

Data analysis and interpretation:

Details:

- Details of LIC Colony: LIC Colony, situated within a 500-meter radius of the colony’s burgeoning construction sites, presents a fascinating microcosm of urban development's interaction with ecological preservation. This historical enclave, nestled amidst the relentless march of concrete and steel, stands as a vibrant oasis for diverse wildlife and a stark counterpoint to the surrounding urban soundscape. Upon entering LIC Colony, one encounters a palpable sense of tranquility. Rows of single-story villas, each meticulously maintained with flourishing gardens ablaze with vibrant flora. The air purity, makes it a refuge for those seeking respite from the urban clamor. Joggers and walkers find solace in the colony's quiet pathways, their steps muffled by fallen leaves and dappled sunlight filtering through a dense canopy of towering mango trees and fragrant creepers. This verdant labyrinth, casting cool shade even on the hottest days, offers a welcome escape rom the city's unrelenting heat.

- Beyond the visual appeal, LIC Colony pulsates with a vibrant ecosystem. Bats, flitting through the twilight hours, and a multitude of bird species find undisturbed sanctuary amidst the greenery. This harmonious coexistence with nature whispers a tale of old Mumbai, a time when foxes freely roamed the paths and the air vibrated with the chorus of a richer biodiversity.
- The residents of LIC Colony, recognized for their deep appreciation for the natural world, play a crucial role in maintaining this idyllic oasis. Their commitment to environmental stewardship, evident in the meticulously maintained gardens and pristine streets, ensures that the colony remains a haven for wildlife and a sanctuary for weary souls. The old-style houses, adorned with blooming gardens and nestled amidst towering trees, stand as testaments to a love for nature that transcends generations. (Satellite view in appendix 1)
- Details of the Construction projects: The area has a total of 3 active construction sites as of 31st December, 2023. The first construction that started, started in the year 2021, the excavation of which went on for an extended period of time till September 2022. Meanwhile two more constructions started in the months of August and December in the year 2022, the excavations of which went on till June 2022 and January 2023. All the three constructions are going on as of the dates of observations.
- No excavations are going on as of the dates of taking observations. the first construction project was built on a piece of land used for conducting weddings, the second construction project was a redevelopment project, the third and the latest project was a free land that was not being used for any human activity but was owned by a person. Note: Although the names of the projects are available they have not been disclosed owing to the fact that the research paper is intended to study the impact of construction sites for which the names of the projects are irrelevant.

- Details of birds found in LIC Colony: Out of all the birds that can be seen in Mumbai, the following birds have been found to live in LIC Colony:
  1. Pigeon*
  2. Crow*
  3. House Sparrow*
  4. Myna
  5. Black kite
  6. Red Whiskered bulbul**
  7. Red vented bulbul**
  8. Purple rumped sunbird
  9. Asian Koel
  10. Greater coucal
  11. Coppersmith barbet
  12. Rose ringed parakeet***
  13. Alexandrian parakeet***
  14. Eurasian golden oriole

  *Counts of the mentioned birds have been taken in exception for pigeon, crow and house sparrow, the reason for the same is that the number is too big to be manually spotted and counted, also, these three birds are the 3 most common birds of the city and hence do not represent the biodiversity as such.

  ** Differentiating from a distance, the red whiskered bulbul and red vented bulbul is not possible when the birds are flying in the canopies of trees, such differentiation is also irrelevant for the purpose of the research, hence the counts of both the species have been aggregated under the head of bulbul.

  *** Differentiating from a distance, the rose ringed parakeet and the Alexandrian parakeet is not possible when the birds are flying in the canopies of trees or speeding in a chatter, such differentiation is also irrelevant for the purpose of the research, hence the counts of both the species have been aggregated under the head of parakeet.

Data collected:

- Bird counts:
  - Phase 1(May, 2021):

BEFORE CONSTRUCTION (May 2021)	WEEK 1																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	7	5	8	9	6	5	4	6	7	8	6	6	6	7	6	8	9	8	4	5	4
BULBUL	12	7	13	12	8	15	12	9	11	15	8	14	16	7	17	13	8	13	12	9	14
ORIENTAL MAGPIE ROBIN	14	8	13	12	9	10	14	8	16	12	7	13	14	14	15	8	16	15	7	11	8
COPPERSMITH BARBET	5	6	5	6	4	5	6	4	4	5	5	6	4	5	6	6	4	3	7	5	6
PURPLE RUMPED SUNBIRD	7	8	6	3	9	4	5	8	2	3	8	5	6	9	8	9	2	3	6	7	4
PARAKEET	17	18	19	21	23	20	17	18	17	23	19	23	21	20	22	22	18	17	19	20	20
EURASIAN GOLDEN ORIOLE	3	2	3	4	2	4	4	3	4	4	3	5	4	4	4	5	3	4	4	2	4
ASIAN KOEL	4	5	4	3	2	4	6	3	4	2	4	5	4	3	5	4	6	5	2	2	3
GREATER COUCAL	2	3	2	2	2	2	3	1	3	2	1	2	3	1	2	3	1	3	3	1	2
MYNA	17	15	16	17	18	19	17	15	16	19	18	17	15	14	17	18	16	15	14	17	18

BEFORE CONSTRUCTION (May 2021)	WEEK 2																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	5	6	4	5	7	6	5	6	4	5	8	7	8	9	6	5	4	5	6	4	5
BULBUL	15	8	16	15	7	11	14	8	13	12	9	10	14	8	16	12	7	13	14	8	12
ORIENTAL MAGPIE ROBIN	14	16	7	17	13	8	12	7	13	12	8	15	12	9	11	15	13	12	9	8	12
COPPERSMITH BARBET	4	5	5	4	6	4	4	6	5	6	6	5	5	7	3	3	4	5	6	7	7
PURPLE RUMPED SUNBIRD	5	8	3	5	6	8	9	9	7	4	8	5	6	8	7	4	9	4	6	7	9
PARAKEET	18	19	17	21	21	23	22	21	17	18	19	21	20	23	22	19	18	18	17	19	23
EURASIAN GOLDEN ORIOLE	4	3	4	4	2	4	5	3	5	4	4	4	5	3	4	5	3	4	4	4	4
ASIAN KOEL	4	2	3	4	5	3	4	6	4	3	4	5	3	4	5	4	3	4	5	2	6
GREATER COUCAL	3	2	2	2	3	2	1	2	3	4	2	3	1	1	2	4	1	2	3	1	3
MYNA	19	18	17	15	14	16	18	19	17	14	15	16	19	18	17	15	18	19	16	17	14

  - Phase 2(December 2021):

DURING CONSTRUCTION OF 1 BUILDING (December 2021)	WEEK 1																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	5	3	6	7	4	3	2	4	5	6	4	4	4	5	4	6	7	6	2	3	2
BULBUL	6	1	7	6	2	9	6	3	5	9	2	8	10	1	11	7	2	7	6	3	8
ORIENTAL MAGPIE ROBIN	10	4	9	8	5	6	10	4	12	8	3	9	10	10	11	4	12	11	3	7	4
COPPERSMITH BARBET	2	3	2	3	1	2	3	1	1	2	2	3	1	2	3	3	1	0	4	2	3
PURPLE RUMPED SUNBIRD	1	2	0	0	3	0	0	2	0	0	2	0	0	3	2	3	0	0	0	1	0
PARAKEET	11	12	13	15	17	14	11	12	11	17	13	17	15	14	16	16	12	11	13	14	14
EURASIAN GOLDEN ORIOLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASIAN KOEL	2	3	2	1	0	2	2	1	2	0	2	3	2	1	3	2	4	3	0	0	1
GREATER COUCAL	1	1	0	0	0	0	2	1	0	2	1	1	1	0	2	1	1	1	1	0	0
MYNA	10	8	9	10	11	12	10	8	9	12	11	10	8	7	10	11	9	8	7	10	11

DURING CONSTRUCTION OF 1 BUILDING (December 2021)	WEEK 2																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	3	4	2	3	5	4	3	4	2	3	6	5	6	7	4	3	2	3	4	2	3
BULBUL	9	2	10	9	1	5	8	2	7	6	3	4	8	2	10	6	1	7	8	2	6
ORIENTAL MAGPIE ROBIN	10	12	3	13	9	4	8	3	9	8	4	11	8	5	7	11	9	8	5	4	8
COPPERSMITH BARBET	1	2	2	1	3	1	1	3	2	3	3	2	2	4	0	0	1	2	3	4	4
PURPLE RUMPED SUNBIRD	0	2	0	0	0	2	3	3	1	0	2	0	0	2	1	0	3	0	0	1	3
PARAKEET	12	13	11	15	15	17	16	15	11	12	13	15	14	17	16	13	12	12	11	13	17
EURASIAN GOLDEN ORIOLE	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASIAN KOEL	2	0	1	2	3	1	2	2	2	1	2	3	1	2	3	2	1	2	3	0	2
GREATER COUCAL	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
MYNA	12	11	10	8	7	9	11	12	10	7	8	9	12	11	10	8	11	12	9	10	7

  - Phase 3(December 2023):

DURING CONSTRUCTION OF 3 BUILDINGS (December 2023)	WEEK 1																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	9	7	10	11	8	7	6	8	9	10	8	8	8	9	8	10	11	10	6	7	6
BULBUL	2	0	3	2	0	5	2	0	1	5	0	4	6	0	7	3	0	3	2	0	4
ORIENTAL MAGPIE ROBIN	6	0	5	4	1	2	6	0	8	4	-1	5	6	6	7	0	8	7	-1	3	0
COPPERSMITH BARBET	0	0	1	0	1	1	0	1	1	1	1	0	1	2	0	0	1	1	1	2	0
PURPLE RUMPED SUNBIRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARAKEET	7	8	9	11	13	10	7	8	7	13	9	13	11	10	12	12	8	7	9	10	10
EURASIAN GOLDEN ORIOLE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASIAN KOEL	2	3	2	1	0	2	4	1	2	0	2	3	2	1	3	2	4	3	0	0	1
GREATER COUCAL	0	1	0	0	0	0	1	1	0	1	1	1	1	0	2	1	1	0	0	0	0
MYNA	12	15	12	9	6	12	18	9	12	6	12	15	12	9	15	12	18	15	6	6	9

DURING CONSTRUCTION OF 3 BUILDINGS (December 2023)	WEEK 2																				
	SUNDAY			MONDAY			TUESDAY			WEDNESDAY			THURSDAY			FRIDAY			SATURDAY		
	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING	MORNING	AFTERNOON	EVENING
BLACK KITE	7	8	6	7	9	8	7	8	6	7	10	9	10	11	8	7	6	7	8	6	7
BULBUL	5	0	6	5	0	1	4	0	3	2	0	0	4	0	6	2	0	3	4	0	2
ORIENTAL MAGPIE ROBIN	6	8	-1	9	5	0	4	-1	5	4	0	7	4	1	3	7	5	4	1	0	4
COPPERSMITH BARBET	1	1	1	1	0	2	1	0	1	2	0	1	1	1	2	1	2	1	0	1	1
PURPLE RUMPED SUNBIRD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARAKEET	8	9	7	11	11	13	12	11	7	8	9	11	10	13	12	9	8	8	7	9	13
EURASIAN GOLDEN ORIOLE	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASIAN KOEL	2	0	1	2	3	1	2	4	2	1	2	3	1	2	3	2	1	2	3	0	4
GREATER COUCAL	1	0	0	0	1	1	1	0	0	0	1	0	0	1	0	0	0	1	0	0	2
MYNA	12	6	9	12	15	9	12	18	12	9	12	15	9	12	15	12	9	12	15	6	18

- Interview:
  - Questions asked:
    1. Is there abundance of flower and fruit bearing plants surrounding you house?
    2. Is there abundance and diversity of birds in your vicinity?
    3. Do you feel that the number and variety of birds in your vicinity have decreased after the construction of the studied residential building started?
    4. Were you getting disturbed by the dust and noise due to the construction initially?
    5. Do you still get disturbed by the noise and dust from the construction sites?

- Answers received:

Question numbers	Resident's answers	Shopkeeper's answers
1	Yes	Yes
2	Yes	Yes
3	Yes	Yes
4	Yes	Yes
5	No	No

- Specific remarks from respondents:

  The resident from the pair of respondents remarked that he observed and estimated 40% decrease in the number of bird varieties that come to his garden outside his house where he maintained a flower laden dense garden.

Data Analysis:

Average count of all species at any of the studied periods of day in 3 phases:

Bird Name	Before Construction	During Construction Of 1 Building	During Construction Of 3 Buildings	% Change In Average Count From Phase 1 To Phase 2	% Change In Average Count From Phase 2 To Phase 3
Black Kite	6	4	8	-33.33	100
Bulbul	12	6	2	-50	-66.67
Oriental Magpie Robin	12	8	4	-33.33	-50
Coppersmith Barbet	5	2	1	-60	-50
Purple Rumped Sunbird	6	1	0	-83.33	-100
Parakeet	20	14	10	-30	-28.57
Eurasian Golden Oriole	4	0	0	-100	0
Asian Koel	4	2	2	-50	0
Greater Coucal	2	0	0	-100	0
Myna	17	10	12	-41.18	20

Note:

- The frequency of spotting the Greater Coucal has become so low that it is negligible and hence rounded to 0.
- The negative % changes in average counts indicate a fall in the count over phases and have been color marked red.
- The Positive % changes in average counts indicate a rise in the count over phases and have been color marked green.
- No changes in the count over phases have been marked yellow.
- Species specific graphical representations attached in appendix 2

Analysis:

1. Overview of Bird Count Trends:

The analysis of bird counts across three distinct phases in LIC Colony reveals a concerning decline in avian populations. The average count of all ten observed species steadily decreased, with substantial falls of 58.117% in Phase 2 and 17.524% in Phase 3. This cumulative decline of 65.46% over the entire study period underscores the significant negative impact of construction activities on the local bird community.

2. Species-Specific Observations:

The impact of construction varied among individual species, indicating differential vulnerability to environmental disturbance. Notably, several species exhibited pronounced declines:

- Eurasian Golden Oriole: This species entirely disappeared from the study area after Phase 1, suggesting extreme sensitivity to habitat disruptions.
- Purple-rumped Sunbird: The count of this species drastically dwindled, nearing disappearance after Phases 2 and 3, further emphasizing the adverse effects on specific avian communities.
- Bulbul, Oriental Magpie Robin, Coppersmith Barbet: These species experienced moderate declines ranging from 50% to 66.67% throughout the construction phases.

3. Resilience and Adaptation:

In contrast to the declines observed in multiple species, Black Kites and Mynas demonstrated a remarkable degree of resilience to the construction-related disturbances. Their counts not only stabilized but even exhibited slight increases during Phase 3, suggesting potential adaptation mechanisms and a higher tolerance for urban environments. This resilience likely stems from their relative abundance and adaptability to anthropogenic changes in the urban landscape.

Key Data Points:

- Average bird count decline: 58.117% in Phase 2, 17.524% in Phase 3
- Total bird count decline: 65.46% over the entire study period
- Species with pronounced declines: Eurasian Golden Oriole, Purple-rumped Sunbird
- Resilient species: Black Kites, Mynas

Inferences:

1. Bird Count Decline:
    - Data analysis unveils a compelling correlation between construction activities in LIC Colony and a significant decrease in bird count.
    - The most pronounced declines occurred during Phase 2, which aligned with the commencement of excavation activities, known to be the noisiest and dustiest phase of construction.
    - While bird count declines continued into Phase 3, the rate of decline decelerated, suggesting a potential link between the cessation of extensive excavations and the observed stabilization of bird populations.

2. Species-Specific Impact:
    - The impact of construction activities varied among species, highlighting differential vulnerability to environmental disturbances.
    - Notably, the Eurasian Golden Oriole entirely disappeared from the study area following the initiation of the first construction phase, suggesting acute sensitivity to habitat disruptions.
    - Similarly, the Purple-Rumped Sunbird experienced a dramatic decrease in count, nearing disappearance after Phases 2 and 3, further emphasizing the adverse effects on specific avian communities.

3. Species Resilience:

- In contrast to the declines observed in certain species, Black Kites and Mynas demonstrated a degree of resilience to the construction-related disturbances.
- Their counts not only stabilized but even exhibited slight increases during Phase 3, suggesting potential adaptation mechanisms and a greater tolerance for urban environments.
- The relative abundance of these species within urban landscapes likely contributes to their resilience, as they may be more accustomed to noise and habitat modifications.

4. Environmental Consequences:

- Excavation activities, characterized by substantial noise and dust, emerged as primary drivers of bird displacement, likely through a combination of mechanisms:
    - Reduced food availability: Dust accumulation on foliage can hinder plant growth and nectar production, impacting food sources for nectarivorous birds.
    - Increased stress: Persistent noise pollution can elevate stress levels in birds, potentially leading to behavioural changes and abandonment of nesting sites.
    - Disruption of food chains: Noise and dust can adversely affect insect populations, which serve as vital food sources for many bird species, further compounding the impacts on avian communities.
    - Habitat degradation: The overall degradation of habitat quality due to noise, dust, and vegetation loss can force birds to seek alternative habitats, often entailing greater risks of predation and competition for resources.
    - Displacement risks: Displacement into marginal habitats, often characterized by limited resources and increased exposure to predators, can disproportionately threaten less abundant species, exacerbating their vulnerability.

Conclusion:

The city symphony, once vibrant with feathered voices, now struggles to compete with the cacophony of construction. Our research in LIC Colony paints a stark picture: the towering skeletons of progress gnaw at the foundation of urban biodiversity, with deafening excavations inflicting the deepest wounds. Each shovel bite scatters dust, shrouding food sources and silencing nature's chorus.

While monstrous machines can temper their roar, the dust they spew hangs like a pall, choking life from leaves and flowers. This silent predator robs birds of their sustenance, forcing them to flee the concrete jungle they once called home. In LIC Colony, we witnessed this exodus firsthand, species by species vanishing with each new foundation laid.

But is this an isolated tragedy, confined to a single haven? Far from it. This symphony of destruction echoes across countless cities, each towering project another note in a dirge for urban biodiversity. We cannot simply turn the volume down on progress, but we can change the tune.

Imagine, if you will, a city where green veins pulse through concrete arteries, where havens like LIC Colony stand as sanctuaries for the feathered songwriters. Let smaller buildings rise, whispers instead of shouts, allowing birds to reclaim their rightful place in the urban orchestra. This is not a utopian dream, but a call to action – a symphony conductor demanding a new score, one where humanity and nature harmonize in perfect pitch.

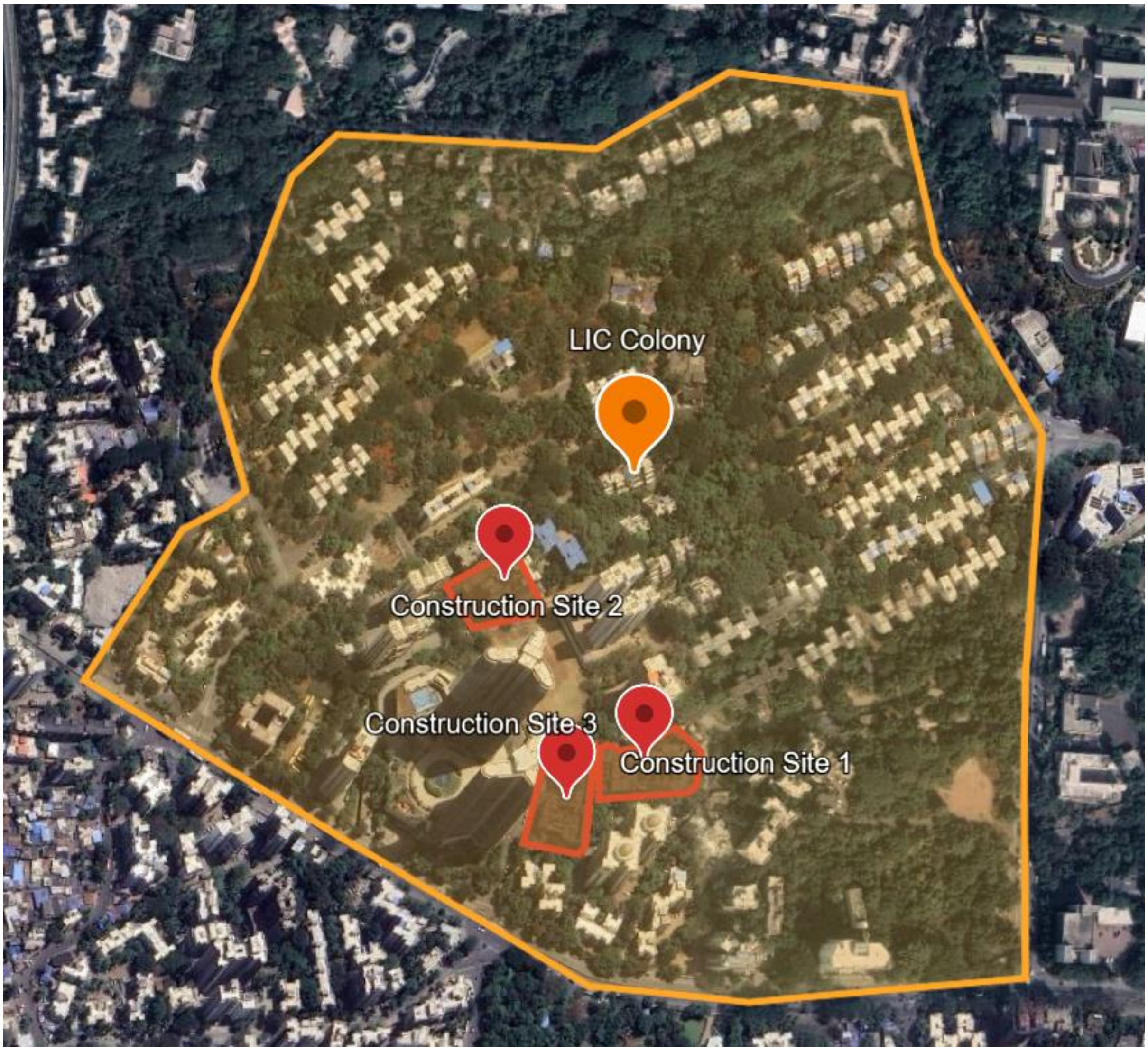
The plight of LIC Colony, as it stands amidst the encroaching tide of development, serves as a poignant reminder of the urgent need for a paradigm shift in urban planning. We must move beyond models that prioritize concrete landscapes over the delicate tapestry of urban biodiversity. Mindful, holistic approaches that seamlessly integrate green spaces into the urban fabric are crucial. Not mere ornamental patches, these green havens must be designed to serve as functional corridors for flora and fauna, providing vital sanctuary and fostering the delicate web of life within our growing metropolises.

Citation:

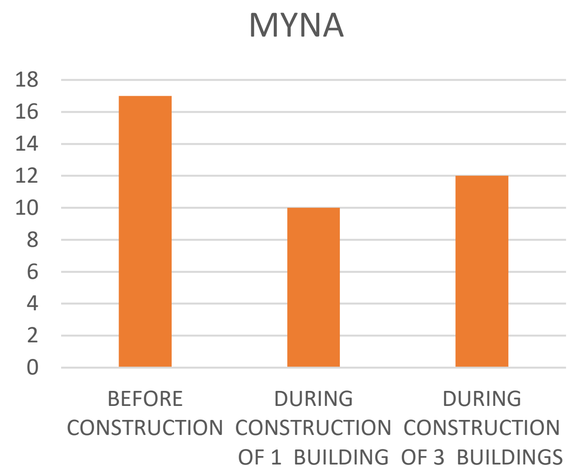
No other research paper or literature has been referred to for this research paper, leaving no need for citations.

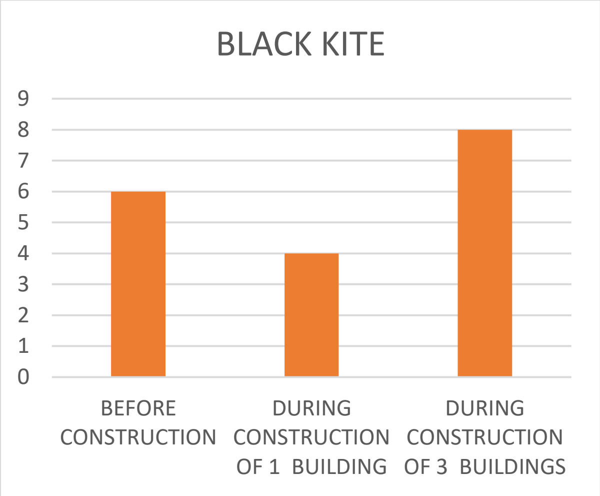
All the data collected was collected personally by observing and counting birds and interviewing respondents from the locality.

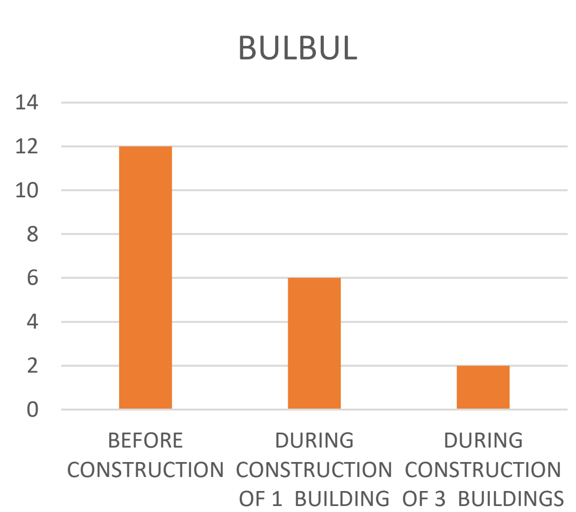
Appendix 1: map of LIC Colony and the construction sites:

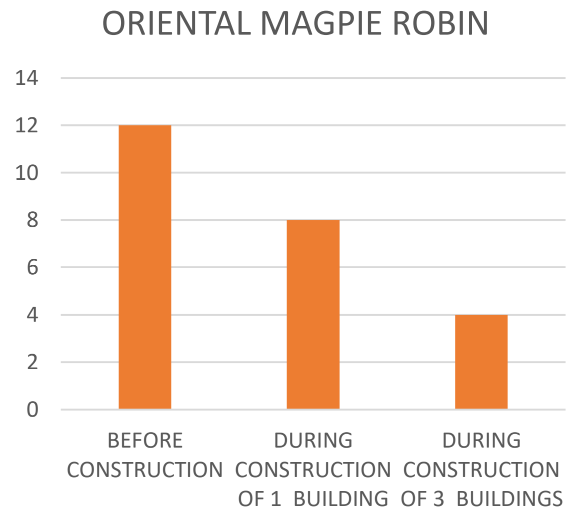


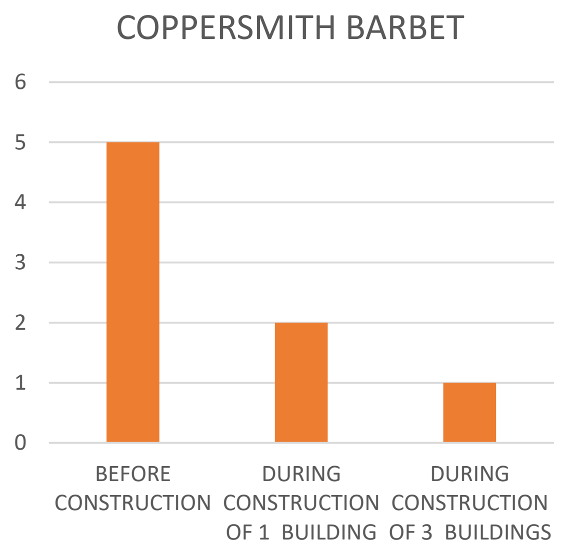
Appendix 2: Graphical representation depicting the trend of average count of each species at any of the 3 studied periods:

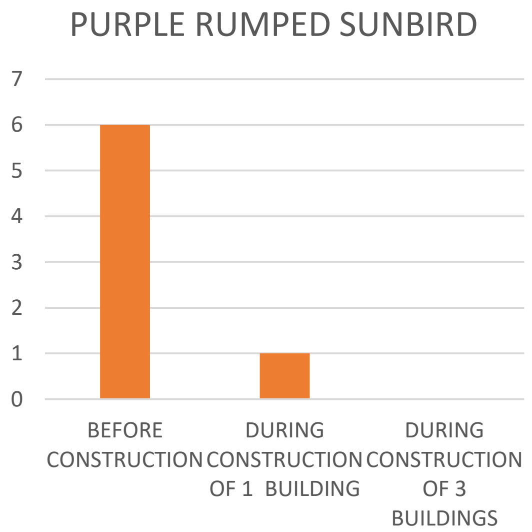


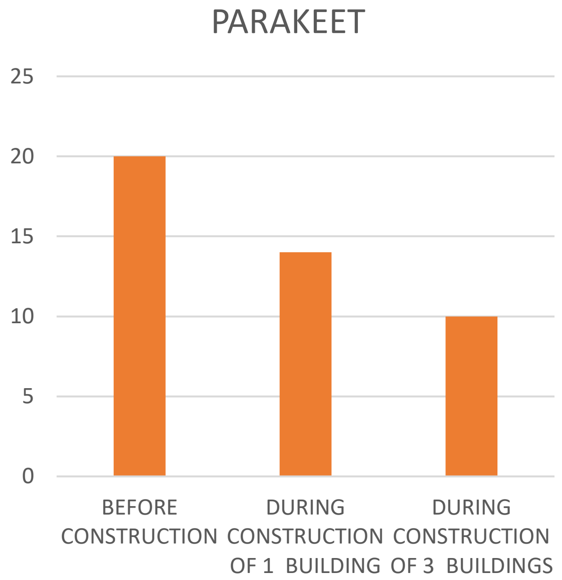


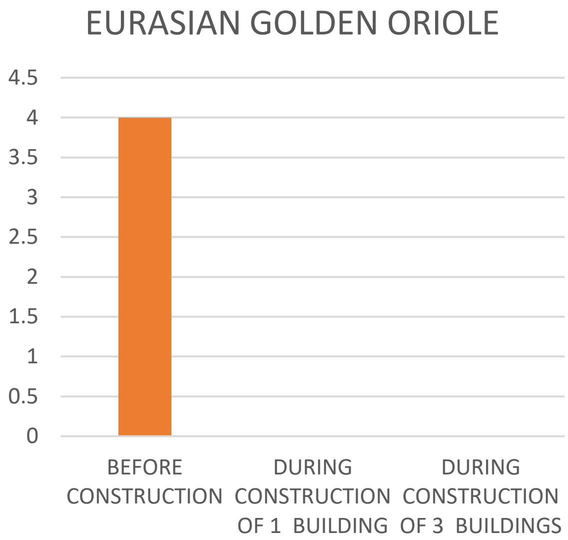


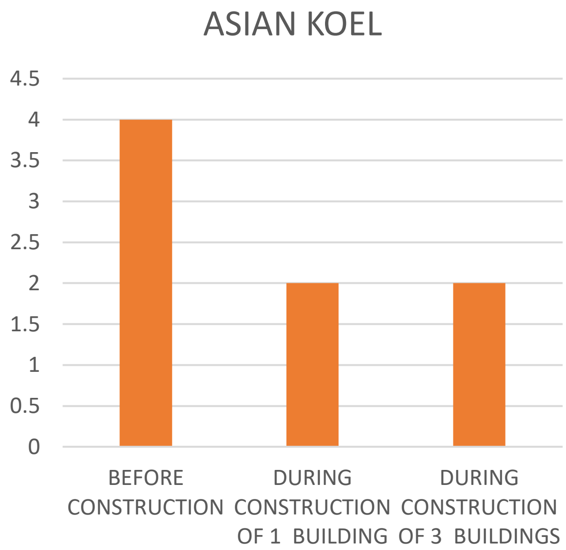







PARAKEET
25
20
15
10
5
0
BEFORE CONSTRUCTION
DURING CONSTRUCTION OF 1 BUILDING
DURING CONSTRUCTION OF 3 BUILDINGS


EURASIAN GOLDEN ORIOLE
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
BEFORE CONSTRUCTION
DURING CONSTRUCTION OF 1 BUILDING
DURING CONSTRUCTION OF 3 BUILDINGS


ASIAN KOEL
4.5
4
3.5
3
2.5
2
1.5
1
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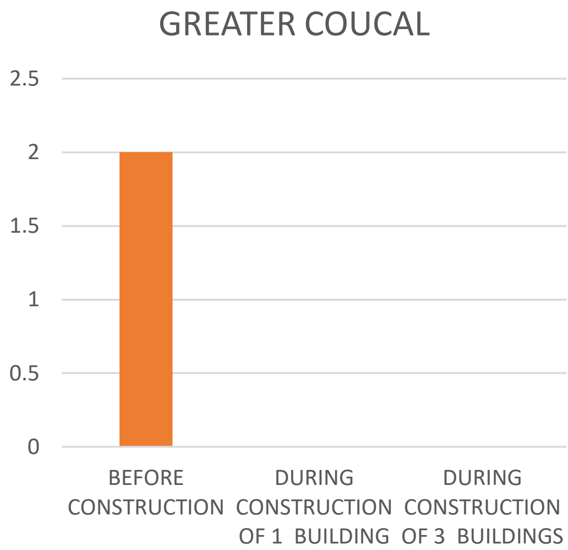
0
BEFORE CONSTRUCTION
DURING CONSTRUCTION OF 1 BUILDING
DURING CONSTRUCTION OF 3 BUILDINGS


GREATER COUCAL
2.5
2
1.5
1
0.5
0
BEFORE CONSTRUCTION
DURING CONSTRUCTION OF 1 BUILDING
DURING CONSTRUCTION OF 3 BUILDINGS

The Strange Case of Economic and Geopolitical Sanctions

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This research paper won the second prize at Research Fair 2023-24: A national level Intercollegiate Research Paper Presentation Competition held by the Research Committee of SVKM's Narsee Monjee College of Commerce and Economics on 11th January 2024.

Abstract:

Owing to their nonviolent character, economic penalties are increasingly being used by governments to apply pressure on others. However, the efficiency of punishments has frequently been a matter of concern. There is a substantial body of literature examining the factors that influence the effectiveness of economic sanctions.

One of the biggest drawbacks of economic sanctions is that they often have unintended consequences, particularly for the civilian population of the target country. In some cases, sanctions can exacerbate the very problems they were intended to address. Moreover, there is often a trade-off between the short-term goals of sanctions and the long-term stability of the target country.

The paper looks to research and compare whether selecting a target and enforcing economic sanctions ever yield lasting effects/results in the long run or not. As an alternative to doing nothing or starting a war, sanctions are applied. They end up hurting the sanctioning country too and hence there is always a debate on their effectiveness.

Introduction:

Global leaders have begun to depend more heavily on economic penalties to impose pressure on other countries in recent decades. These economic statecraft tactics have most commonly been deployed through a prohibition on economic activities such as trade. For example, sanctions imposed by the United States and countermeasures imposed by China in response to the situation in Hong Kong threaten to ignite the tinderbox that is US-China economic ties. That possible inferno might jeopardise not just bilateral commerce and finance, but also global warming and nuclear proliferation cooperation. Another example includes sanctions imposed on Russia following the war with Ukraine. These sanctions were imposed to counter Russia’s resources and damage it’s industrial and economic ability. A direct impact was the collapse of Russian Rubble and caused a loss of approximately $40 billion. Apart from having political significance, these sanctions cross-effected the sanctioning nations. Therefore, analysis of the gains and losses are imperative to gauge the effectiveness of sanctions.

Sanctions could potentially harm the economy of non-sanctioning countries. More unrest and instability in the targeted country caused by sanctions will endanger the political stability of adjacent countries, resulting in more inter-state and civil warfare. Furthermore, these penalties may cause less harm to civilians, reducing the detrimental influence on local economies' normal operation. As a result, as political elites suffer the direct cost of coercion through targeted sanctions, they should be more accommodating to the sender country's requests for greater respect for democratic freedoms and human rights.

One of the key challenges with economic sanctions is their effectiveness in achieving the desired outcomes. While sanctions may be able to impose economic costs on the target country, there is no guarantee that these costs will translate into political concessions or behavioural changes.

To address these challenges, policymakers need to carefully consider the potential costs and benefits of economic sanctions before implementing them. Sanctions should be part of a broader strategy for achieving foreign policy objectives. Ultimately, the effectiveness of economic sanctions depends on a wide range of factors, including the nature of the target regime, the goals of the sanctioning country, the broader geopolitical context, and the specific design of the sanctions themselves. While economic sanctions can be a useful tool for achieving foreign policy objectives, policymakers need to carefully consider the potential costs and benefits of sanctions before implementing them.

Scope:

This study aims to explore the effectiveness of economic and geopolitical sanctions. The research will involve a comprehensive analysis of data collected from sources such as Global Sanctions Database along with case-based analysis of the US-China Trade war and Russia- Europe trade relations in the Russia-Ukraine war scenario. The study will assess the factors that majorly influence their impact, and success along with the consequences of the sanctions imposed.

Objective:

The Primary objective of the Study is to understand and identify the factors influencing the success of the Economic and Geopolitical Sanctions. As a part of the study, we analyse the Global Sanctions from the year 1992 to 2021 to evaluative the effectiveness of the sanctions on the target countries in various segments using regression analysis and factor analysis to identify patterns and outcomes.

We conduct comprehensive analysis of two particular cases. One would be that of US-China Trade war to understand the effects of economic penalties in non-violent conflicts and other would be that of Russia – European trade relations post the sanctions applied on Russia in response to its invasion Ukraine. By the means of the study, we wish to provide recommendations for designing and implementing economic sanctions in conjunction with diplomatic and economic measures.

Current Scenario:

In recent years, the use of sanctions has increased significantly, with major powers such as the United States, European Union, and Russia imposing them on a variety of targets around the world. Here are some data points related to global sanctions:

- As of 2021, there were more than 30 active sanctions regimes in place around the world, according to the Peterson Institute for International Economics.
- The United States has imposed the most sanctions of any country, with over 8,800 individuals, entities, and vessels sanctioned as of January 2021, according to the US Department of the Treasury.
- Iran is one of the most heavily sanctioned countries in the world, with the US imposing over 1,000 sanctions since 1979, according to the Congressional Research Service.
- In 2020, the United Nations Security Council imposed sanctions on North Korea for its continued nuclear and missile programs, according to the UN.
- The EU imposed its first-ever sanctions on China in March 2021 over human rights abuses against the Uyghur Muslim minority in Xinjiang province.
- The US and EU have both imposed sanctions on Russia over its actions in Ukraine, with the US imposing more than 200 sanctions on Russian individuals and entities as of January 2021, according to the US Department of the Treasury.
- Secondary sanctions, which target individuals and entities that do business with sanctioned countries or entities, have also become more common in recent years. For example, the US has imposed secondary sanctions on companies that purchase Iranian oil, according to the Congressional Research Service.

Research Methodology:

The study is divided into and centred around 2 aspects:

1. Comprehensive analysis of the last 3 decades of global sanctions
   - 1.1. Information will be gathered from the "global sanctions database".
   - 1.2. Sanctions imposed on imposing as well as the target country will be considered and contrasted.
   - 1.3. The data will be analysed using appropriate data analysis tools and procedures.
   - 1.4. Excel and SPSS software will be used to conduct regression analysis.
   - 1.5. Based on observed similarities, patterns, and outcomes, conclusions will be reached.
   - 1.6. An attempt will be made to develop a formula/relationship that will aid in predicting the overall efficacy of implementing punishments.
2. Case Based Analysis

Case 1 - US-China trade war:

Data analysis method will reveal if USA's local production of aluminium & steel increased post sanctions on China's steel & aluminium.

The study and analysis will include the following steps:

Steel and aluminium production for the years 2016-2023 has been taken for China and Russia

- Both sanctions imposed by them, and sanctions imposed on them will be considered and contrasted.
- Information will be gathered from the "World Steel Association & International aluminium institute".
- The data will be analysed using appropriate data analysis tools and procedures.
- Based on observed similarities, patterns, and outcomes, conclusions will be reached.

Case 2 - Russia – EU trade analysis (Post Russia – Ukraine War):

Utilised data from multiple data sources like IMF, Eurostat, European Council to analyse the impacts of Sanctions imposed on Russia post the Russia-Ukraine war on both the countries with a particular focus on the Energy Sector.

The study and analysis will include the following steps:

- Sanctions imposed and oil cap applied on Russia by European Union along with other G7 countries will be analysed.
- Information gathered from the IMF and other sources will be used to identify the impact on the countries in terms of inflation rate and annual GDP growth rate.

Limitations

- Sanctions Database may not capture all sanctions imposed by countries or international organizations, and there may be variations in the way sanctions are recorded and categorized across different sources.
- It is also important to recognize that the efficacy of sanctions can depend on a range of factors, including the political and economic contexts in which they are implemented, as well as the specific goals and targets of the sanctions.

- Russian – Ukraine war and trade disruptions is an ongoing issue and long term implications of the study are still unknown.

Quantitative Techniques Used:

In this section we speak about the research design, which includes problem description, problem questions, and hypotheses. Two prominent statistical techniques have been primarily used for deriving insights and are elaborated below.

Regression analysis:

The regression analysis which was done keeping success rating as a dependent variable and the types of sanctions along with the time in years as independent variables.

- In our data we have given the metric of success = 1 and failure = 0 of the imposed sanctions
- Numerical values to the listed factors based on the sanctions imposed (ex- if time = 10 indicates 10 years of sanction, if finance = 1 indicates it's an economic sanction)

And analysing the factors which contributed to the failure or success.

Regression Statistics	
Multiple R	0.281257766
R Square	0.079105931
Adjusted R Square	0.056705805
Standard Error	0.80420133
Observations	380

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	9	20.55562404	2.28395823	3.531495	0.000323195
Residual	370	239.2937181	0.64673978		
Total	379	259.8493421			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*
Intercept	0.094	0.093	1.016	0.310	-0.088	0.276	-0.088
Time(In Yrs)	0.029	0.011	2.711	**0.007**	0.008	0.049	0.008
Trade	0.004	0.094	0.046	0.963	-0.180	0.189	-0.180
Arms	-0.264	0.117	-2.244	**0.025**	-0.494	-0.033	-0.494
Military	0.126	0.110	1.145	0.253	-0.090	0.342	-0.090
Financial	0.177	0.090	1.968	**0.050**	0.000	0.353	0.000
Travel	-0.040	0.106	-0.378	0.706	-0.249	0.169	-0.249
Other	0.446	0.126	3.536	**0.000**	0.198	0.694	0.198
Target_Mult	0.162	0.232	0.698	0.485	-0.294	0.619	-0.294
Sender_Mult	0.101	0.095	1.069	0.286	-0.085	0.287	-0.085

Factor Analysis:

Using the 'global sanctions database' which has six categories of sanctions namely, **trade, arms, military, financial, travel** and **others** we undertake factor analysis to form factors or latent variables to understand commonalities and make further decisions easier.

Correlation Matrix						
	trade	arms	military	financial	travel	other
trade	1.000	-0.068	-0.114	-0.116	-0.028	-0.025
arms	-0.068	1.000	0.405	-0.060	0.094	-0.102
military	-0.114	0.405	1.000	0.048	0.089	-0.090
financial	-0.116	-0.060	0.048	1.000	0.107	-0.189
travel	-0.028	0.094	0.089	0.107	1.000	0.047
other	-0.025	-0.102	-0.090	-0.189	0.047	1.000

The off-diagonal entries of the matrix represent the correlation coefficients between pairs of variables. For example, the entry in row 1, column 2 (-0.068) represents the correlation coefficient between trade and arms. A negative value indicates a negative correlation (i.e., as one variable increases, the other variable tends to decrease), while a positive value indicates a positive correlation (i.e., as one variable increases, the other variable tends to increase).

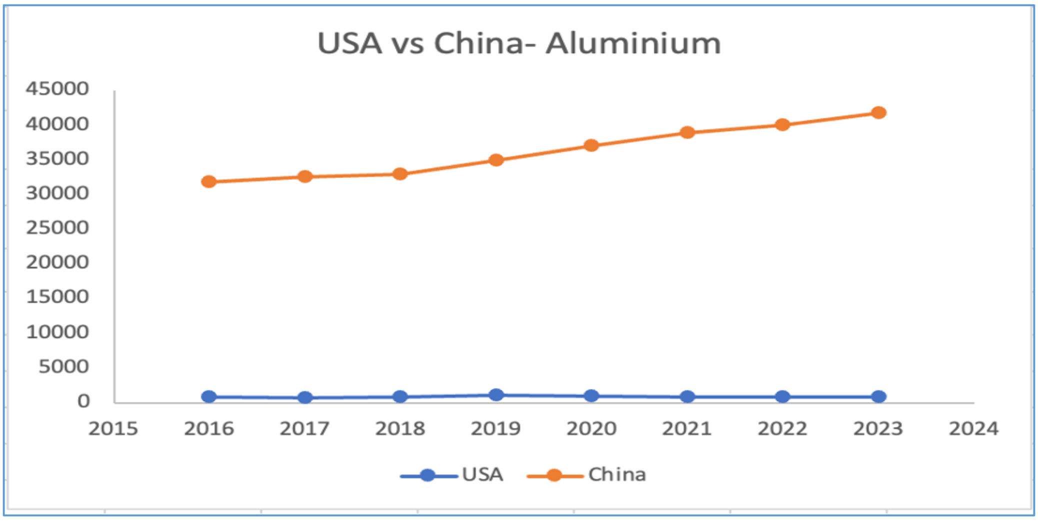
Case based analysis:

a) US – China Trade War

The following graphs are created using the data obtained from world steel association and international aluminium institute. Graph 1: compares the steel production of USA and China. Graph 2: Compares the aluminium production of USA and China.

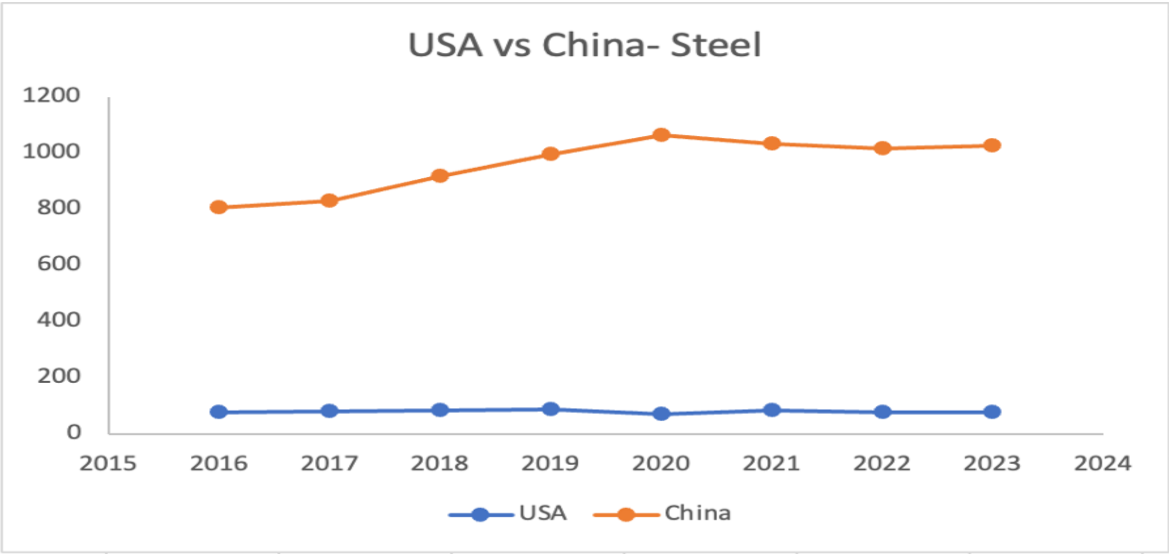
Graph 1: Aluminium production in thousand metric tonnes

2016	841	31900
2017	740	32600
2018	890	33000
2019	1093	35000
2020	1000	37100
2021	899	38900
2022	860	40000
2023	862	41740



Graph 2: Steel production in million metric tonnes

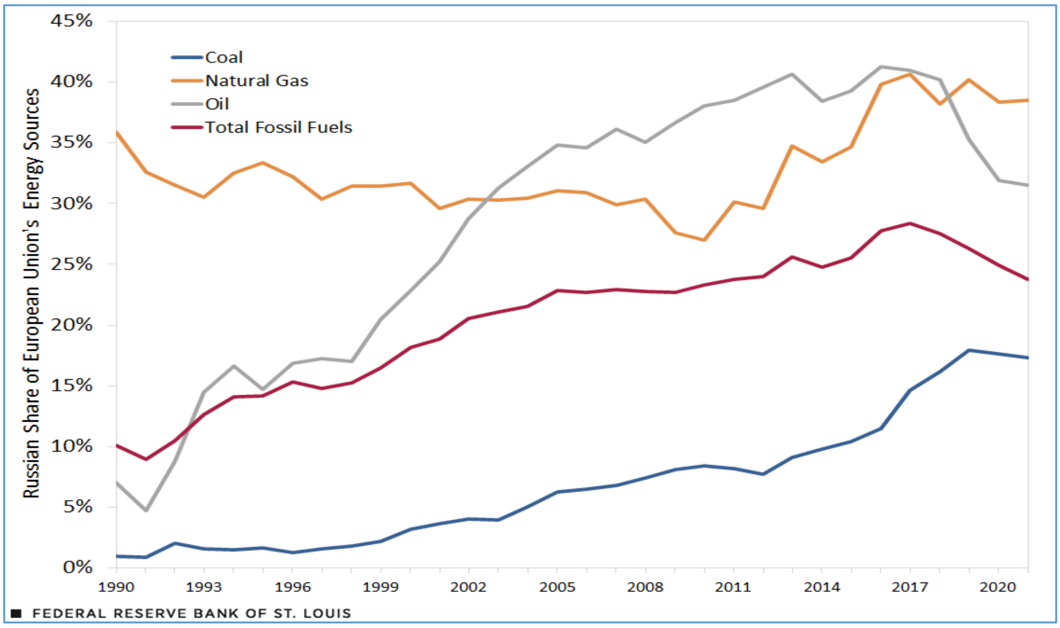
2016	78.5	807.6
2017	81.6	831.7
2018	86.6	920
2019	87.8	996.3
2020	72.7	1064.7
2021	85.8	1035.2
2022	80.5	1018
2023	80.2	1026



b) Russia – EU trade analysis (Post Russia – Ukraine War)

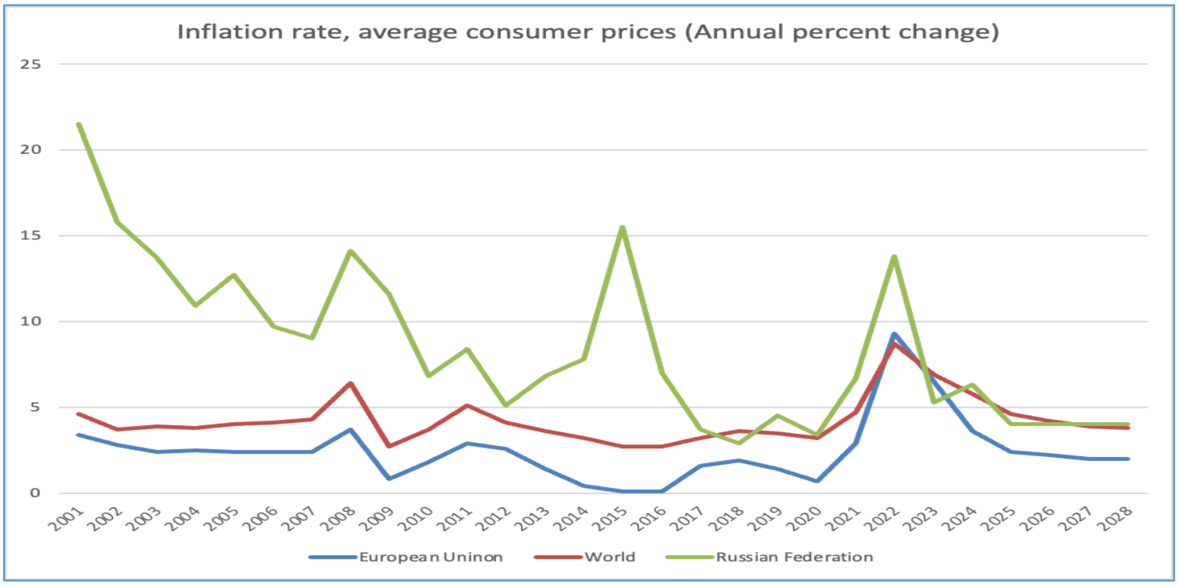
Following the Russian invasion of Ukraine in February 2022, EU and other Western countries implemented significant sanctions against Russia.

The EU was a significant trade partner for Russia accounting for 37.3% of the country's total trade at the time. Russia was the EU's fifth largest trading partner representing 5.8% of the EU's total trade with the world, particularly the energy sector. The EU was heavily dependent upon Russian imports in the energy sector.

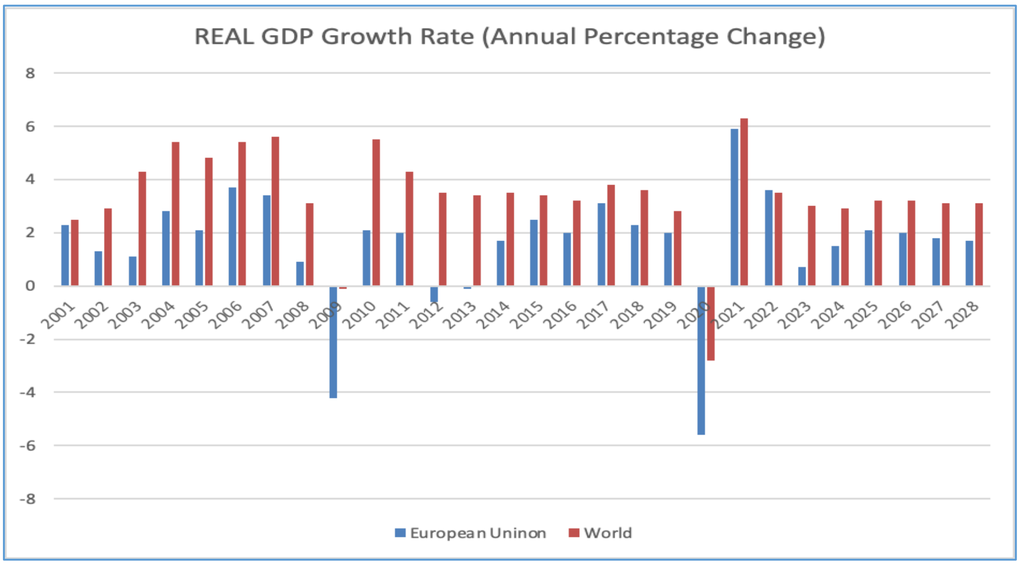


However, following the invasion EU along with other western countries imposed various sanctions targeting the Russian economy, financial sector and its ability to finance the war. Due to the heavy sanctions limiting import and export through restrictions, there was a significant fall in trade between both the parties.

Particularly analysing the impact on the Energy sector, the EU imposed several restrictions on energy imports from Russia including prohibitions on oil, coal and natural gas. Natural gas imports from Russia dropped significantly, with a 44% volume reduction in September 2023 compared to January 2021. Russia's share in EU natural gas imports decreased from 39% in Q3 2021 to 12% in Q3 2023. Apart from this the G7, Australia and the EU set a price cap on each barrel of Russian Oil leading to a substantial drop in the tax revenue, particularly from the energy sector. The sanctions had a negative impact on both the parties with soaring inflation in the economy that just started to recover from the COVID-19 pandemic.



Russia faced a federal budget deficit of 2.3% of GDP in 2022 as price cap and import bans led to a 43% decline in the energy sector leading to negative real GDP growth rate. Similarly, the EU also faced a negative real GDP growth rate as the immediate aftereffect of the trade restrictions.



While the immediate effect of the sanctions was evident on the economy of both of the countries, Russia has diverted oil exports to Asia to offset the 46% drop in shipments to Europe. There was a 56% jump in shipments to Asia which is now the overall top market for Russian Oil and an increase of 144% to Africa. In a similar way EU countries have hiked imports from other suppliers and at the same time slashed gas use. Norway has replaced Russia as the EU's biggest pipeline gas supplier and the US for liquefied natural gas imports.

Results:

Factor analysis

The correlation coefficient between trade and arms is -0.068, indicating a weak negative correlation. This suggests that countries that engage in more trade are less likely to engage in arms deals, and vice versa.

The correlation coefficient between arms and military is 0.405, indicating a moderate positive correlation. This suggests that countries that engage in more arms deals are also more likely to have larger military forces. This correlation could be explained by the fact that arms deal often involve the purchase of weapons for military use.

The correlation coefficient between financial and travel is 0.107, indicating a weak positive correlation. This suggests that countries that are more financially interconnected (e.g., through trade and investment) are also more likely to have higher levels of travel between them.

It's worth noting that correlation coefficients only measure the strength and direction of linear relationships between variables. They do not necessarily capture all aspects of the relationship between variables, and they cannot be used to infer causality. further analysis may be necessary to fully understand the nature of these relationships.

Regression analysis

Variables for the results can be considered significant time, arms, financial and others which include sanctions on agriculture, commodities, private institutions, etc. As all these variables had a P value of less than 0.05.

- As the beta value is 0.028 for the variable time in years signifies that if the sanction is imposed for one additional year, the chances that it will be a success are close to 3%

- As the beta value is 0.17 for the variable financial sanctions signifies that if the sanction was a financial/economics sanctions, the chances that it will be a success are close to 17%
- As the beta value is 0.44 for the variable other signifies that if the sanction is imposed on other variable like agriculture, commodities, private institutions, et cetera. then the chances that it will be a success is to 44%
- As the beta value is -0.26 for the variable arms signifies that if the sanction is imposed on arms, then the chances that it is likely to fail is around 26%

Based on the above data analysis, the following factors of sanction imposition significantly determine the success and failure of the sanction.

- Time= Longer the period of sanction it is likely to be succeed
- Financial = If the sanction was on economic/financial it is more likely to be succeed
- Other= if the sanction was on "other" it is more likely to be succeed
- Arms = if the sanction was on arms, then the sanction is more likely to fail

Case based analysis

a) US – China Trade War

- Limited impact of tariffs on US production: Despite the implementation of steel import tariffs in 2018, US crude steel production has not demonstrated a significant and sustained increase. Overall production remained relatively stable between 2016 and 2023 (Graph: 1).
- China's dominant position remains unchallenged: China maintains its position as the world's leading steel producer by a considerable margin. Although tariff measures may have caused slight production adjustments within specific categories, China's total steel output shows a consistent upward trend. (Graph: 2).
- No evidence of increase in welfare to domestic producers in USA as many countries in the market are willing to import in much cheaper price than USA's domestic production cost
- No evidence of loss in welfare to China as many countries are willing to buy China's goods which are supposed to be exported to USA

US tariffs on Chinese steel didn't significantly boost domestic production but harmed both nations: China faced market losses and retaliation, while US saw higher prices and disruptions. Short-term gains for some US steelmakers come at the cost of overall economic harm in both countries. Protectionist policies like tariffs create trade barriers and inefficiencies, harming everyone in the long run.

b) Russia – EU trade analysis (Post Russia – Ukraine War)

- As a result of the sanctions, there was a major trade disruption especially in the energy sector where European Union was majorly dependent on Russian imports which was reflected as an increase in the inflation for consumers in both the countries.
- The negative effect is also noted in the annual real GDP growth rate.
- Even though long-term impacts are still unknown, the trade disruption caused by sanctions acted as a major source for trade diversion for both the countries where Russia redirected oil shipments to Asian and African markets and Norway and US replaced Russia as major energy imports to the EU.

Conclusion:

Owing to their nonviolent character, economic penalties are increasingly being used by governments to apply pressure on others. However, the efficiency of punishments has frequently been a matter of concern. Our research helped us identify some interesting facts regarding sanctions. While extending their duration and targeting them towards the economy or a broad other category significantly improves their success rate, involving arms backfired significantly and in few other categories it even increased the chance of failure. Finally, based on the negative correlation of arms and financials we understand that sanction is harmful for both the countries involved.

Further while delving into the case analysis of US tariffs on Chinese steel reveal that it didn't significantly boost domestic production but harmed both nations: China faced market losses and retaliation, while US saw higher prices and disruptions. Short-term gains for some US steelmakers come at the cost of overall economic harm in both countries.

Similarly, case based analysis of trade disruptions between Russia and European Union as and consequence of the Russian invasion of Ukraine revealed that sanctions led to economic disruption for both the coalitions. The immediate effects were clearly reflected in the inflation rates and GDP growth rates within the countries. Even though the countries are slowly recovering through trade diversion short term economic shocks, long term implications are still under study as this is an ongoing situation.

Sanctions can have varying impacts on the target country, including political and economic effects, as well as potential humanitarian consequences. For example, sanctions may lead to a decrease in foreign investment, decreased access to key resources, and a slowdown in economic growth. Furthermore, sanctions can also lead to increased poverty, decreased access to healthcare and education, and potential human rights violations.

The success of sanctions depends on several factors, including the level of international support, the level of economic dependence of the target country on the rest of the world, and the resilience of the target country's economy. When sanctions are imposed by a large number of countries, they are more likely to have a significant impact. However, if the target country has a strong domestic economy or is not heavily reliant on international trade, the impact of sanctions may be limited.

Moreover, sanctions can sometimes lead to unintended consequences, such as increased corruption, increased government repression, or decreased support for democratic movements. For example, sanctions can lead to a consolidation of power within the government, making it more difficult for opposition groups to challenge the status quo.

To maximize the effectiveness of economic sanctions, they should be carefully designed and implemented in conjunction with other diplomatic and economic measures, such as negotiations and incentives for positive behavior. For example, imposing targeted sanctions against specific individuals or entities that are responsible for human rights violations may be more effective than imposing broad-based sanctions that can harm civilians. Additionally, providing incentives for positive behavior, such as lifting sanctions in exchange for specific actions, can encourage the target country to comply with international norms and regulations.

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Young Investors' Awareness About Stock Market in Tier 1 And Tier 2 Cities – A Comparative Study

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This research paper won the third prize at Research Fair 2023-24: A national level Intercollegiate Research Paper Presentation Competition held by the Research Committee of SVKM's Narsee Monjee College of Commerce and Economics on 11th January 2024.

Abstract:

Stock Market is a marketplace for buying and selling shares of companies that are publicly listed. The stock market is a crucial tool for assessing the economic condition of a country. It is referred to as the heartbeat of the economy. The stock market is often looked up as a 'wager' or 'luck' but in fact, it is one of the most calculated forms of investment. Investors should be aware about working of the stock market and how their investments can benefit them in short to long run. For the future growth and development of an investor as well as society at large, investors' awareness is crucial. This current research aims to assess and compare the awareness level of young investors from Tier-1 (Mumbai) and Tier-2 (Nashik) cities of Maharashtra about stock market and recommend measures to increase the levels of awareness among investors by conducting more Investor Awareness Programmes (IAP), inculcating basics of finance and investments by organising seminars and/or use of social media platforms. The data was collected through online survey using a well-structured questionnaire. The participants were chosen through a process of simple random sampling. The survey received total 104 responses.

Keywords – Stock market, Young investors, Investors' awareness, Equity, Economic indicator.

Introduction:

India has been a country of savers since the beginning of time, the habit of savings is passed down through generations, but to cope up with inflation, savings aren't enough; for that we need investments. In general 'Investments' or 'Investing' means to put your money in an asset or a business or in the bank with the aim of appreciation.

One of the ways of investments is putting money in the stock market. Stock market is a platform for buyers and sellers to trade in shares and securities of public listed companies. A share is basically a part of ownership of the company. The money given by investors, in stock market terms-shareholders, is then used by companies for the development and growth of their businesses.

With the Indian scenario the stock market can be divided into National Stock Exchange (NSE) and Bombay Stock exchange (BSE), located at the famous Dalal Street, Mumbai. These exchanges are the platform for trading in India. Public companies list themselves here and offer their shares to the traders at large.

It all started in the 1850s when stock brokers used to gather under a Banyan tree in front of Mumbai Town Hall, then to match with the international standards and to update itself, digital trading known as BSE On-Line Trading (BOLT) was introduced on 14th Mar 1995.

It took the Bombay Stock Exchange more than 12 years to get their first 5 crore investors, however the next 5 crore investors joined in less than 2 years, fast forward to 2023, BSE has 13,85,95,516 investors and counting.

NSE on the other hand started the decentralised way for dealing; it mainly dealt in debentures and bonds rather than shares, starting from 1993. In terms of trading volumes, it is the largest derivatives exchange in the world and the third largest in cash equities. As of 2023, there are more than 5000 companies listed on BSE and more than 2000 companies are listed on NSE, T+1 settlement has begun on both BSE and NSE, NSE is also a participant of the International exchange at the Gift City known as GIFT NIFTY, this not only adds to the Indian market but also increases its international reach and acceptance.

Stock Market investments are done through decentralised accounts commonly called Demat accounts, via brokers. According to a report by the Securities and Exchange Board of India (SEBI), the number of demat accounts in India has increased from 2.3 crores in March 2010 to 5.3 crores in March 2021, indicating a rise in the number of investors participating in the stock market.

Even though we see the growth in numbers, in reality, according to the survey by the Reserve Bank of India, only around 8% of the Indian population invest in the stock market. About 30% of these accounts are from Maharashtra and Gujarat. Generally, Indians keep themselves away from the equity market mainly on account of the trust factor and prefer traditional methods of investment like gold or fixed deposits which are considered safer in the longer run. There is a prejudice among Indians that the stock market is similar to 'gambling', where gambling is mostly on luck, stock market investments are strategized, risk-calculated investments. The stock market is a place where the basic returns one can get (10%) are more than the maximum returns of a Fixed Deposit (7%). The stock market has the additional benefit of securing from inflation which rarely any other investment options provide. The stock market replicates what happens to the economy.

When more people participate in the market, there will be a gradual shift in the economy, businesses will flourish, GDP will increase, the market will expand, etc. Every major and minor change in the country and economy is reflected by the prices of shares. The rise and fall in the share prices indicate inflation or recession of the economy.
Furthermore, the research breaks down the 'pulse of the economy' into pre-defined Tier-1 and Tier-2 cities to check and compare the levels of awareness. With respect to the classification, this research compares Tier 1 city-Mumbai and Tier 2 city-Nashik.

Scope of the Research:

A review of the literature finds that many research in the past has focused on investor awareness about stock market in India, but very few studies have compared young investors' awareness about stock market in Tier-1 and Tier-2 cities of Maharashtra. The scope of the study is to find out differences between, Tier-1 and Tier-2 cities' young investors awareness about stock market and the reasons for differences if any arise.

Review of Literature:

Ramprasad, S. H. in 2023, in their study ‘A Behavioural Study of Middle-Class Individual Investors Awareness Perception and Preference towards Capital Market Investment in Maharashtra’, found that middle class constitutes the major proportion of the Indian population and this paper studies the same with respect to their awareness about investments. This paper specifically talks about middle class investors belonging to Maharashtra and their perceptions and preferences towards capital market investments. According to the study, the middle-class investors influence the demand and supply of need and comfort products to a great degree.

Bhatt, M. G. S. K, in their paper, ‘A study of the level of stock market investment awareness among young entrepreneurs, with a focus on the Mumbai region’, 2022, give an insight about young entrepreneurs in Mumbai region and their expectations about the stock market with the variables of information sources, investment goals, technological innovations and professional training. It was concluded that their common investment goals are income growth in the short run and appreciation of capital in the long run.

Patil, S. R., & Jadhav, S. D. in 2022, wrote the study, ‘Investment Awareness and Preferences Among Collage Going Students Towards the Stock Market’. From this research, conducted in the city of Islampur, we found that most of the college going students are aware about the stock market investment, but are not equally aware about the digital currency-Bitcoin. Students mostly invest for future contingencies rather than tax purposes.

Agarwal, S., Ayyagari, M., Cheng, Y., & Ghosh, P. in 2021 in their paper Road to stock market participation’ said that, even though India is a fast growing and developing country, it has a high saving rate but a low investing rate. This paper suggests that physical infrastructural advancement can lead to higher financial literacy and in turn stock market participation.

Chaudhary, R., Bakhshi, P., & Gupta, H. in 2020 wrote the paper titled ‘The performance of the Indian stock market during COVID-19’. In their quantitative study they compared Indian markets with International markets during the period of Covid-19. The selected indices were compared with respect to skewness and kurtosis values. The Indian market showed a higher negative skewness as compared to other markets which concludes a higher volatility.

Sivaramakrishnan, S., & Srivastava, M. in 2019, in their paper ‘Financial well-being, risk avoidance and stock market participation’, concluding that the main reason for low stock market participation is the risk-averse behaviour of households. The relationship between stock market participation and risk avoidance is well established by Grable, 2003 and Wärneryd, 2001. They suggest that, in a high-inflation economy like India, people should participate in the markets and avail the equity premium to maintain future purchasing power of savings.

Mate, R., & Dam, L. in their study, ‘Financial literacy about stock market among the participants of Bombay Stock Exchange’, in 2018, conducted in Pune among BSE participants, concludes that the nature of income and financial literacy are the main factors in stock market participation. They also mention that salaried employees are found to be more active in the stock market rather than self-employed people. Educational and Family background also play a role in financial literacy.

Vohra, T., & Kaur, M, in 2016, wrote the paper ‘Awareness and Stock Market Participation of Women: A Comparative Study of Stock Investors and Non-Investors’. This study gives us an image of female participation in the stock market. It concludes that women are aware about the market but take a step back when it comes to participation. They suggest that the Securities and Exchange Board of India (SEBI) as a regulator of the stock market and other associations in India should conduct more awareness and education camps, especially for women, so that they can also play a more active role in the stock market.

Ramakrishnan, D. R. in 2012, wrote the paper ‘Financial literacy and financial inclusion’. This study adds on to the fact that India is a nation of savers and should develop to become a country of investors, which will lead to optimum use of its financial potential. It can also benefit the economy by encouraging genuine competition, forcing the service providers to innovate and improve their levels of efficiency.

Objectives:

1) To study young investors' awareness about the stock market.
2) To study and compare the level of awareness about the stock market among young investors of Tier-1 & Tier-2 city.
3) To recommend measures for improving awareness about stock market among youngsters.

Methodology:

This is a quantitative study comparing Tier-1 and Tier-2 cities' awareness, for measuring the awareness, questionnaires were sent to youngsters in Nashik and Mumbai asking them a few questions related to demat accounts, the professions of trading hedging and speculating, technical terms such as Return on Equity (ROE) and Return on Capital Employed (ROCE) fundamental analysis, etc.

For the secondary data, literature related to stock market behaviour, financial literacy, investors' awareness was referred.

Hypothesis:

H1-Investors in Tier-1 and Tier-2 city are aware about the stock markets.
H2-Investors in Tier-1 city are more aware as compared to Tier-2 city.

Data Analysis and Interpretation:

City you belong to

Tire 1 city – Mumbai

Tire 2 city - Nasik

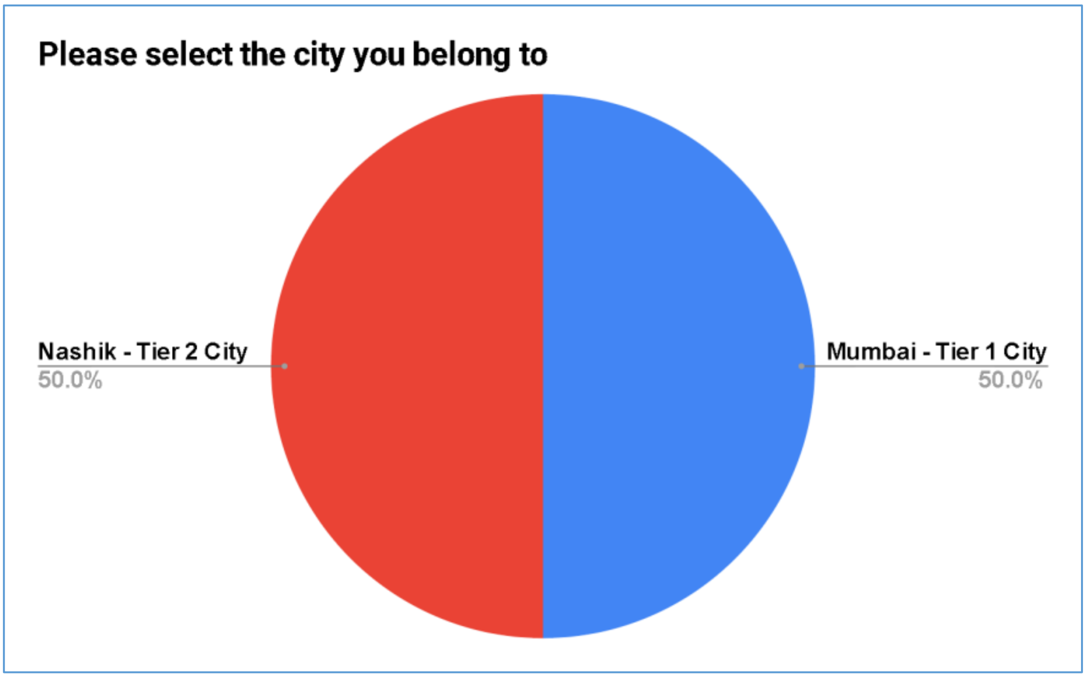
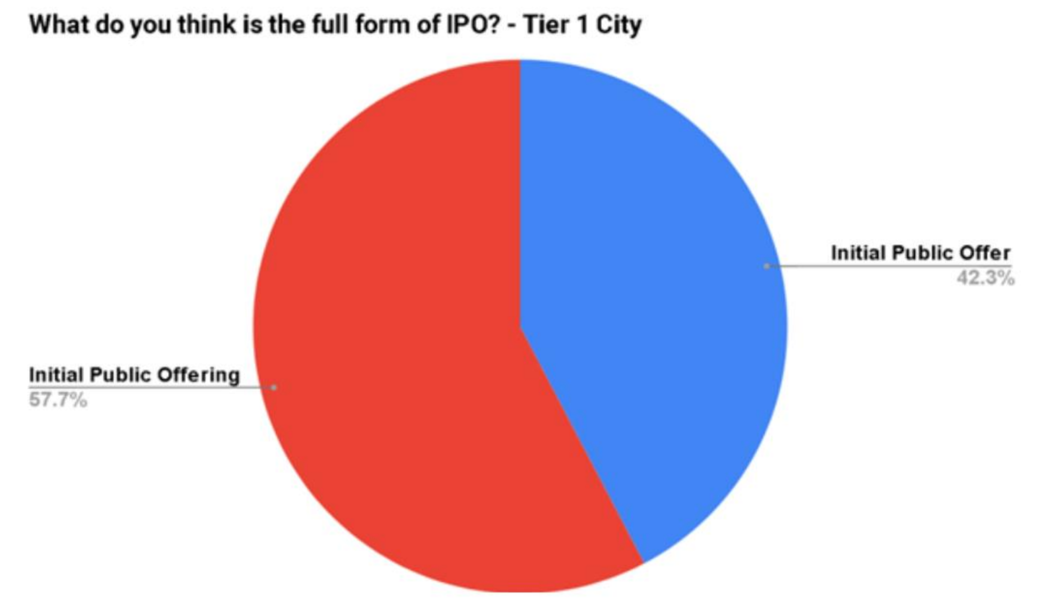
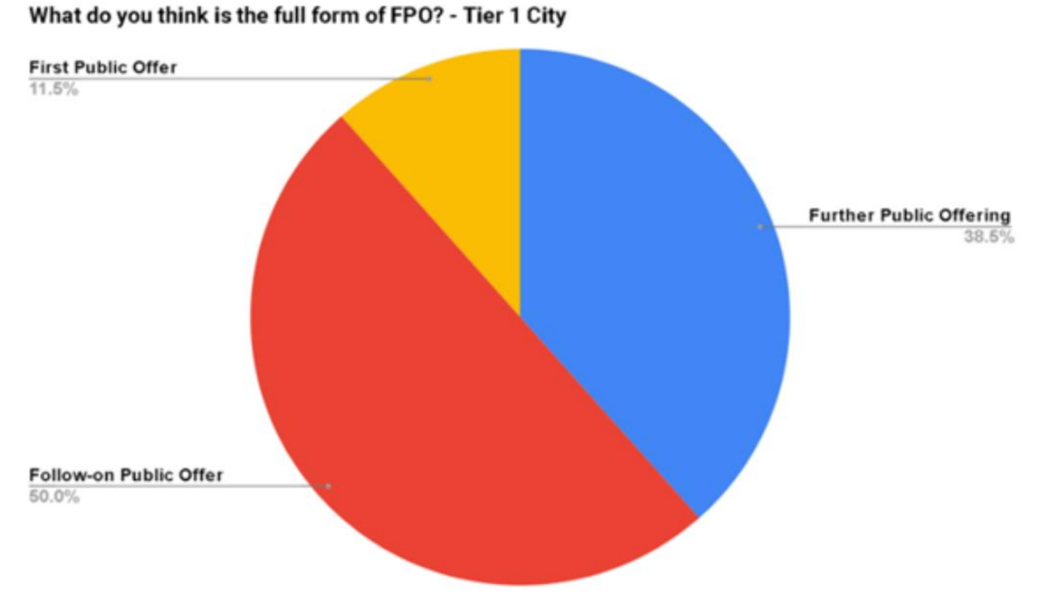
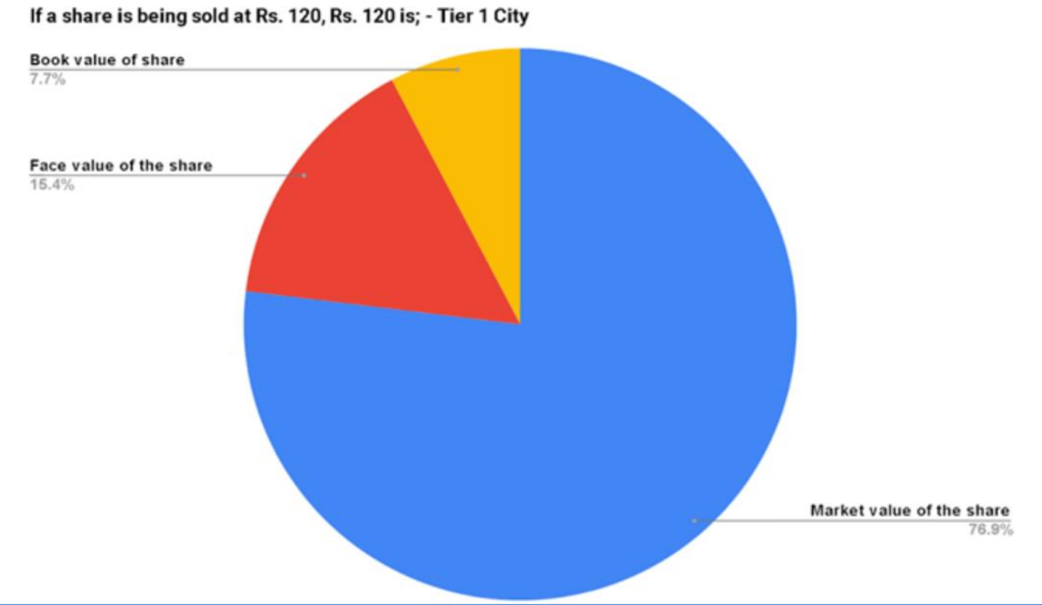


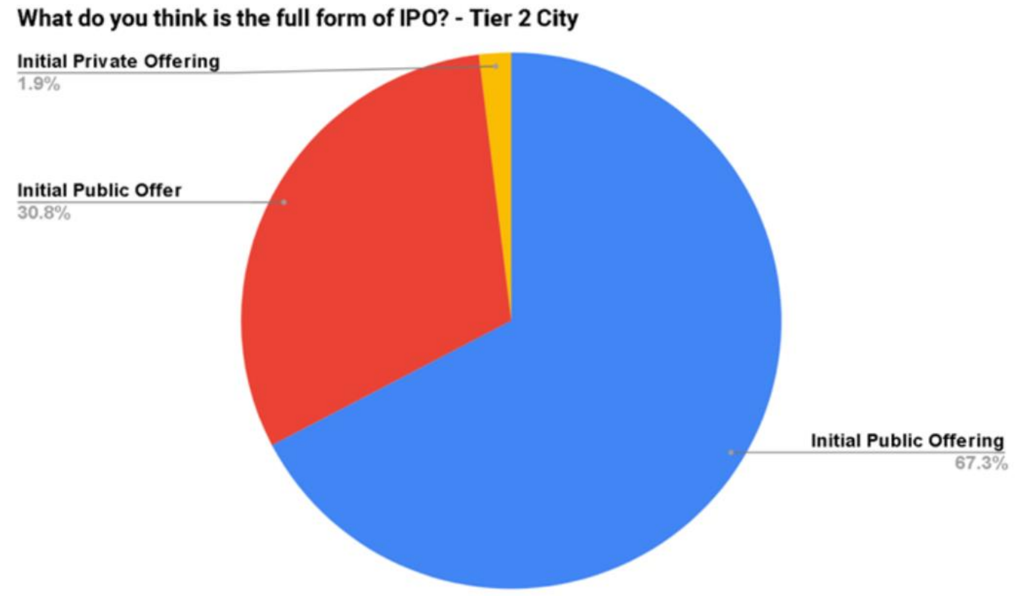
Table 1

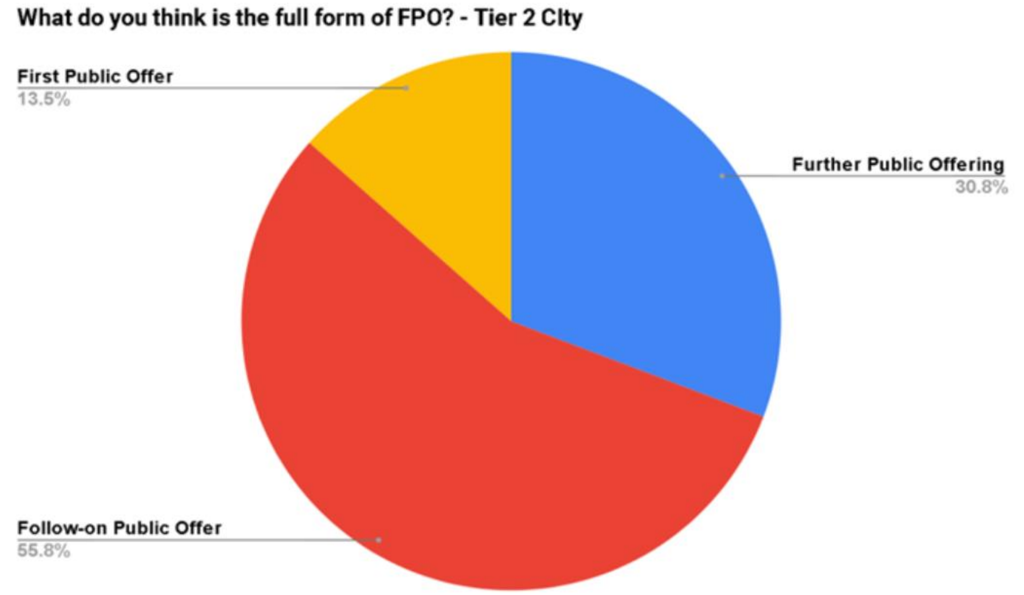
Demographic statistics of respondents					
		Tier-1 City		Tier-2 City	
		Frequency	Percentage	Frequency	Percentage
Age	18 -20 Years	33	63.5%	32	61.5%
	20-25 Years	16	30.8%	18	34.6%
	25-30 Years	3	5.85%	2	3.8%
Qualification	SSC	0	0%	0	0%
	HSC	1	1.9%	1	1.9%
	Under graduate or pursuing	41	78.9%	42	80.8%
	Post Graduate or pursuing	9	17.3%	4	7.7%
	Professional Qualifications	1	1.9%	5	9.6%


What do you think is the full form of IPO? - Tier 1 City
Initial Public Offer
42.3%
Initial Public Offering
57.7%


What do you think is the full form of FPO? - Tier 1 City
First Public Offer
11.5%
Further Public Offering
38.5%
Follow-on Public Offer
50.0%


If a share is being sold at Rs. 120, Rs. 120 is; - Tier 1 City
Book value of share
7.7%
Face value of the share
15.4%
Market value of the share
76.9%


What do you think is the full form of IPO? - Tier 2 City
Initial Private Offering
1.9%
Initial Public Offer
30.8%
Initial Public Offering
67.3%


What do you think is the full form of FPO? - Tier 2 CIty
First Public Offer
13.5%
Further Public Offering
30.8%
Follow-on Public Offer
55.8%

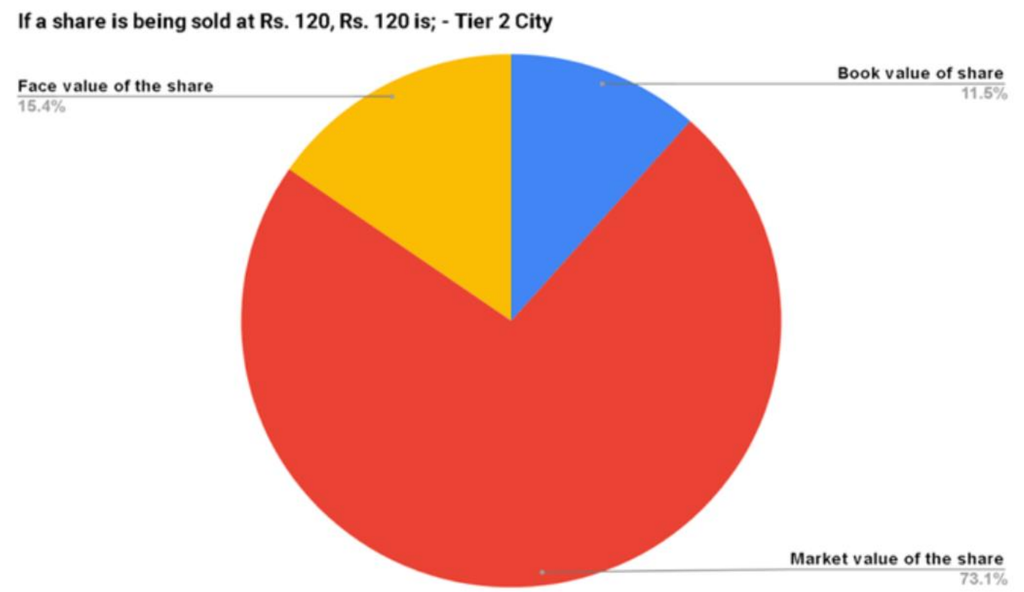

If a share is being sold at Rs. 120, Rs. 120 is; - Tier 2 City
Face value of the share
15.4%
Book value of share
11.5%
Market value of the share
73.1%

Table 2

Repeated Measures ANOVA (Non-parametric) (Friedman)

χ^2	df	p
127	9	< .001

The Repeated measures ANOVA, which is Analysis of variance, analyses groups of related dependent variables, in this case, the various responses on awareness on the basis of the likert scale of 1 to 5, where 1 represented 'Not aware' and 5 denoted 'Highly aware', that represent different measurements of the same attribute, which are the 2 tiers of cities Mumbai-Tier 1 and Nashik-Tier 2.

The p value is less than 0.01, which indicates that the variables are less than 0.01 away from the mean. Thus, based on results in Table 2 we conclude that H1 is convincingly supported.

Table 3

One sample T-test – Tier 1 City (Mumbai)		**Statistic**	**df**	**p**
Are you aware about Demat account?	Student's t	3.6078	51	< .001
Are you aware about the terms Trading, Hedging, Speculating, etc.?	Student's t	0.7653	51	0.448
Are you aware about Foreign Institutional Investor (FII) and Domestic Institutional Investors (DII)?	Student's t	-0.9707	51	0.336
Are you aware about the difference between Technical and Fundamental analysis?	Student's t	-1.7775	51	0.081
Are you aware about the difference between Returns on Equity (ROE) and Returns on Capital Employed (ROCE)?	Student's t	0.1962	51	0.845
Rate your overall awareness about Stock Market?	Student's t	-0.7243	51	0.472

Note. H_a $\mu \neq 3$ Source-Research's analysis

Table 4

One sample T-test – Tier 2 City (Nashik)		**Statistic**	**df**	**p**
Are you aware about Demat account?	Student's t	1.568	51	0.062
Are you aware about the terms Trading, Hedging, Speculating, etc.?	Student's t	-0.114	51	0.545
Are you aware about Foreign Institutional Investor (FII) and Domestic Institutional Investors (DII)?	Student's t	-0.861	51	0.803
Are you aware about the difference between Technical and Fundamental analysis?	Student's t	-1.624	51	0.945
Are you aware about the difference between Returns on Equity (ROE) and Returns on Capital Employed (ROCE)?	Student's t	-1.452	51	0.924
Rate your overall awareness about Stock Market?	Student's t	-1.704	51	0.953

Note. H_a $\mu \neq 3$ Source-Research's analysis

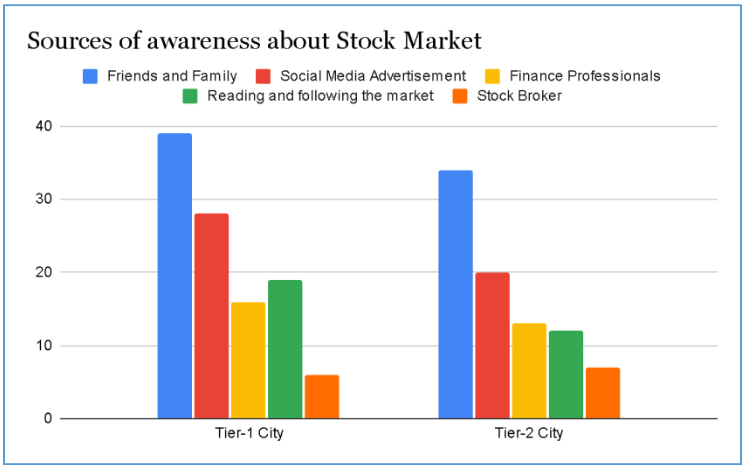
One sample T-test helps to find the difference between the unknown population mean and the specific value. The mean here is taken as 'not equal to 3'. This test measures the difference between the mean and the actual output of the variable.

Here we see that, the difference between the mean of Tier-1 City (Mumbai) and its variables is less as compared to the difference between the mean of Tier-2 City (Nashik) and its variables. This signifies that variables of Mumbai are closer to its mean in contrast to Nashik.

Thus, based on results in Table 3 and Table 4, H2 is satisfied.

Conclusion and suggestions:

To conclude, H1 is supported by the analyses in Table 2 and H2 is proven with the help of Table 3 and Table 4. However, regulatory authorities such as the SEBI, NSE and BSE and other institutions which regularly spread knowledge and awareness, should conduct more investors' awareness program in the cities, especially in Tier-2 cities. Stock brokers and firms in the city can also spread awareness by regularly educating their clients to understand the stock market and be more financially literate in general. Educational institutions, such as higher secondary schools and colleges, can also contribute to this by conducting seminars and sessions on stock market awareness.



Additionally, as the charts suggest, main source of awareness for respondents in Tier-2 city are friends and family while on the other hand in Tier-1 city social media advertisements, reading and following the market and finance professionals also have a share for creating awareness. Consequently, there is an extensive scope in Tier-2 cities for utilising the social media platforms to spread awareness about stock market and financial literacy over-all.

Limitations:

1) The study is limited to the state of Maharashtra and the cities - Mumbai (Tier-1) and Nashik (Tier-2).
2) The Age group for this study was taken from the age of 18 years to 30 years.
3) Investments in the stock market are the only form of investments studied here, thus it cannot be applied to investments in general.

Scope for further research:

The Indian Stock Market is as diverse as it can get. It aids and reflects the economy of the country. This research only talks about the awareness levels among people of the age group 18-30 years in two cities, a further step can be taken by conducting research on stock market participation. Similar research can be conducted for other financial products, services and instruments such as Mutual Funds, insurance or bonds.

More comparative research can be conducted in different states and among different variables such as gender, age, educational qualification etc. This research provides a base to small scale comparison about stock market awareness and how the gap can be bridged.

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Impact Of Inflation On Consumers: Understanding The Impact Of Inflation On Consumer Behaviour: A Comprehensive Analysis.

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**** This research paper won the First Prize at Epsilon 23-24: An Intercollegiate Research Paper Presentation Competition held by the Economics Association of SVKM's Narsee Monjee College of Commerce and Economics on 20th February 2024.***

Abstract:

This research paper investigated the multifaceted effects of inflation on consumers, aiming to provide a comprehensive understanding of how rising prices impact individuals' purchasing power, financial decisions, and overall well-being. The study employs both qualitative and quantitative research methods to analyse consumer behaviour, economic indicators, and inflationary trends. Consumers experience the impact of inflation through increased prices, which can reduce purchasing power and affect their overall cost of living. Understanding these effects helps individuals make informed financial decisions.

Introduction:

Inflation, as a persistent increase in the general price level of goods and services, constitutes a complex economic phenomenon with profound implications for individuals and societies.

This research endeavours to delve into the intricate web of relationships between inflation and consumer behaviour, unravelling the multifaceted ways in which rising prices influence the choices and patterns of consumers.

The consumer, being the linchpin of any economy, plays a pivotal role in shaping market dynamics and overall economic stability. As inflation exerts its influence on the purchasing power of individuals, it sets in motion a cascade of adjustments in consumer spending habits, investment decisions, and overall well-being.

Understanding the impact of inflation on consumers is paramount not only for individuals navigating their financial landscapes but also for policy makers crafting measures to sustain economic equilibrium. This research seeks to bridge the existing knowledge gap by exploring the nuanced dimensions of how inflation reverberates through various facets of consumer behaviour.

The significance of this study lies in its potential to offer insights that extend beyond statistical analyses, providing a holistic understanding of the lived experiences of consumers in the face of inflationary pressure.

Literature Review:

1) Studies by economists such as Milton Friedman and Franco Modigliani have explored the relationship between consumer behaviour and inflation. Milton Friedman. (1957) "Permanent Income Hypothesis". A Theory of the Consumption Function". It posits that individuals base their consumption decisions on their long-term income expectations rather than short-term fluctuations caused by inflation. Modigliani's "Life Cycle Hypothesis" suggests that consumption patterns are influenced by individuals' lifecycle stages and expectations of future income, which may be impacted by inflation.

2) Mankiw, N. Gregory. "The Inflation Tax." Journal of Money, Credit and Banking 13, no. 4 (1981): 497-508. In this paper, Mankiw discusses the concept of the "inflation tax" and its implications for consumer behaviour and welfare. He examines how inflation erodes the real value of money holdings and redistributes wealth within the economy.

Mankiw's research emphasises the importance of inflation expectations in shaping consumer behaviour. He argues that individuals form rational expectations about future inflation rates based on available information, including past trends and central bank policies.

These expectations, in turn, influence current spending decisions, as consumers adjust their consumption patterns in anticipation of future price changes.

Scope of Research:

1. Inform policy decisions: By providing insights into how inflation impacts consumer behaviour, the study can help policymakers formulate more effective monetary and fiscal policies to mitigate adverse effects on households and the broader economy.
2. Guide future research: The findings can serve as a foundation for future studies, exploring specific aspects of inflation’s impact on consumers, such as it’s effects on different demographic groups, consumption patterns, or welfare outcomes.
3. Empower financial planning: Consumers, financial advisors, and policy makers can leverage the studies insights to make more informed decisions regarding budgeting, saving, investing, and borrowing, in the face of Inflationary environments.
4. Contribute to academic discourse: The studies findings can enrich academic discourse on the intersection of macroeconomics, consumer behaviour, and public policy, fostering ongoing dialogue and debate among scholars and practitioners.

Aim / Objective of Research:

1. Examine the Relationship between inflation and consumers.
2. Understand Consumer Spending Patterns.
3. Evaluate Purchasing Power Changes.
4. Assess Financial Literacy and Coping Strategies.
5. Analyse Impact on Savings and Investments.
6. Contribute to Academic Understanding.

These objectives collectively aim to provide a comprehensive understanding of how inflation impacts consumers, offering insights that can inform both academic research and practical policymaking.

Methodology:

This research, focuses on investigating the impact of inflation on consumer behaviour, primarily relying on primary data collected directly from participants.

The study sought to capture the complexity of consumer responses to inflation. The Quantitative phase involved the distribution of a structured questionnaire, collecting over 90 responses. This survey, compromising close-ended questions, focused on key aspects such as spending patterns, adjustments made due to inflation, and overall perceptions of economic conditions.

To supplement the quantitative findings with deeper insights, the questionnaire allowed respondents to articulate their experiences, opinions, and sentiments regarding the impact of inflation on their behaviour and decision-making processes.

The sampling strategy employed a stratified random approach, ensuring that the participant pool was diverse and representative. Stratification was based on crucial factors including age and income levels.

Ethical considerations were paramount throughout the research process. Informed consent was obtained from all, emphasizing the principles of confidentiality, privacy, and voluntary participation.

The study explicitly relied on primary data collected directly from participants, acknowledging the importance of first-hand insights into consumer behaviour in response to inflation.

Data Analysis / Interpretation:

This section presents a comprehensive analysis of the survey data focused on understanding the intricate dynamics of how inflation influences consumer behaviour. The survey, conducted to gauge the impact of inflation on various aspects of consumer decision-making, encompasses responses from 91 participants. Subsequently, we delve into the intricate interplay between inflation and consumer spending patterns, saving behaviour, and overall economic sentiments.

- The survey population was meticulously categorised into distinct *age groups* to ensure a comprehensive understanding of the diverse perspectives prevalent among respondents. The age brackets employed for this classification were delineated as follows: below 18, 18 to 25, 25 to 40, 40 to 60, and 60+. This strategic categorisation aimed to capture the varying life stages and experiences that different age groups bring to the exploration of the impact of inflation on consumer behaviour.

Notably, an analysis of the demographical distribution reveals intriguing insights. A substantial proportion, accounting for 62.6 % of the respondents fall within the age range of 40-60. This demographic segment primarily constitutes individuals who are actively engaged in income-earning activities and are likely to possess a wealth of economic experience. Concurrently, 24.2 % of respondents belong to the 18-25 age group, indicating a significant representation of students and early career professionals.

An intricate examination of the *occupational backgrounds* of the survey reveals that the majority, constituting 61.5 % of respondents are actively engaged in professional work, providing a valuable input into the impact of inflation on those contributing to the economy.

Furthermore, 28.6 % of survey participants are students. The inclusion of this segment ensures that the survey encapsulates the unique challenges faced by students, who are often navigating their financial landscapes amidst educational pursuits.

Lastly 7.7 % of respondents are involved in ‘other’ activities, which may fall outside the conventional categories of student or work life.

A meticulous analysis of the survey participants’ *household income* unveils a diverse economic landscape among respondents. The majority, constituting 82.4 %, reported a household income surpassing ₹50,000. This segment reflects a substantial proportion of participants with a robust financial standing.

In contrast, 7.7 % of respondents indicated a household income ranging from ₹10,000-

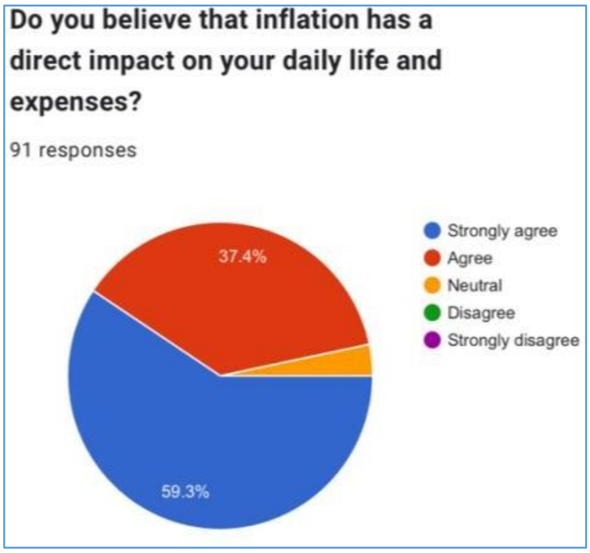
₹50,000, encapsulating individuals experiencing varying degrees of economic circumstances.

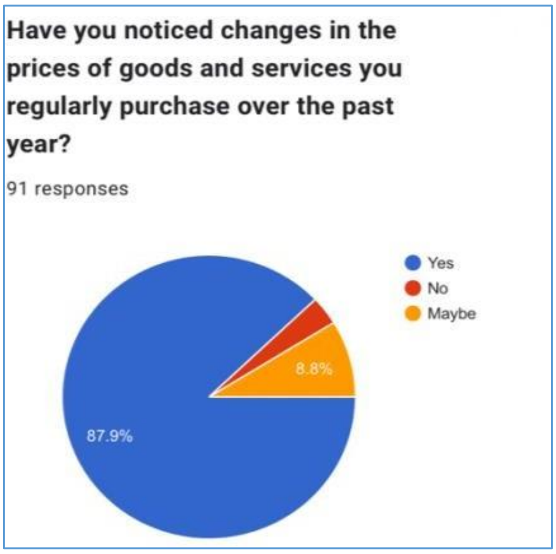
Additionally, 9.9 % of respondents indicated a household income below ₹10,000, portraying a subset facing economic challenges.

This detailed breakdown of household income distribution provides valuable insights into the economic diversity within the surveyed population.

A substantial majority, compromising 68.1 % demonstrated a high level of awareness, categorising them as being "very aware" of the intricacies of inflation.

In addition, 28.9 % of respondents indicated a moderate level of familiarity. Interestingly, a negligible percentage of participants expressed minimal acquaintance, indicating that very few individuals were "not at all familiar" with the concept.





The respondents were asked to specify the types of items that they have *noticed significant changes* in. Notable mentions include increased prices in daily commodities such as petrol and vegetables.

One participant highlighted the rise in rickshaw fares, citing an increase from ₹18 to ₹23 now, as a tangible manifestation of inflation.

Others emphasised changes in items like clothes, groceries, entertainment and household products.

The impact extends to broader categories, such as gold, silver, and consumer goods, reflecting the interconnectedness of inflation with various aspects of daily life.

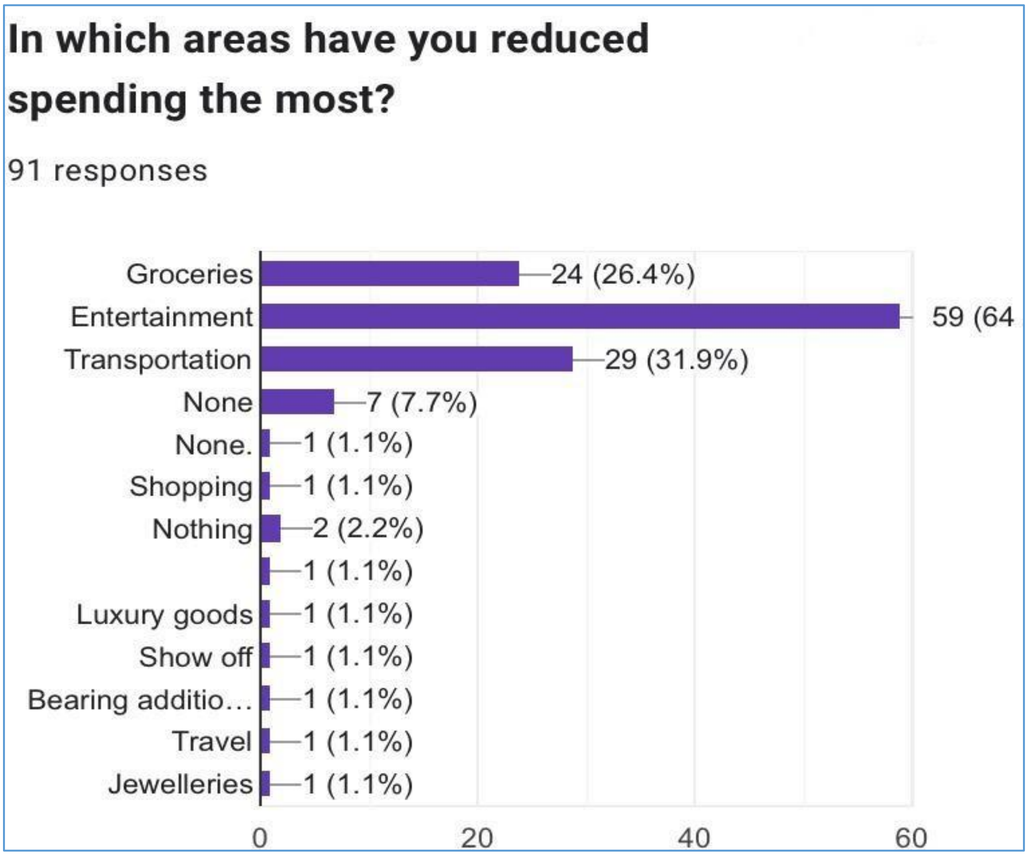
The survey captured a sentiment of comprehensive inflation, affecting everything from food items to transportation, housing, education, etc.

When asked if the respondents have *altered their spending habits* due to inflation, around 53.8 % people agreed to it while 46.2 % did not.

The survey participants provided insights into the adjustments they have made in response to inflation, reflecting a spectrum of pragmatic strategies:

Some respondents indicated a reduction in overall consumption, adopting a more frugal approach to their spending habits. Several participants mentioned changes in their dining habits, opting to cook at home rather than dining out, and curtailing expenses on groceries and retail shopping. Others highlighted efforts to increase savings, either by reducing discretionary spending or by investing their saved funds for potential future growth. Number of respondents mentioned specific changes in purchasing behaviour, such as buying products less frequently or being more selective in their choices. There were mentions of rationalising expenses, comparing prices more diligently, and restricting unnecessary expenditures. Some participants indicated compromises in their lifestyle choices or postponing purchases of non-essential items. A few respondents mentioned a conscious effort to prioritise essential purchases and to minimise pending on luxury or non-essential items.

These adjustments reflect a pragmatic response to the challenges posed by inflation with individuals adopting various strategies to navigate the changing economic landscape.



When asked about the areas in which they've reduced spending the most, respondents provided insights into their prioritisation of expenditure adjustments.

- The majority of respondents, Comprising 64% cited entertainment as the category where they have made the most significant spending reductions, reflecting a conscious decision to curtail expenses related to leisure activities and recreational pursuits.
- Additionally, 31.9% of respondents mentioned transportation as a key area where spending has been reduced, indicating efforts to minimise costs associated with commuting or travel.
- A sizeable portion, accounting for 26.4% identified groceries as another focal point for spending reduction, underscoring a concerted effort to economise on essential household expenses.
- Notably, a minority of respondents, constituting 10 individuals, indicated that they have not reduced spending in any particular area, suggesting a relatively stable financial outlook or alternative strategies for managing expenses.
- Other areas mentioned for spending reduction include shopping luxury goods and discretionary expenditures on shows or entertainment events.

Consideration of Alternative Brands or Products in response to Rising price:

- Approximately 34.1 % of respondents affirmed that they have indeed considered exploring alternative brands in light of rising prices, indicating a proactive approach to seeking more cost effective options in response to inflationary pressures.
- Conversely, the majority, comprising 50.5 % of respondents, indicated that they have not contemplated switching to alternative brands, suggesting a preference for maintaining loyalty to their existing choices despite price increases.
- A smaller proportion, constituting 15.4 % of respondents, expressed uncertainty, indicating a potential openness to exploring alternative options but with reservations or hesitations.

These findings offer insights into the nuanced consumer behaviour exhibited in response to price escalations, highlighting varying degrees of receptiveness to alternative bands as a strategy for mitigating the impact of inflation on household expenditures.

Increased caution in overall Spending due to inflation data:

- A majority, comprising 57.1% of respondents affirmed that they have indeed become more cautious with their overall spending as a consequence of inflation. This indicates a heightened awareness of the economic challenges posed by rising prices and a corresponding adjustment in spending habits to navigate the challenges prudently.
- Conversely, 23.1% of respondents indicated that they have not perceived any change in their spending caution despite the impact of inflation. ,this suggests a relatively stable approach to spending behaviour, unaffected by external economic factors such as price increases.

Awareness of Government Measures to address Inflation:

- A majority, constituting 51.6% of respondents, indicated that they were indeed aware of various government initiative, such as monetary and fiscal policies buffer stock operations and other interventions aimed at addressing inflationary pressures. This suggests a level of awareness and engagement with government efforts to manage economic conditions and stabilise prices.
- Whereas, 36.3 % of respondents reported that they were not Aware of any specific measures or policies implemented by the government to mitigate inflation. this highlights

a potential gap in information dissemination or public awareness regarding governmental actions in response to economic challenges.

- A smaller proportion comprising 12.1 % of respondents expressed uncertainty indicating a lack of definitive knowledge regarding government measures aimed at addressing inflation.

Anticipation of future changes in spending habits into ongoing Inflation:

- A significant majority, compromising 58.2% of respondents expressed anticipation of further adjustments in their spending habits if inflation companies inflation continues. This indicates a proactive mindset among individuals, recognising the ongoing impact of inflation on their financial well being and signalling preparedness to adapt their consumption patterns accordingly.
- This finding underscores the dynamic nature of consumer behaviour in response to prevailing economic conditions, veda a substantial proportion of respondents acknowledging the potential necessity for continued adjustments in their spending habits to navigate the challenges posed by persistent inflationary pressures.

Sources of information on inflation and its impact on consumers:

Respondents were asked about their primary sources of information regarding inflation and its implications for consumers, yielding the following insights.

- The majority of respondents, relying on newspapers and social media, indicated that these platforms act as their primary sources of information. This underscores the significance of traditional media and digital channels in disseminating economic information to the public.

Impact of Inflation on Financial decisions and expenditure:

- Regarding the impact of inflation on borrowing and debt management, 48.4 % of respondents affirmed that inflation has influenced their decision to borrow money or take on debt.
- In terms of the utilisation of savings and credit due to increased expenses related to inflation, 41.8 % of respondents acknowledged having to dip into their savings or use credit more frequently.
- This reflects the financial strain experienced by individuals in coping with rising expenses amidst inflationary pressures.

When asked about the affordability of essential goods like food are and healthcare, respondents provided varied assessments of inflation's impact, with 41.8 % indicating a moderate effect, 36.3 % reporting a little to no impact, and 15.4 % noting a significant impact. These responses underscore the nuanced nature of inflation's influence on consumer's ability to afford essential necessities.

Conclusion:

Inflation as revealed through this survey, exerts a multifaceted impact on Consumers, influencing their spending habits, financial decisions, and perceptions of affordability. The findings underscore a heightened awareness among respondents regarding inflationary pressures, with the majority indicating adjustments in their consumption patterns and financial strategies in response to rising prices.

Notably, the survey highlights the significance of information dissemination channels such as newspapers and social media in shaping consumer perceptions of inflation and its implications. Furthermore, the results reveal a nuanced understanding of inflation's effect on borrowing behaviour, expenditure habits, and the affordability of essential goods like food and health care.

As inflation continues to pose challenges for consumers, it becomes imperative for policymakers and stakeholders to address these concerns through targeted measures aimed at mitigating the impact on household finances. Enhanced financial literacy initiatives, proactive communication of government policies, and measures to stabilise prices can play a pivotal role in alleviating the burden of inflation on consumers.

Overall, while there may be variations in the degree of impact experienced by individual consumers, the survey findings suggest that inflation generally has a negative relationship with its impact on consumers, influencing their spending behaviour, financial decisions, and perceptions of affordability in adverse ways.

In conclusion, this survey provides valuable insights into the complex interplay between inflation and consumer behaviour underscoring the need for informed decision making and adaptive strategies to navigate the evolving economic landscape effectively.

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Generative AI In Building The Next Internet Economy Of India.

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**** This research paper won the Second Prize at Epsilon 23-24: An Intercollegiate Research Paper Presentation Competition held by the Economics Association of SVKM's Narsee Monjee College of Commerce and Economics on 20th February 2024.***

Abstract:

This research delves into the evolving landscape of generative AI and its potential impact on India's internet economy. Generative AI, characterized by algorithms creating new data basedon existing information, has gained prominence with OpenAI's breakthroughs like ChatGPT and DALL-E. The study aims to explore the symbiotic relationship between generative AI and the internet economy, focusing on India's unique context.

The research methodology employs an explanatory approach, drawing on existing literatureand conducting an experimental one-on-one session with advanced generative AI models. The scope encompasses a broad understanding of generative AI, the essentials of an interneteconomy, and an analysis of generative AI's economic impact. The primary objective is to decipher whether generative AI can play a pivotal role in India's next internet economy.

Data analysis reveals that generative AI has found significant application in customer-centricservices across major industries like Financial Services, Retail, Healthcare, Technology Services, Media, and Government. However, its utilization in executive decision-making roles remains limited, with a predominant focus on customer support activities. The study also highlights existing government frameworks, such as NITI Aayog's National Strategy for Artificial Intelligence, raising questions about the alignment of generative AI with responsible AI principles. In addition, conversations with AI chatbots like ChatGPT, Google Bard, and

Copilot by Bing shed light on the potential role of generative AI in policy-making. While generative AI offers insightful policy suggestions, concerns regarding accountability, privacy, security, and transparency arise. The AI models emphasize crucial factors like infrastructure, digital literacy, incentives for startups, foreign investments, and data privacy for fostering India's internet economy.

In conclusion, while generative AI demonstrates substantial potential in contributing to India's internet economy by offering valuable insights and services, its role should remain assistive rather than assertive. Human oversight remains indispensable for policy formulation, implementation, and addressing the nuanced challenges associated with building the next internet economy of India.

Introduction:

Before commencing, we must learn the basic connotations of Generative AI and Internet Economies. Generative AI refers to any code or algorithms which generate new outputs such as text, images, among other forms of data by referring to the vast swathes of data which theyhave already been trained on. In other words, generative AI looks upon past existing data to create new and relatively unobserved data. There has been a recent surge in the usage of generative AI due to OpenAI's chatbot ChatGPT and image generator DALL-E. These AIs have revolutionized data collection and creation, and made it much easier for people from all walks of life to create new ideas and improve upon existing ones. While innovative, such AI has often been criticized for impeding, or rather, replacing critical human thinking. However, the benefits of generative AI, including but not limited to pinpoint accuracy, unparalleled versatility, and ground-breaking efficiency, cements the fact that it should have a significant role in developing a futuristic and advanced internet economy.

An internet economy refers to that part of the economy which is based on the internet, and whose structure is significantly shaped by certain unique characteristics of the internet, which cannot be observed in a traditional economy. The Organization for Economic Co-operation and Development defines an internet economy as covering "the full range of our economic, social and cultural activities supported by the Internet and related information and communications technologies". The internet tends to be a core infrastructure in today's economic conditions. A large portion of economic transactions take place on or through the internet. Hence, we can say that the internet began as an important tool for improving communications, but evolved into a universal technology capable enough to be the backbone for an efficient and effective economy by itself.

Scope of Research:

The research conducted will primarily focus on the in-depth elucidations of generative AI andan internet economy, and the role of the former in developing and strengthening the latter for the country of India. This would include referring to articles about the subjects involved, examining and analysing the data, and concluding on whether or not it would be feasible for generative AI to have a major role in building India's next internet economy. The research will be limited to the country of India. The design of the research will be for the most part explanatory as we aim to get a better understanding of the way in which generative AI can beoptimally utilized to run an internet economy for India.

Aim of Research:

The research which is conducted will have the following aims and objectives:

- Gain a better understanding of Generative AI, and gain knowledge about its broaduses in the field of economics and commerce: The conducted research will enablereaders to develop a broader understanding of generative AI as a whole and emphasizing how such understanding will be fundamental in realising the use of generative AI in the field of economics and commerce.
- Uncover the essentials of an internet economy, and observe how the internet shapes modern economic conditions: Readers will be able to delve into what an internet economy consists of, and how such components are necessary in shaping modern economies and by extension, an internet economy backed by generative AI.
- Analysing the economic impact of generative AI, and how it can potentially either make or break entire economies: After comprehending the basics of generative AI, there will be an analysis done on how it may affect the current economic conditions,and whether it will be beneficial or not for the same.

Methodology Used:

In the research paper, there has been a usage of the explanatory methodology. Explanatory research refers to any research which is conducted for a situation which is relatively new to the world, and builds upon known facts and information. The overall idea is to understand the cause-and-effect relationship which aims to explain why the known phenomena occurs. The current topic warrants such a design, as the implications of utilizing generative AI for creating an internet economy for countries have been explored, however, there is an undeniable scope for more knowledge and research held within currently accessible documents and media. To this extent, the present research conducted primarily emphasizes on summarising any important materials which have been published regarding the topic, analysing such materials, and after mindful analysis, identifying and interpreting the analysed data to uncover generative AI's true role in forming India's next internet economy. Hence, the methodology used depends upon existing materials to form a new opinion on the subject matter. It also contains a one-on-one with the latest generative AI models to find out how much information they have regarding policy-making and internet economies. This can beconsidered experimental in design.

Data Implementation and Analysis:

Firstly, we must underline the various roles in which generative AI has already impacted internet economies. Most major, as well as a few minor service sector businesses have already implemented generative AI in the form of pseudo-personalized chatbots to help consumers by greeting them, offering them knowledge about the website and their services, and answering their frequently asked questions. These chatbots are helpful, as they save valuable time of the customer support department, as only those customers who have genuine problems which cannot be answered by the chatbot will be redirected to a person sitting at the call desk.

A recent research paper fronted by Rajiv Memani, the present Chairman and CEO of EY India, has highlighted the effects of generative AI on six major industries, namely Financial Services, Retail, Healthcare, Technology Services, Media and Entertainment, and Government and Public Services. This has been done through numerous surveys conductedby EY India itself. The collected data has been summarized below;

In the Financial Services (FS) sector, financial institutions have wasted no time in recognizing the transformative potential of generative AI. As evidenced by a survey, about 78% of the respondents in the survey have notably put the technology in place or plan to pilot it over in the next 12 months. 61% of the respondents believe that generative AI will have a huge impact on the entire value chain. This trend seems to be common across all avenues of the industries listed above.

Coming to the Retail sector, more than 50% of respondents believe that generative AI willhave a huge impact on the entire value chain. Currently, only 6% of respondents have implemented generative AI, however, 71% aim to adopt it within the next 12 months.

The Healthcare sector seems to be no different, as over 60% of the survey respondents believe that generative AI will undoubtedly have a high impact on their value chain. Though 80% of current Healthcare representatives admit that their organizations are not yet fully prepared to utilize generative AI, they are keenly interested in doing so in the near future.

In the tech services sector, as many as 86% have implemented generative AI, or will have implemented it in the near future. It has helped to bring the back-end centric tech services upto the forefront through thorough implementation of generative AI to rapidly cater to a large volume of their customers needs which would not be possible without the assistance of AI.

Speaking of Media & Entertainment, generative AI has had an undeniable impact as it has helped companies curate and analyse what users like to suggest new content. A glaring example can be in the form of Spotify, which delivers the exact music which a user may prefer to listen to. 77% of respondents have agreed that their organizations are quite ready tobenefit from generative AI.

With respect to Government and Public Services, Generative AI is projected to automate tasks, promote transparency and enhance policy analysis. 70% of respondents see a medium-high impact of generative AI while about 50% expect to implement it in the next 12 months.

The data which has been summarized above shows us that Generative AI is certainly being welcomed in major industries. However, a notable point is that it is being majorly utilised forthe sake of customer service activities. None of the organisations from the pool of sectors chosen above have expressed much interest in using generative AI in management and executive roles. This is presumably because of the risk involved in such positions, the burden of which cannot yet be placed upon generative AI. We can say that this fact carries over even to the policy making aspect in the Government and Public Sector. Hence, it is sufficient to assume that as of now, with respect to an internet economy in India, generative AI can only be utilized for customer centric purposes and not for executive decision-making purposes.

The role of AI in the Government sector, especially in policy drafting and analysis, brings us to our second aspect, which visualizes the framework which has been set for AI by the Government. It enables the creation of a projection regarding the extent to which generative AI can be used for curating policies. NITI Aayog has released a National Strategy for Artificial Intelligence in 2018, as well as the Principles of Responsible AI, which were finalized in 2021. They consist of principles pertaining to safety, reliability, equality, inclusivity, privacy, security, transparency, and accountability, to name a few. Hence, there are significant policies already in place to regulate AI with respect to policy making. The question that we should be asking is if generative AI falls in line with the above principles to ensure not only effectiveness, but also safety in these policies, as there is very little which canbe done in terms of indemnity when it comes to generative AI.

To elaborate on this, in case a policy formed by a generative AI were to go awry, who would be the one to blame? Would it be the creator of the generative AI? Or would it be the person who put the generative AI in charge of formulating such policies? The answer to this questionwould currently seem to be very ambiguous as it is very difficult to determine who would take the blame in case any significant material loss was to occur due to policies set by a generative AI. This directly contradicts the principle of accountability as mentioned above.

Moreover, the principles of privacy, security and transparency are also compromised as the AI would collect data regarding the information provided which would then be accessible tothose who may not have the authority to do so.

Thirdly, there has been a direct conversation with three prominent and widely used AI chatbots- ChatGPT, Google Bard, and Copilot by Bing, to obtain a slight idea of how it might be to depend on such generative AI for policies. While observing the results, a general disclaimer must be kept in mind that all of the above chatbots are experimental and the results may not guarantee any expected future outcomes. They are simply meant as an experiment to know how a generative AI may hypothetically act in a policy making scenario in India. The corresponding question, “Assume you were a policy maker for the country of India. What policies would you currently implement to foster growth and development of a new internet economy for India?”, has been asked to all the three AI mentioned above. The three AI have commonly agreed upon the following factors:

- Infrastructure
- Digital Literacy
- Incentives for start-ups
- Foreign Investments
- Data privacy and security

Through this, we may observe that generative AI makes up very compelling points when it comes to policy-making, however, they are limited to only providing ideas, whereas implementation cannot be done by them, as they are mere language models. Perhaps the future holds in store an evolved version of generative AI, which would not only provide ideas, but also implement them. This would seem to be very difficult, as a generative AI lacksthe most important factor required to sustain policies; the human factor. Generative AI may be able to provide policies, and in the future, may be able to implement them too, however, the true brunt of the policies would still have to be borne by human beings. A policy may theoretically seem optimal, but in practicality it could be far from optimal for the people it isaimed towards. In such a scenario, it would be up to the people in charge to solve such problems.

Conclusion:

The above data certainly makes one thing clear; generative AI does have significant scope in playing a role when it comes to creating India’s next internet economy, however, the role which it plays would be limited to providing services and analysing the best way to provide said services, the best example being customer-oriented services. When it comes to deciding the policies and decisions which are to be made regarding the overall framework of the internet economy, generative AI may play an assistive role, however, the true formulation and implementation of policies is ultimately in the hands of human beings, as evidenced by the points stated above. In conclusion, we can say that generative AI must play an assistive, and not an assertive role, when it comes to building the next internet economy of India.

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Role Of Startups In Accelerating The Economic Progress Of India

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**** This research paper won the Third Prize at Epsilon 23-24: An Intercollegiate Research Paper Presentation Competition held by the Economics Association of SVKM’s Narsee Monjee College of Commerce and Economics on 20th February 2024.***

Abstract:

In the ever-evolving landscape of India's economic resurgence, this research delves into thetransformative role played by startups in shaping the nation's development trajectory. Fromthe stagnant shadows of the early 1990s to the vibrant present, the paper unfolds a narrativethat mirrors the ascent of India as a global economic powerhouse.

Commencing with an exploration of a pioneering Indian startup, the story unfolds in the ruralhinterlands, where an unsung hero disrupts traditional narratives. As the name of the startup, Udaan, is revealed, the paper captures its profound impact on local communities, symbolizinga paradigm shift where financial success intertwines seamlessly with societal upliftment.

Shifting focus to the geopolitical realm, the paper illuminates how startups have become architects of India's global image. With statistical evidence showcasing the exponential growth of startups, their contribution to GDP, job creation, and international investments paints a vibrant picture. The narrative extends beyond economic metrics, highlighting howinnovation from Indian startups resonates globally, elevating India's stature on the world stage.

Comparing India's startup journey with that of the United States, the paper draws *parallels ineconomic revitalization. It explores the role of startups in creating jobs, fostering innovation,and boosting exports, while underlining the unique aspects of India's startup story, includingits transformative social impact.*

In addressing challenges faced by Indian startups, the research outlines potential solutions. From access to capital to regulatory hurdles, talent shortages, infrastructure bottlenecks, competition, and government support, the paper navigates through obstacles, offering insightsinto fostering a conducive environment for sustained startup growth.

In essence, this research paper serves as a comprehensive exploration of how startups haveemerged as catalysts for India's economic evolution. It encapsulates a nuanced narrative ofinnovation, resilience, and societal impact, positioning India as a formidable player in the global economic arena.

Introduction:

In the serene expanse of rural India, where the whispers of time echo through the fields, a remarkable story unfolded—a narrative that transcended the mundane and scripted its chapters in the lives of the forgotten. Here, amid the simplicity of village life, a beacon of change flickered to life—an unsung startup, unburdened by the weight of tradition but fuelled by the audacity of a dream.

Enter our protagonist—an ambitious entrepreneur armed with little more than a vision and adetermination to alter the course of destinies. This wasn't a typical business venture; it was asymphony of ambition and empathy, aiming to confront the age-old adversaries of poverty and deprivation that had long ensnared the rural populace.

As the startup unfurled its wings, it wove itself into the fabric of the community, becoming more than a source of employment; it became a force of transformation. The village, once resigned to the shadows, found itself illuminated by the dawn of possibilities. The startup wasnot merely a job creator; it became the architect of hope, reshaping the very essence of rural existence.

Its financial success was not just a testament to business acumen but a delicate dance betweenprofit and purpose. The startup navigated the intricate landscape of entrepreneurship, craftinga narrative where economic viability and social impact weren't adversaries but partners in progress. It became a model, challenging the notion that financial success must come at the expense of societal welfare.

Now, let's unveil the identity of this unsung hero—the startup that dared to dream when others hesitated. This metamorphosis might sound like a plot straight from the vivid reels of Bollywood, but it's no celluloid fantasy. This is the saga of an authentic startup, a silent architect of change, and its name is etched in the very soul of transformation—it's none other than our very own homegrown startup **Udaan founded by Mr Amod Malviya and Sujeet Kumar.**

So, dear readers, this is not just a story; it's a testament to the profound impact startups can create on the Indian landscape. In the intricate dance of entrepreneurship, this startup has proven that financial success and societal upliftment need not be disparate goals; instead, they can waltz hand in hand, leaving an indelible mark on the tapestry of this magnificent country named India.

Scope:

This research delves into the transformative role of startups in India's economic development,spanning from their inception to the present. It explores the impact of startups on job creation, innovation, and societal challenges, positioning them as key drivers of India's globaleconomic standing.

Objectives:

1. Assess the economic contribution of startups to India's GDP.
2. Analyze the role of startups in job creation and innovation.
3. Explore the social impact of startups in addressing societal challenges.
4. Compare India's startup landscape with the United States.
5. Identify challenges faced by Indian startups and propose solutions.

Research Methodology:

This study employs a mixed-method approach, combining quantitative analysis of economicdata, startup growth metrics, and employment statistics with qualitative exploration of case studies. Interviews with entrepreneurs, government officials, and industry experts provide nuanced insights, ensuring a comprehensive understanding of the multifaceted impact of startups on India's economic landscape.

Data Interpretation and Analysis:

This study focuses on the impact of startups divided into 3 categories

a. Social Impact
b. Financial Impact
c. Geopolitical Impact

A. Financial Impact

Startups have had a significant financial impact on India in recent years, contributing to economic growth, job creation, innovation, and investment opportunities. Here are some key points regarding the financial impact of startups in India:

1. **Economic Growth:** Startups play a crucial role in driving economic growth by introducingnew products, services, and business models. They contribute to GDP growth by creating value and generating revenue.

2. **Job Creation:** Startups are major contributors to employment generation in India. They create job opportunities across various sectors, including technology, e-commerce, healthcare, education, and finance. The jobs created range from technical roles to managerial positions, thereby addressing unemployment challenges in the country.

3. **Investment and Funding**: India's startup ecosystem has witnessed a surge in investment and funding activity. Venture capital firms, angel investors, and corporate entities are activelyinvesting in Indian startups, providing them with the necessary capital to grow and

scale theirbusinesses. This influx of funding has enabled startups to expand their operations, hire talent, and develop innovative solutions.

4. **Innovation and Disruption**: Startups in India are at the forefront of innovation and disruption, challenging traditional industries and driving technological advancements. They are leveraging emerging technologies such as artificial intelligence, blockchain, and Internetof Things (IoT) to develop cutting-edge solutions that address market needs and create new opportunities.

5. **Exports and International Recognition**: Successful Indian startups have not only madean impact domestically but also gained recognition globally. Some startups have expanded their operations overseas, contributing to exports and enhancing India's reputation as a hub for innovation and entrepreneurship.

6. **Government Initiatives and Support**: The Indian government has implemented variousinitiatives and policies to support the growth of startups. Programs such as Startup India, Make in India, and Atal Innovation Mission provide incentives, funding, and regulatorysupport to foster entrepreneurship and innovation in the country.

B. Social Impact on Women and the impoverished individuals:

In recent years, there has been a significant rise in the number of women starting their own businesses. In fact, according to a report by American Express, between 2014 and 2019, the number of women-owned businesses increased by 21%. This trend is not limited to a specificregion or country, but rather it is a global phenomenon. Women are breaking free from traditional roles and taking charge of their professional lives by becoming entrepreneurs. This rise in women-led startups has not only contributed to the economy but has also played a crucial role in increasing women's welfare.

Let's take a closer look at the data and statistics from the past five years to understand theimpact of women-led startups on the economy and women's welfare.

1. **Rise in the number of women-led businesses**: As mentioned earlier, the number of women-owned businesses has increased by 21% between 2014 and 2019. This is a

significantincrease and shows the growing trend of women becoming entrepreneurs. In the United States, women-owned businesses account for 42% of all businesses, and this number is expected to continue to rise in the coming years.

2. **Increase in employment opportunities for women**: With the rise of women-led startups,there has been a considerable increase in employment opportunities for women. According toa report by McKinsey, women-led businesses have the potential to create 12 million jobs globally by 2025. This not only helps in reducing the gender pay gap but also empowers women to be financially independent.

Startups have been making a significant impact in the world of business and economy for thepast decade. They have not only created job opportunities and boosted economic growth, butthey have also been playing a crucial role in eradicating poverty and upgrading lifestyle. Thesocial impact of startups has been immense, as they have been the driving force behind innovation, social change, and sustainable development.

Moreover, startups have also been instrumental in providing access to education and skills training to underprivileged communities. Many startups have focused on providing affordableand accessible education, especially in rural areas, through online platforms and mobile applications. This has not only increased literacy rates but has also equipped individuals with skills that are in demand in the job market, making them more employable and ultimately helping them break the cycle of poverty.

C. Geopolitical Impact:

In the grand tapestry of global history, India's presence was once defined by the shadows of underdevelopment and economic inertia. Its geopolitical standing remained subdued, and theglobal perception often veiled the nation's true potential. Yet, amidst these challenges, a transformative force emerged – the startups of India.

In the not-too-distant past, India grappled with a global image that belied its inherent capabilities. The nation's rich cultural tapestry was overshadowed by economic hurdles and internal complexities. However, the stage was set for change as startups began to sprout in the fertile soil of innovation. The metamorphosis was gradual, but the impact profound.

Fast forward to the present, and India stands at the crossroads of a remarkable journey, with startups emerging as the architects of a new global narrative. The statistics narrate a tale of transformation that resonates globally: Over 58,000 startups by 2021, contributing a resonant 9.5% to the country's GDP, and creating over 2.5 million jobs. These numbers are not mere data points; they are the pillars supporting a narrative that is reshaping India's standing on the global stage.

In the intricate dance of diplomacy and trade, startups have played a crucial role in securing India a more prominent place. The influx of venture capital investments reached an unprecedented $21.5 billion in 2021, underscoring the international community's confidencein India's startup ecosystem. This financial endorsement is not just an economic boost; it is a resounding acknowledgment of India's potential as a vital cog in the global landscape.

The narrative gains further vibrancy when delving into the innovation brought forth by Indianstartups. They are not merely businesses; they are trailblazers of change. From fintech to e- commerce, Indian startups have not only disrupted domestic markets but have resonated on a global scale. The success stories of companies like Zomato, Swiggy, and Paytm have echoed beyond national borders, turning India into a hub of innovation and entrepreneurial prowess.

As the sun sets on the previous state of India's global standing, a new dawn emerges—a future painted with the hues of promise and potential. The startup revolution is not merely about economic gains; it is about crafting a narrative that positions India as a global player, a nation that leads in innovation, job creation, and transformative solutions.

Looking forward, the trajectory is exceptionally bright. India's startups are not just contributing to economic indicators; they are architects of a global image that exudes dynamism and resilience. The government's continued support, coupled with a thriving startup ecosystem, charts a course for India to become an indispensable force in the globallandscape.

In this tale of startups and transformation, India's narrative unfolds as a story of resilience, innovation, and a relentless pursuit of a brighter global standing. The startups, once heraldedas economic catalysts, have now become the architects of a new chapter—a chapter where India takes center stage, not just as an economic force but as a symbol of inspiration on the global canvas.

Comparison of India and US:

In the dim shadows of the early 1990s, both India and the United States found themselves grappling with economic lethargy. While India bore the weight of its socialist policies and bureaucratic entanglements, the United States beckoned a more fertile ground for businessesto burgeon. It was in this era of economic flux that the seeds of startups were sown, particularly in the United States, where a stable economy and supportive governance provided the perfect incubator for entrepreneurial dreams to take flight.

As the journey into the annals of economic metamorphosis deepened, the revelation unfolded: startups weren't just players in the economic landscape; they were architects of transformation. In the United States, these dynamic enterprises were instrumental in sculpting economic growth through the creation of jobs, sparking innovation, and catalyzing a surge in exports. According to the venerable US Small Business Administration, the heartbeat of the economy, small businesses, accounted for a staggering 64% of net new private sector jobs between 2000 and 2017. Echoing this rhythm, a symphony of data from the National Bureau of Economic Research attested that startups were veritable engines of job creation, especially during economic downturns.

The narrative pivoted towards innovation, where startups emerged as pioneers disrupting traditional industries with their agile and dynamic nature. The tale of Uber unfolded as an epic, revolutionizing the transportation industry with an innovative business model that sent ripples across the globe, sparking the birth of similar ride-sharing startups in countries far andwide, including the bustling lanes of India. It was through these disruptive innovations that startups not only bolstered the US economy but also enhanced its global competitiveness.

In the story of economic prowess, exports took center stage. Startups in the US weren't merely domestic champions; they were international players. Numbers painted a vivid canvas: over $500 billion in export revenues in 2018, a testament to the alchemy of a favorable business climate, accessible capital, and a culture that championed risk-taking and innovation. Established startups became not just economic entities but beacons attracting foreign investments, cultivating a culture of entrepreneurship, and setting off a multiplier effect on the economy.

In a tale of contrasts and comparisons, the startup ecosystem in India, though nascent, held promise. A 2019 panorama revealed over 50,000 startups contributing a harmonious chord of8% to the country's GDP. The crescendo swelled as these startups wove a tapestry of opportunity, creating over 1.7 million jobs and emerging as stalwarts in India's economic growth.

Venturing into the realm of finance, the story mirrored the US, with venture capital (VC) funding emerging as a linchpin for Indian startups. The numbers echoed confidence: a record

$14.5 billion in VC investments in 2020, signaling the unwavering faith of investors in thepotential of India's startups. This influx of capital became the magic wand that propelled Indian startups onto the global stage, where they could compete and scale with the world'sbest.

In the grand finale, the story painted a portrait of India's rise, intertwined with the trajectory of its startups—a symphony of innovation, job creation, and economic transformation. While acknowledging the road ahead for India's economic development and innovation, the success of its startups emerged as a poignant testament to the nation's latent potential. With the continued support of a visionary government and the blossoming of a thriving startup ecosystem, India was poised to script its saga as a major global economic powerhouse—a taleboth inspiring and destined to be etched in the annals of history.

Challenges and solutions:

India stands as one of the world's fastest-growing economies, propelled by a vibrant startupculture. However, despite significant growth, startups encounter several challenges that impede their progress. Here's an overview of these challenges and potential solutions:

1. Lack of Access to Capital:

Challenge: Early-stage startups struggle with limited funding opportunities. Solution: Government initiatives like the Startup India Seed Fund Scheme aim tobolster early-stage funding, fostering growth.

2. Regulatory Challenges:

Challenge: Complex regulatory processes create hurdles for startups in areas like incorporation and compliance.

Solution: The Startup India Hub simplifies procedures, providing a single-point platform for guidance, resolving queries, and facilitating a conducive environment.

3. Talent Crunch:

Challenge: Despite a large pool of graduates, startups face difficulties in findingskilled resources, particularly in the technology sector.

Solution: Collaborating with the government's Skill India initiative can help startups access trained and upskilled workforce.

4. Infrastructure Bottlenecks:

Challenge: Inadequate infrastructure, such as unreliable electricity and internet connectivity, hampers startup operations.

Solution: Government initiatives like the Smart Cities Mission and Digital India aimto enhance overall infrastructure, benefiting startups in the long term.

5. Competition from Established Players:

Challenge: Limited resources make it challenging for startups to compete with established Corporations.

Solution: Incentives provided by the Startup India initiative, such as tax exemptionsand intellectual property rights protection, level the playing field.

6. Inadequate Government Support:

Challenge: Despite government initiatives, startups often face challenges inobtaining recognition and support.

Solution: The government can introduce more favourable policies and regulations, fostering a conducive environment for startup growth.

Conclusion:

In conclusion, while Indian startups hold immense potential for economic growth, addressingthese challenges requires sustained efforts from both the government and the private sector. Continued policy enhancements and a supportive ecosystem will empower startups to overcome obstacles and contribute significantly to India's economic development.

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Changing Consumer Buying Behaviour On Online Grocery Apps In The Post COVID Era

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Abstract:

Online grocery shopping is the process of ordering basic essentials and food through mobile internet from ecommerce websites or apps. The demand for online groceries is increasing at a steady rate of 25-30% in Indian metros (KPMG 2020). The Covid 19 pandemic has changed the consumer behaviour to a large extent by promoting a surge in the online grocery shopping it provides a modern, convenient and efficient way for customers to hunt for their essentials. This study explores various aspects from the customer as well as the business aspect. Various research has been made on the altering effects of the varying determinants that have controlled online grocery shopping in the pre and post pandemic era, also how managers must design delivery for a specific location making most of a Dark store and reducing delivery cost by including more number of orders. The research will help understand the app ecosystem and help the businesses understand how setting up the Dark stores in proper places and efficiently deliver will help them in setting up a customer base in the longer run. Also consumers can make smarter choices by analysing their orders and comparing various apps for the best discounts and quick deliveries. In the end it can be concluded that the region for which the research has been conducted the app that is most preferred is DMart because of its presence in the offline market as well as the offers and good amount of discounts. 54.8% of customers are satisfied with their shopping experience. Munchies and snacks are the most ordered products from online grocery shopping. Results were based on response from 104 respondents for which convenient sampling method has been used. In conclusion, the E-grocery *shopping is a rapidly evolving industry that is serving the modern day needs redefining grocery shopping offering convenient and enjoyable ways to meet the daily needs.*

Keywords: Online Grocery Shopping, Business, Ecommerce, Covid19

Introduction:

Shopping offline has always been predominant, but thanks to the evolution of E commerce. The study for E commerce has been revolutionized ever since internet has come into place. It not only helps in making lives easier by discovering new products, locating and comparing prices along with returning if disliked. During the pandemic the main reason why consumers adopted to the e commerce platforms was to avoid infections. It shows positive growth but the businesses need to be careful about changing needs and maintaining relevance in the online market by bringing in innovations currently after the pandemic. The E commerce platforms gained a boom because of the productive information catering to their customers' needs by resulting into economic benefits. The challenges faced by these instant delivery apps is that they need to cater to wide product variants, instant deliveries, right deliveries in right place and time, inventory and warehouse management along with hassle free payments. The target audience include working professionals, working parents along with elderly people who are technology friendly and focus on convenience along with instant solutions. In India the kirana stores consist of 95% of the market and supermarkets consist of 4% the e commerce platforms for instant grocery deliveries only comprise of 1 % of the grocery market in India (*Source*: *Statista*) and yet create a significant impact on how groceries are being bought. One of the reasons why people prefer shopping for groceries online or instantly is because you can decide 10 minutes before cooking what you want to cook and in 20 minutes you will have the groceries delivered at your doorstep. This study is being done in order to understand the consumer needs and their behaviour while shopping for online or for instant groceries. Their margins in Fruits and Vegetables consist of a higher percentage i.e., 18% to 40% whereas FMCG Margins are 4% to 18%. In the 2000s the first grocery store was opened named Ocado, wherein it collaborated with famous supermarket and delivered products at a competitive price. In India the first online grocery shopping app was bigbasket started back in 2011.With increasing use of automation there has been efficiency as to how to maintain economic order quantities, how much tax liability has been generated on sales or as to how the pull carts are made in order to avoid using labour and analysing customer intelligence. Businesses need to focus on delighting customers and that's how they'll survive in the long run. It would have been unbelievable if someone would have told us few years ago that someday we will be able to order grocery which will reach your doorstep in just 10-20 minutes. The E grocery apps use the analytical method that helps them prepare the order even before someone finishes completing the payment.

Scope of Research:

The changing global has introduced converting landscapes and the advent of online grocery purchasing, the papers posted previously explain how comfort, excellence, rapidity, online bills and monetary benefits play a vital position in how the purchaser chooses the medium through which the customer desires to get the products brought. After Covid organizations like Dunzo, Zepto, Amazon, Bigbasket, etc are dealing with heavy competition constantly due to the that fact these ecommerce platforms promise to deliver starting from an hour to 10 minutes. The principle intention of taking up the study is to apprehend how the consumer behaviour has changed with the pandemic and the way it's going to keep changing alongside the future to serve to the customers need the reason to chose these apps is because these are the most popular apps in the market for online grocery shopping.

Literature Review:

Tyrväinen, O. & Karjaluoto, H. (2022) in the following paper author has done a meta analytical online grocery shopping has changed before and after, the moderating effects of the pandemic and about the altering effects of the controlling determinants.

Boyle, P., Bond, R., Martinez Carracedo, J., Simmons, G., Mulvenna, M., & Hollywood, L. (2022) this study mentions about how grocery retail providers changed the purchasing techniques because of the data they held about the customers and the stocking up of staples during the pandemic. It also explains how revenue affects the shopping patterns.

Kvalsvik, F. (2022) this research studies how the attitude of older adults while shopping for online groceries is. The important situational factors are mobility issues, distance to a store, monetary benefits while shopping online, this paper aims to help managers to develop promotional programs targeted at older adults.

Piroth, P., Ritter, M. S., & Rueger-Muck, E. (2020) this paper studied how personal traits of a person affect the online grocery shopping, the researchers highlight the predictive power of personality traits and how initial impact creates a significant impact on process of buying groceries online.

Jilcott Pitts, S. B., Ng, S. W., Blitstein, J. L., Gustafson, A., & Niculescu, M. (2018) this study highlights the benefits that is how online grocery stores provide a more peaceful shopping experience and better planning of purchases also online grocery sites help in avoiding impulsive purchases and promote healthier choices.

Pozzi, A. (2012) the author talks about how online grocery store shopping and brick and mortar stores are different and how brand exploration in offline stores is more prevalent, it also mentions how item quality cannot be verified in online store purchase.

Hansen, T. (2008) this research paper gives an insight on how personal values, social norms and other behavioural factors affect how consumers shop online groceries.

Anckar, B., Walden, P., & Jelassi, T. (2002) this study mentions about how there are different techniques to acquire customers in the field of online grocery shopping and how it is reliable on the business model as to how the customer loyalty is to be created.

Significance of the study:

The rise of technology has lead to a surge in the way we do everything one of them is grocery shopping. Grocery shopping has changed at its own pace this study can be helpful in understanding consumer preferences and can help businesses in adapting strategies to meet the needs of the consumers. Studying the apps and consumer behaviour helps us understand how technology is being integrated for benefiting the consumers as well as the business. The main aim of business has always been understanding the customer satisfaction, retention and serving their needs. Studying consumer behaviour will help in building more resilient and efficient businesses. A consumer can analyse his or her shopping behaviour and frequency and make healthier choices while shopping online rather than impulsive shopping in supermarkets or grocery stores.

Objectives:

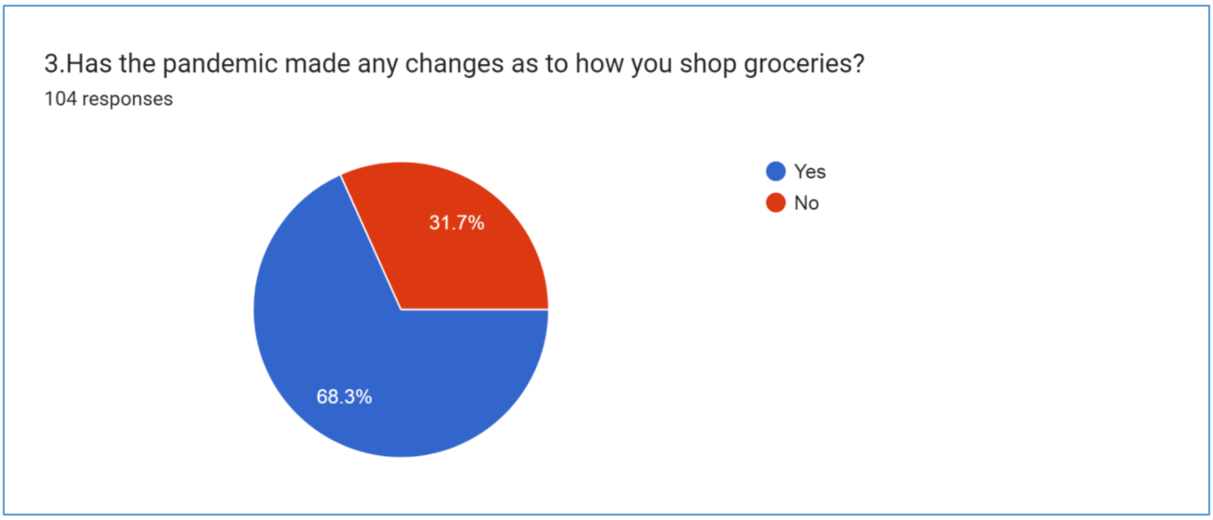
1) To study consumer behaviour on e-grocery apps pre and post pandemic.
2) To find out product preferences of consumers for online grocery shopping in post pandemic situation.
3) To understand preferences of consumers for online grocery apps in post pandemic era.
4) To find out challenges faced by consumers while shopping for online groceries.

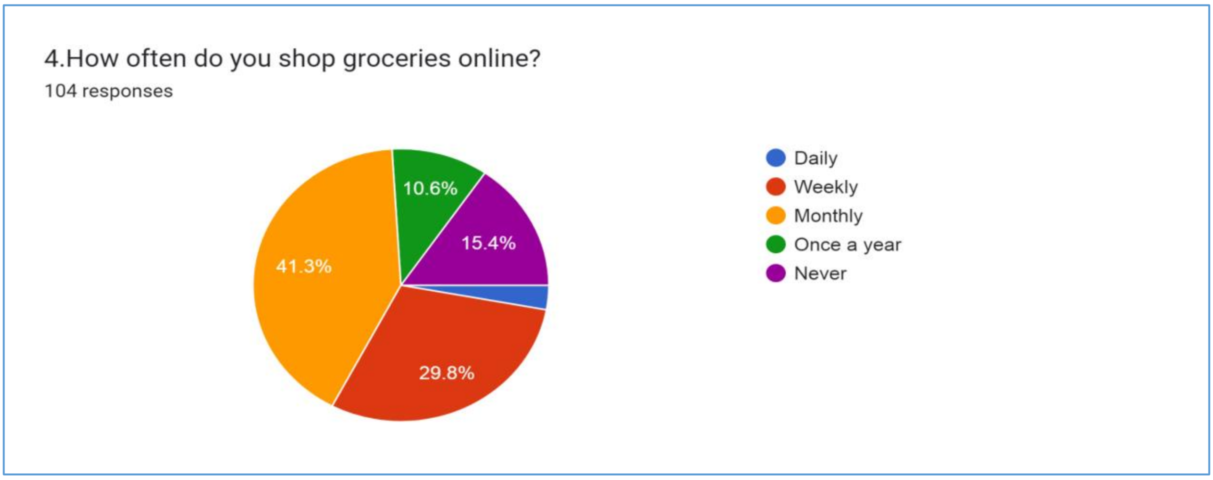
Research Methodology:

The Primary data has been collected with the help of a survey by an online questionnaire. The respondents were asked questions about their purchasing habits before and after the pandemic, their app preferences, their frequency of online grocery shopping and factors affecting their E grocery shopping living in Mumbai age groups from 20 to 50. Secondary data includes data taken from newspapers and research papers wherein the revenue and growth of the segment is explained. The study has been conducted in relation to fewer apps selected as preferences.

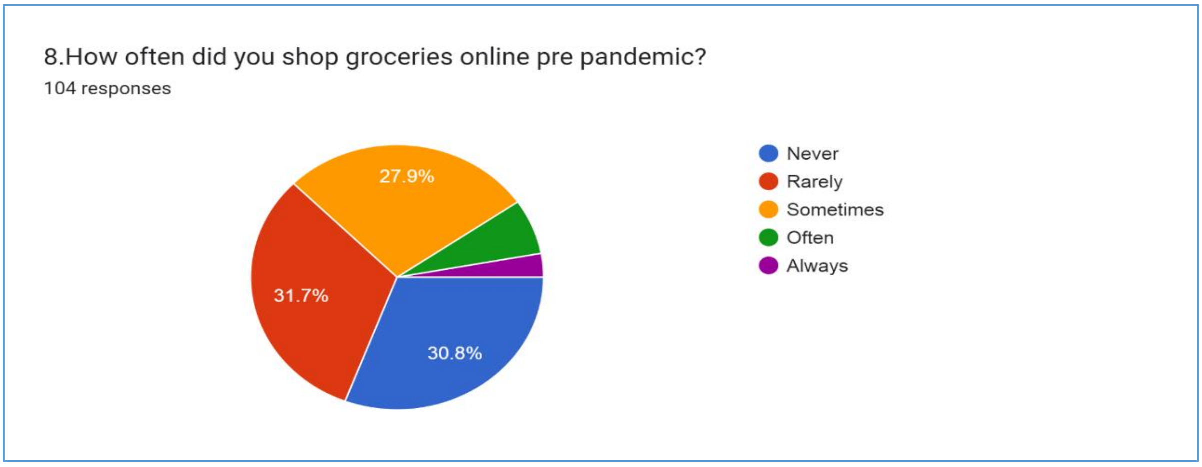
Data Analysis and Interpretation:

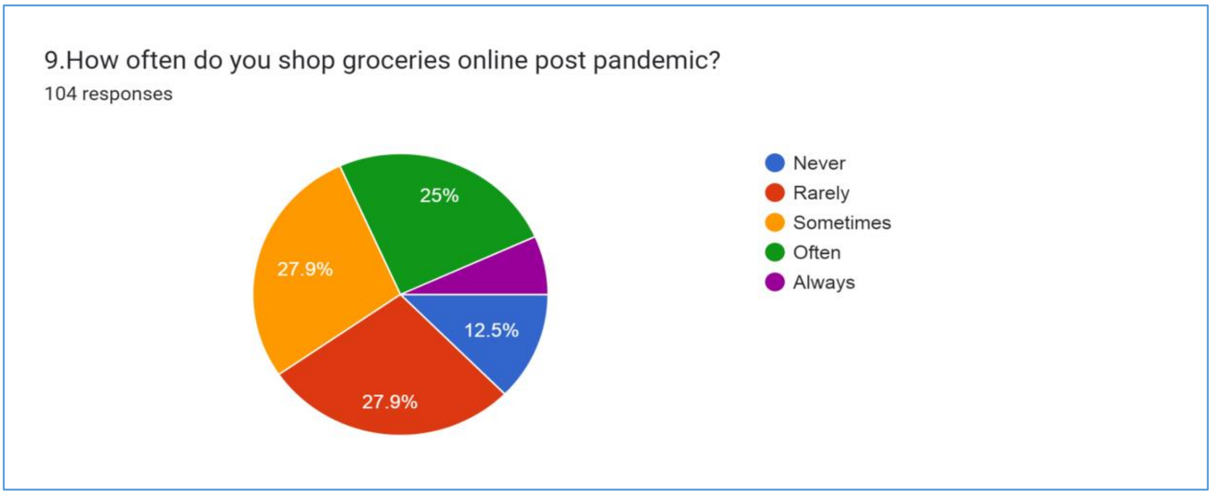
1) To study consumer behaviour on e-grocery apps pre and post pandemic.



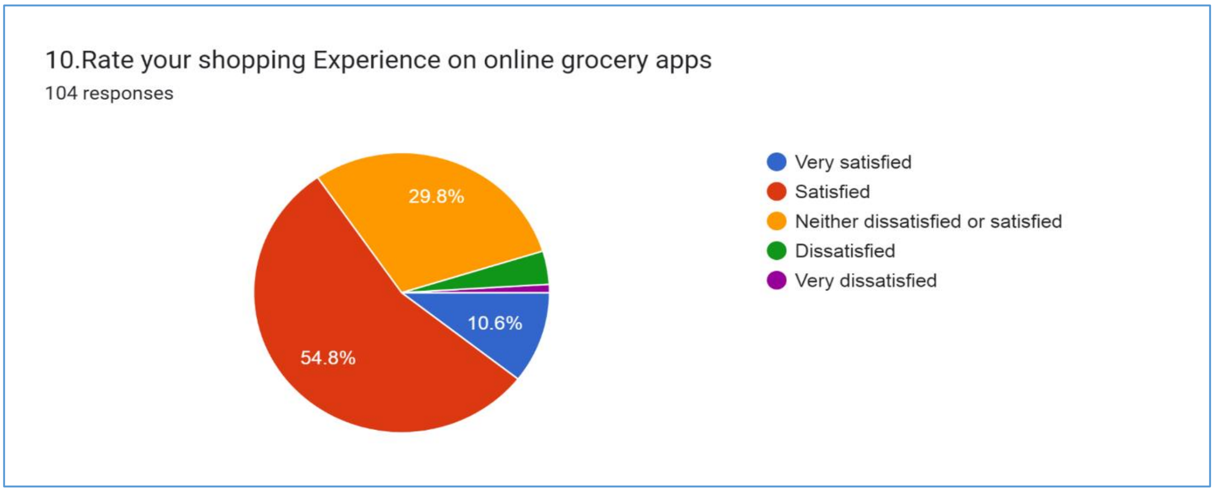


Finally findings collected reveal that more than 50% respondents shopping behaviour has been changed because of COVID 19, also according to the data collected 41.3% of the respondents shop groceries online monthly while 15.4% of the respondents claim that they don't shop groceries online at all. The people who shop for groceries online monthly has increased after pandemic.



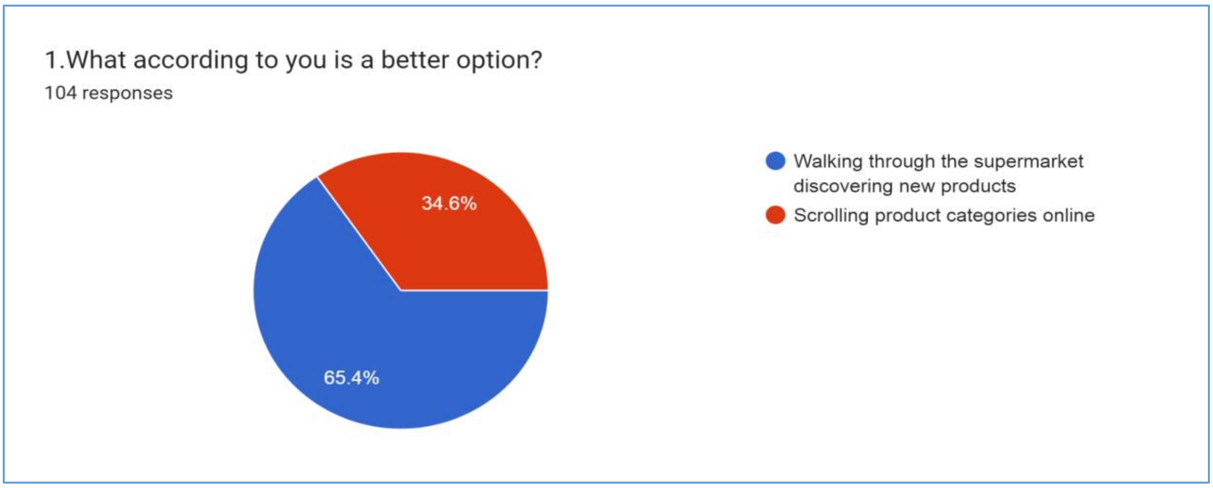


Frequency	Pre Pandemic	Post Pandemic
Never	30.8%	12.5%
Rarely	31.7%	27.9%
Sometimes	27.9%	27.9%
Often	6.7%	25%
Always	2.9%	6.7%

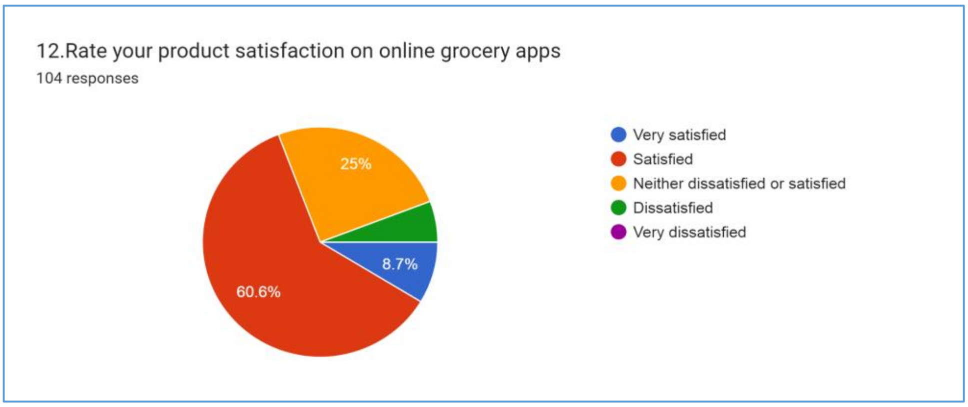


10.6% of the respondents are very satisfied with their shopping experience on the online grocery apps whereas 54.8% of respondents are satisfied with their shopping experience.

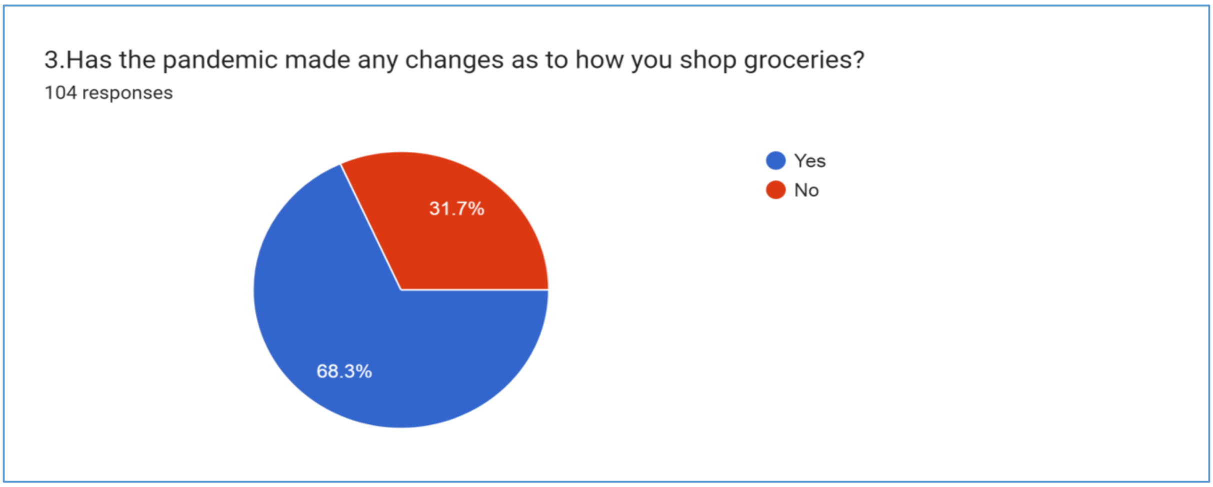
2) To find out product preferences of consumers for online grocery shopping in post pandemic situation.



Most respondents like shopping offline even after the pandemic because it helps them physically review certain items and creates a significant impact on their buying habits.

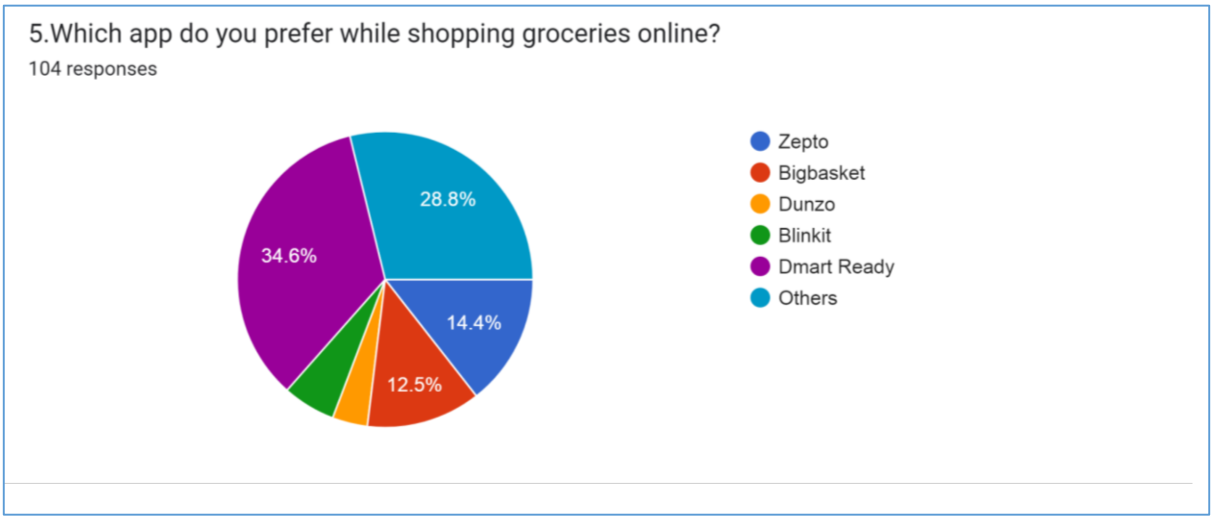


Munchies (snacks) are the most preferred products to be shopped online due to their longer shelf life and relatively inexpensive prices. More than 50% of the respondents are satisfied with the products delivered to them while 25% of them feel neutral about the products delivered.



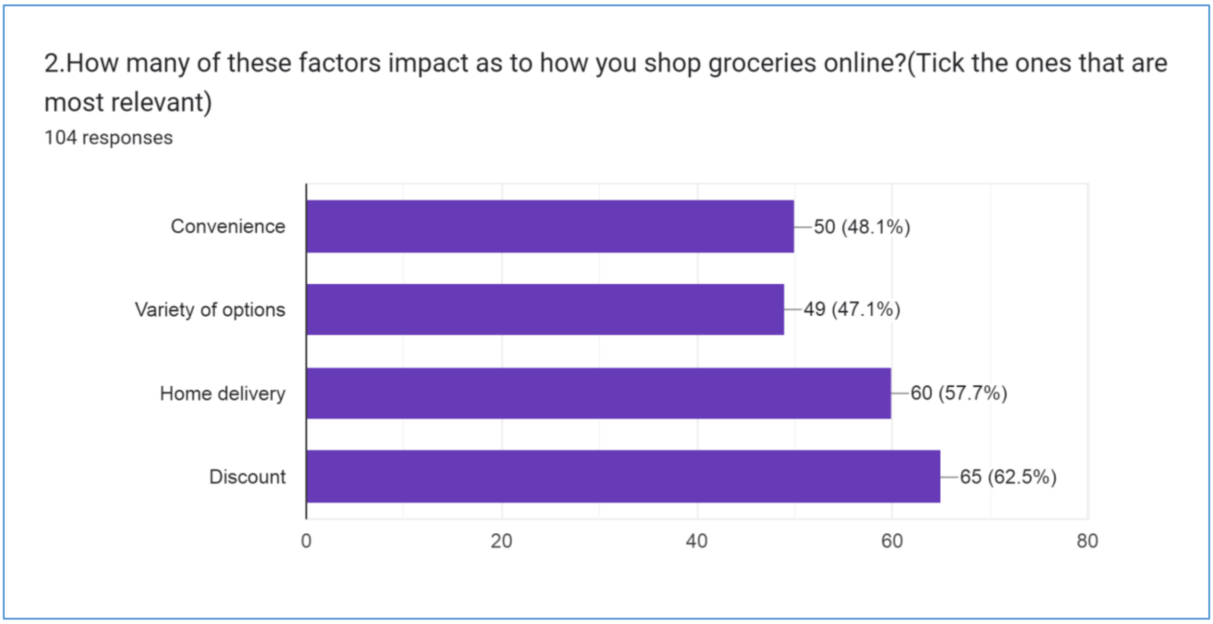
Due to the effect of the pandemic on how groceries are shopped for a majority of them agree to the fact that their shopping style has been affected and that change in their behaviour for shopping has been observed.

3) To understand preferences of consumers for online grocery apps in post pandemic era.



Dmart is the most preferred app to shop for groceries online because they not only provide great discounts but also provide the facility of Pick up from a Dmart Ready point that not only helps them in acquiring large number of customers but helps in reducing their delivery costs and extending their profits. Zepto being the third most preferred app is because it provides groceries in just minutes their USP is that they operate through a dark store which helps them in cutting down for the delivery time. Due to a significant change in the way groceries are being bought most customers would like to shop for groceries in the near future.

4) To find out challenges faced by consumers while shopping for online groceries.



Even though due to large advancements in how groceries reach to the customers the customers state that the problem of extended delivery time still hasn't been resolved. Even though they promise that they deliver in a few minutes it hasn't yet reached to the mark yet and improvements can still be made. Discount and home delivery are the utmost factors considered while shopping for groceries online because of the convenience they provide to the customer of getting it delivered to their doorstep.

- Dmart is the most preferred app because of the discount it provides along with the customer retention that it has worked on.
- More than 50 % people agree that their shopping behaviour has been changed.
- Majority of the respondents shop for groceries online monthly.
- Discount is the most important factor while shopping for groceries online.
- Customers wish to see new innovations.

Scope for further study:

Studying the consumers needs from time to time is really important and hence it is important to understand the online market as well. This study can be further improved by taking up different apps in different regions covered at a higher level along with different age groups and different types of professions covered.

Conclusion:

It was impossible to imagine a few years ago how groceries would be delivered to our doorstep however the pandemic has made the unbelievable a reality factors such as avoiding crowds, easier deliveries, user friendly payment methods, ease of ordering, convenience have played an important role in the boom of e-grocery market however even after the pandemic there has been a boom in this segment the factors being the same there has been an additional factor that is the adaption by the consumers and the changing consumer needs. Everyone wants to be dynamic and with that comes a cost be it anything. This is where entrepreneurs have identified the opportunity and served to the market by fulfilling their needs.

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An Analysis of the Indo-German Relationship in terms of Trade and Investment by the influence of Inter-Country Immigration/Migration

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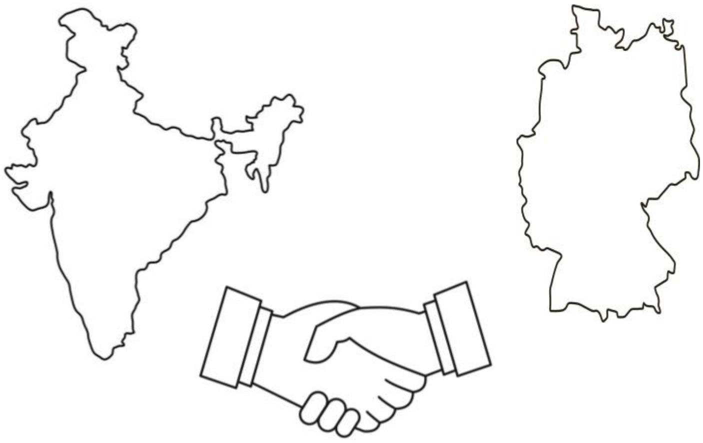


Abstract:

The Research Paper titled "An Analysis of the Indo-German Relationship in terms of Trade and Investment by the Influence of Inter-Country Immigration/Migration" explores the relationship between Trade and Investment by the influence of Immigration/Migration in these countries from the time period of 2005 - 2015. This study explores the complex interactions between trade, investment and international migration while also examining the many other facets of the Indo-German connection. It is crucial to comprehend how human movement affects international economic cooperation in today's more interconnected world. This paper examines how the dynamics of trade and investment between India and Germany over the years *have been impacted by the patterns of immigration and migration between the two countries through rigorous analysis of data and regulatory frameworks.*

In order to study the socio-economic determinants that influence immigration trends and their effects on bilateral trade volumes and investment flows, the research adopts a thorough methodology that combines qualitative and quantitative methodologies. It also examines how diaspora networks, cultural exchange and political policies influence these connections. This report provides useful insights for policymakers, economists and business leaders looking to improve international cooperation amidst the complexity of human migration by highlighting major trends and lessons learnt from the Indo-German connection. By highlighting the interconnectedness of trade, investment and international immigration and migration in the context of the Indo-German cooperation, this research adds a nuanced perspective to our knowledge of global economic ties.

Keywords: *Trade, Investment, Migration, Immigration, International Economy*

Introduction:

Indo-German relations refer to the bilateral ties between India and Germany, two economically strong and culturally rich countries. The relationship between India and Germany has been historically friendly and has gained momentum in recent years due to mutual interests in trade, investment, technology and education. Diplomatic relations between the two countries were established in 1951, and since then, both nations have collaborated on various international issues. Germany is India's largest trading partner in the European Union and India is an important market for German exports. Both countries have cooperated in areas such as renewable energy, manufacturing, engineering and innovation.

The relationship between India and Germany is a robust and multifaceted bilateral partnership that encompasses various aspects of cooperation, including trade, technology, culture and education. Both India and Germany share a long history of diplomatic ties, and their relationship has significantly strengthened over the years, fostering mutual understanding and collaboration on the global stage. Germany has been a reliable partner for India in the

European Union, and their collaboration has deepened across economic, political and social spheres.

Culturally, there is a significant Indian representation in Germany, contributing to the rich cultural exchange between the two nations. Additionally, there are numerous educational and research exchanges between Indian and German universities and institutions. Politically, India and Germany have engaged in high-level visits and both countries have supported each other on various global platforms, advocating for issues like climate change mitigation, sustainable development and multilateralism. These exchanges have played a crucial role in strengthening their relationship. The presence of a vibrant Indian diaspora in Germany has fostered cultural understanding and appreciation. Cultural events, art exhibitions and academic exchanges have enriched the cultural landscape of both countries. This exchange has not only deepened their cultural bonds but has also promoted tourism and people-to-people connections.

One of the cornerstones of the Indo-German relationship is economic cooperation. Germany is India's largest trading partner in the European Union and both countries have engaged in extensive trade and investment activities. German companies have made significant investments in India, contributing to the country's economic growth. Bilateral trade agreements and collaborations in sectors such as manufacturing, engineering and renewable energy have further solidified their economic ties. Germany, known for its advanced technology and innovation, has collaborated with India in various technological domains. Both countries have cooperated on research and development projects, especially in areas like renewable energy, automotive engineering and information technology. This collaboration has facilitated the exchange of knowledge and expertise, benefiting both nations.

India and Germany have strong educational ties, with many Indian students pursuing higher education in German universities. The academic exchange programs, scholarships and collaborative research initiatives have facilitated the exchange of knowledge and expertise in various fields. This educational partnership has created a foundation for future collaborations and strengthened the ties between the youth of both nations. Politically, India and Germany have shared common values and interests on the global stage. Both countries have supported each other on various international issues, including climate change, sustainable development and multilateralism. Their collaboration in international organisations and forums has enhanced their influence in shaping global policies.

The Indo-German relations are marked by a strong economic partnership. Germany is India's largest trading partner in Europe, with bilateral trade reaching USD 21.76 billion in 2020-21. German investments in India, totaling over USD 13 billion, have been significant, particularly in sectors like transportation, electrical equipment and chemicals. Recent investments include projects by companies like Webasto, Birkenstock, Bayer and ZF Friedrichshafen AG, showcasing Germany's active involvement in India's economic growth.

On the other hand, more than 213 Indian companies operate in Germany, primarily in IT, automotive, pharma and manufacturing sectors. Recent Indian investments in Germany include initiatives by Wipro, Tata Consultancy Services, Infosys, JBM Group, Hero MotoCorp and L&T, indicating India's increasing presence in the German market. Both countries have established mechanisms, like the Fast Track Mechanisms, to address concerns of companies. Additionally, the "Make in India Mittelstand" program supports German Mittelstand (SMEs) and Family-Owned Businesses interested in manufacturing in India. The focus areas for cooperation, identified during the 5th Indo-German Consultations, include Artificial Intelligence, clean energy, e-mobility, urban development, smart cities, railways, Industry 4.0, start-ups, skill development and water and waste management.

Furthermore, India and Germany are actively working towards an India - EU Free Trade Agreement and Investment Protection Agreement, aiming to strengthen their economic ties further. Germany has been a significant development cooperation partner for India, focusing on energy, sustainable economic and urban development, environment, and natural resource management. German assistance, mainly in the form of soft loans, grants, and technical support, has contributed to key projects in India, such as the Green Energy Corridor and Skill Development initiatives.

The Indo-German relationship stands as a proof to the power of international collaboration. With a strong foundation built on economic cooperation, technological collaboration, cultural exchanges, educational ties and shared political interests, India and Germany continue to work together towards mutual growth and progress. As the world evolves, the Indo-German partnership serves as a model for fostering international relations based on mutual respect, understanding and cooperation, creating a better future for both nations and the world at large.

Review of Literature:

The relationship between India and Germany, characterised by significant trade, investment and a shared history of immigration, has attracted scholarly attention. This Literature Review explores existing research related to the connection between inter-country immigration/migration and the dynamics of trade and investment between India and Germany. Understanding these complex interactions is essential for comprehending the global economic landscape in the 21st century. Historically, both India and Germany have experienced waves of immigration and migration. The review examines the historical context of migration between the two nations, highlighting how these movements have shaped cultural ties and influenced economic collaboration.

Research has investigated the relationship between migration and trade, emphasising how the movement of people can foster economic exchanges. Studies have also explored the role of communities in promoting bilateral trade, acting as bridges between markets and facilitating the flow of goods and services between India and Germany. The Literature has delved into the impact of migration on FDI patterns. Skilled migrants often contribute significantly to the host country's economy, attracting investments from their home countries. This review assesses studies focusing on how Indian professionals in Germany and vice versa influence FDI decisions, leading to collaborations and joint ventures between businesses in both nations.

Education and Research Collaborations between India and Germany have led to substantial migration. German Universities are popular choices for Indian students seeking higher education. The Review examines how these educational exchanges foster long-term relationships, encouraging skilled professionals and entrepreneurs to migrate, thereby influencing trade and investment patterns. Challenges faced by migrants, such as integration issues, discrimination and policy complexities, are also discussed in the literature. Simultaneously, opportunities arising from the diverse skills and knowledge brought by migrants are highlighted. Understanding these challenges and opportunities is crucial for policymakers and businesses aiming to harness the positive aspects of migration for enhancing trade and investment.

Scholars have scrutinised the policies of both nations concerning immigration, trade and investment. This Review also assesses studies analysing the effectiveness of existing policies and proposes recommendations for the same. The alignment of immigration policies with trade and investment goals is crucial for fostering a mutually beneficial relationship between India and Germany. The Literature Reviewed here underscores the intricate relationship between inter-country immigration/migration and the dynamics of trade and investment between India and Germany. While challenges exist, the opportunities presented by skilled migration are immense. Continued research in this area is essential to adapting policies and business strategies, ensuring that the Indo-German relationship remains dynamic and mutually beneficial in the face of evolving global economic landscapes.

Trade, Investment and Immigration:

The aspect of trade in the context of this Research Paper refers to the exchange of goods and services between India and Germany. It includes the import and export activities, tariff policies, market demands and the overall economic collaboration between the two nations. The Research Paper investigates how immigration and migration impact these trade patterns, especially concerning the role of different communities in promoting bilateral trade.

Investment, in this Research Paper, pertains to Foreign Direct Investment (FDI) between India and Germany. It explores how the movement of skilled professionals and entrepreneurs influences investment decisions. The Paper delves into the impact of Indian investments in Germany and vice versa, examining collaborations, joint ventures and business expansions driven by the presence of skilled migrants. It also evaluates the role of Education and Research collaborations in fostering long-term investment relationships.

Immigration and Migration are central themes in this research paper, focusing on the movement of people between India and Germany. It explores historical migration patterns, reasons for migration, challenges faced by migrants and the influence of migrants on the social, cultural, economic and political landscapes of both countries. The paper examines the role of skilled migration in shaping trade and investment ties, emphasising the impact of professionals and students migrating between the two nations.

In summary, the research paper investigates how the Movement of People (immigration/migration) between India and Germany influences Trade Patterns (import and export activities) and Investment Decisions (Foreign Direct Investment), shedding light on the connection between these three factors and their implications for the bilateral relationship between the two countries.

Objectives of the Paper:

a) **To Analyse the Level of Impact and Relation of Inter-Country Immigration/Migration on Trade and Investment between India and Germany** - This objective aims to comprehensively assess the influence of immigration and migration on trade patterns, focusing on the role of communities and to analyse how the movement of skilled professionals and entrepreneurs shapes investment decisions, leading to collaborations and joint ventures between India and Germany.

b) **To Evaluate the Relation and Recommend A few Strategies for Enhancing the Indo-German Relationship** - This objective focuses on examining the relation between immigration, trade and investment in both countries. The aim is to identify challenges and opportunities arising from migration and to provide recommendations for the same. The research intends to suggest a few strategies aligning immigration policies with trade and investment goals, fostering a more robust and mutually beneficial relationship between India and Germany.

Data and Methodology:

Data and Methodology will serve as the two fundamental components of our research that will play a crucial role in ensuring the quality, credibility and reliability of our study. Data will serve as the foundation of our research as it provides the raw information and evidence upon which our study is built.

The quality and relevance of data directly impacts the validity of our research findings as they are inseparable aspects of this research project. Data provides the substance of our study, while methodology ensures that our research is conducted with the correct procedure.

Both elements have been considered critical for producing credible and valuable research outcomes in this project.

In this study, a rigorous quantitative approach was employed, utilising advanced statistical methods, including Regression Analysis. The Objective was to comprehensively understand the intricate factors shaping the migration patterns from India to Germany. By employing this methodology, the research was able to unravel significant insights into the phenomenon of inter-country migration.

The analysis revealed a clear picture of net migration from India to Germany. Among the other contributing factors, two prominent influencers were identified as Net Foreign Direct Investment (FDI) made by Germany in India and Net Imports made by India with Germany.

The Regression Analysis that was conducted, highlighted the crucial role played by these economic variables in driving the migration flow between the two countries.

Regression with One Variable:

Years	Net Migrants from India to Germany	Net Foreign Direct Investment from Germany To India (in millions)
2005	2064	227.61
2006	2061	306.9
2007	2042	233.41
2008	2019	260.81
2009	2013	167.83
2010	1969	633.17
2011	1942	707.14

2012	1908	484.86
2013	1874	1041.2
2014	1840	1212.9
2015	1806	1674

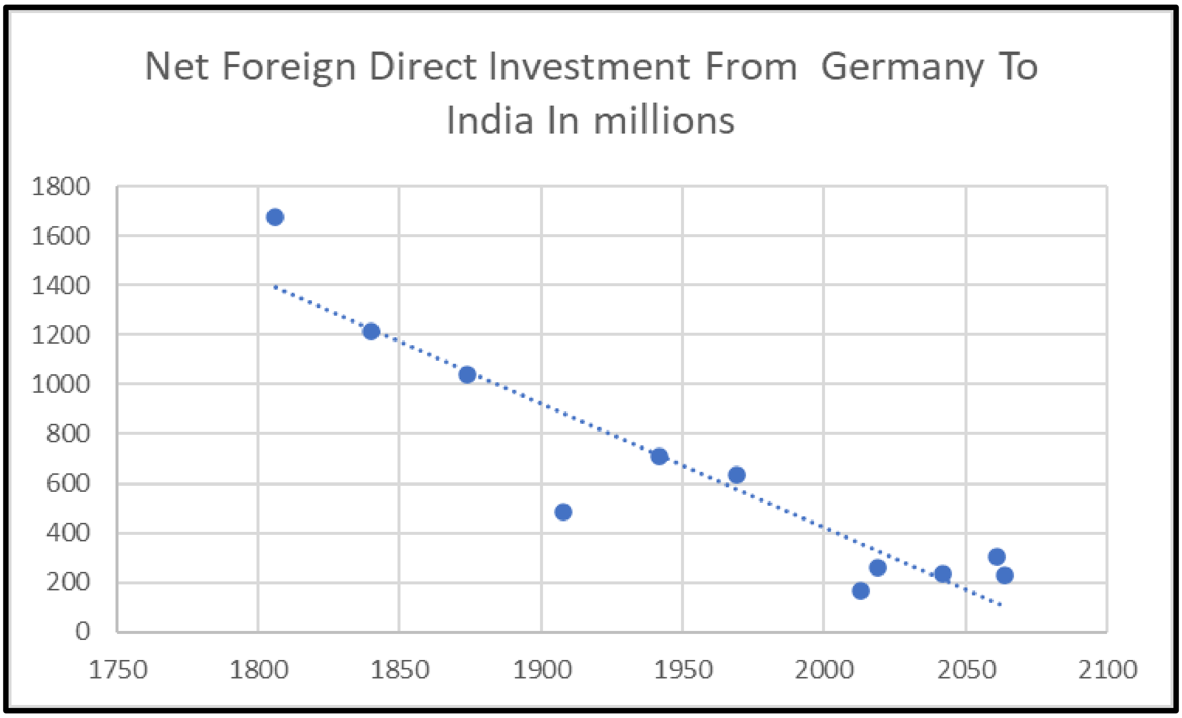
R Square	0.861172
Adjusted R Square	0.845747
Standard Error	35.69667
Observations	11

In this regression analysis with one variable, the relationship between Net Migrants from India to Germany and Net Foreign Direct Investment (FDI) from Germany to India was examined over the years 2005 to 2015. The data provides a clear insight into the correlation between these two variables and reveals significant patterns.

The Data suggests an Inverse Relationship between Net Migrants from India to Germany and Net Foreign Direct Investment from Germany to India. As Net Foreign Direct Investment increased, the number of Net Migrants from India to Germany decreased, indicating a potential link between economic investments and migration patterns.

The analysis indicates that economic factors play a vital role in influencing migration. Higher levels of Foreign Direct Investment in India seem to create economic opportunities within the country, potentially reducing the need for individuals to migrate to Germany in search of better prospects. The high R Square value of 0.861172 and the low Standard Error of 35.69667 suggest a strong correlation between the variables, indicating that the model explains a significant portion of the variance in Net Migration based on Net Foreign Direct Investment. While the number of Net Migrants from India to Germany decreased over the years, the Net Foreign Direct Investment from Germany to India showed an increasing trend. This could indicate a shifting economic landscape where India becomes more attractive for investments, potentially impacting migration patterns.

The regression analysis highlights the intricate relationship between economic variables and migration trends. As India experiences higher levels of Foreign Direct Investment, it seems to have a tangible effect on reducing the number of individuals migrating to Germany. This data underscores the importance of economic policies and investments in shaping migration patterns, emphasising the need for comprehensive strategies that consider both economic opportunities within a country and international migration dynamics.



The analysis clearly indicates a robust relationship between Net Migration from India to Germany and Net Foreign Direct Investment from Germany to India, with a substantial 86% dependency. This strong dependency underscores the significant impact of economic factors on migration patterns. Notably, the inverse relationship observed, quantified by the coefficient of -0.17219, provides compelling evidence. This finding substantiates the regression model, further reinforced by the remarkably low P-values (below the 0.01 threshold), confirming the reliability of the results with a confidence level of 99%. This insight demonstrates the nuanced dynamics between economic investments and migration, emphasising the crucial role played by Net Foreign Direct Investment in shaping migration trends from India to Germany.

	Coefficients	**Standard Error**	**T - Stat**	**P- Value**
Intercept	2066.792	18.1064	114.147	1.54E - 15
Net Foreign Direct Investment From Germany To India (in millions)	-0.17219	0.023046	-7.47186	3.8E - 05

The provided regression coefficients offer valuable insights into the relationship between Net Migration from India to Germany and Net Foreign Direct Investment (FDI) from Germany to India. The intercept, represented by 2066.792, is the predicted Net Migration from India to Germany when Net Foreign Direct Investment is zero. In this context, it implies a baseline migration figure in the absence of German investments in India.

The coefficient for Net Foreign Direct Investment from Germany to India is -0.17219. This coefficient signifies the change in Net Migration for every unit change in Net FDI. In this case, for every additional million invested by Germany in India, Net Migration from India to Germany decreases by approximately 0.172 million. The negative sign indicates an inverse relationship as German investment in India increases, migration from India to Germany decreases.

The T-statistic value of -7.47186 indicates that the coefficient for Net FDI is significantly different from zero. Moreover, the very low p-value (3.8E-05) confirms the statistical significance of the coefficient. This implies that the relationship between Net FDI and Net Migration is highly likely not due to random chance but represents a real and meaningful association.

In summary, the regression analysis suggests a robust and statistically significant inverse relationship between Net Migration from India to Germany and Net Foreign Direct Investment from Germany to India. As German investment in India increases, the migration flow from India to Germany decreases significantly. This finding underscores the pivotal role of economic factors, specifically foreign direct investments, in shaping migration patterns. Policymakers and stakeholders should consider these results when formulating strategies, highlighting the complex interplay between investments and migration decisions in the context of the Indo-German relationship.

Regression with Two Variables:

Years	Net Migrants From India to Germany	Net Foreign Direct Investment From Germany To India (in millions)	Net Import
2005	2064	227.61	1.41
2006	2061	306.9	3.2
207	2042	233.41	4.35
2008	2019	260.81	5.38
2009	2013	167.83	5.32
2010	1969	633.17	4.78
2011	1942	707.14	5.68
2012	1908	484.86	5.37
2013	1874	1041.2	4.16
2014	1840	1212.9	3.13
2015	1806	1674	2.95

R Square	0.916245
Adjusted R Square	0.895306
Standard Error	29.40844
Observations	11

The given dataset explores the relationship between Net Migrants from India to Germany, Net Foreign Direct Investment from Germany to India, and Net Import from Germany to India over the years 2005 to 2015. The dataset incorporates two economic variables, Net Foreign Direct Investment and Net Import, in addition to the number of Net Migrants. This multifaceted analysis allows for a more comprehensive understanding of the factors influencing migration patterns.

The data reveals an inverse relationship between Net Foreign Direct Investment and Net Migrants from India to Germany. As Net Foreign Direct Investment increases, the number of migrants decreases. This suggests that economic investments made by Germany in India have a substantial impact on reducing migration flows from India to Germany. Similarly, Net Import from Germany to India also exhibits an inverse relationship with migration. Higher imports are correlated with a lower number of migrants. This indicates a potential connection between trade activities and reduced migration, possibly due to improved economic conditions and opportunities within India.

The high R Square value of 0.916245 and the low Standard Error of 29.40844 underscore the robustness of the regression model. The model explains approximately 91.6% of the variance in Net Migrants based on Net Foreign Direct Investment and Net Import. The low Standard Error indicates the accuracy of the model's predictions. The data implies that economic policies promoting foreign investments and bolstering trade relations can potentially mitigate migration by creating economic opportunities within India. Policymakers can focus on creating an environment conducive to investment and trade, thereby potentially reducing emigration flows and encouraging a skilled workforce to contribute to India's economic growth.

In summary, the regression analysis with two variables emphasises the substantial impact of economic factors, specifically Net Foreign Direct Investment and Net Import, on migration patterns from India to Germany. These findings underscore the complex interplay between investments, trade dynamics, and migration decisions, highlighting the importance of comprehensive economic policies and international collaborations in shaping global migration trends.

	Coefficients	**Standard Error**	**T - Stat**	**P- Value**
Intercept	2066.792	18.1064	114.147	1.54E - 15
Net Foreign Direct Investment From Germany To India (in millions)	-0.17219	0.023046	-7.47186	3.8E - 05
Net Imports	-16.3507	7.129017	-2.29354	0.050983

The given dataset presents regression coefficients representing the impact of two variables - Net Foreign Direct Investment from Germany to India and Net Imports from Germany to India - on the net migration of people from India to Germany. The intercept value of 2066.792 represents the predicted net migration from India to Germany when both Net Foreign Direct Investment and Net Imports are zero. In this context, it indicates the baseline migration figure in the absence of both economic factors.

The coefficient of -0.17219 for Net Foreign Direct Investment implies that for every additional million invested by Germany in India, net migration from India to Germany decreases by approximately 0.17219 units. This negative coefficient signifies an inverse relationship: as German investment in India increases, migration from India to Germany tends to decrease.

The coefficient of -16.3507 for Net Imports suggests that for every unit increase in net imports from Germany to India, net migration from India to Germany decreases by 16.3507 units. Although the coefficient is negative, it should be noted that the p-value is slightly above the conventional threshold (0.05), indicating that the relationship between net imports and migration might be marginally less robust.

Both coefficients for Net Foreign Direct Investment and Net Imports have statistically significant T-statistics ($|T| > 2$) and low p-values ($p < 0.05$), indicating their significant impact on net migration.

In summary, the analysis suggests a statistically significant inverse relationship between net migration from India to Germany and both Net Foreign Direct Investment and Net Imports from Germany to India. These findings emphasise the significant influence of economic factors on migration patterns, highlighting the intricate interplay between investments, trade dynamics, and migration decisions. Policymakers and stakeholders should consider these results when formulating strategies, indicating the importance of balanced economic policies and international collaborations in shaping global migration trends.

Upon integrating the variables considered in our study, our regression analysis discerned an inverse relationship between the variables - Net Foreign Direct Investment and Net Import - and the net migration occurring between the two countries. Specifically, the analysis revealed a negative correlation between Foreign Direct Investment (FDI) and migration, quantified by a coefficient of -0.18286, signifying that for every unit increase in FDI, net migration decreases by approximately 0.18286 units. Similarly, Net Import exhibited a negative correlation with migration, with a coefficient of -16.3507, indicating that each unit rise in net import corresponds to a decline of 16.3507 units in net migration.

Moreover, the high R square value of 91% indicates a substantial dependency on both variables, underlining their significant impact on migration patterns. Furthermore, our hypothesis was rigorously tested and rejected with a confidence interval of 95%, affirming the credibility of the identified relationships.

These findings illuminate the intricate dynamics between economic variables, trade patterns, and migration decisions, emphasising the need for nuanced policies that consider the interplay of these factors in shaping migration trends between nations.

Key Findings:

1. **Net Foreign Direct Investment (FDI) as a Catalyst** - The research demonstrated that substantial Net Foreign Direct Investment made by Germany in India serves as a catalyst for migration. This finding underscores the intricate relationship between economic investments and the movement of people, emphasising the significant impact of cross-border investments on migration dynamics.

2. **Net Imports and Bilateral Migration** - Equally noteworthy was the connection between Net Imports made by India with Germany and the migration patterns. The study revealed that trade dynamics, particularly India's imports from Germany, significantly influence the migration of individuals. This underscores the economic interdependence between the two nations and how trade activities serve as drivers for cross-border movement.

Implications:

These findings provide valuable insights for policymakers, businesses and researchers, shedding light on the multifaceted nature of migration. By understanding the pivotal roles of Net Foreign Direct Investment and trade relationships, stakeholders can make informed decisions, develop targeted policies and foster economic collaborations that not only enhance bilateral relationships but also facilitate the movement of skilled professionals and entrepreneurs between India and Germany.

Data Sources:

Data sources refer to the origins from which our study has gathered information for the study. These sources can vary widely, including Primary Sources and Secondary Sources. Primary Sources often involve surveys, experiments, or direct observations, providing first hand and original data. Secondary Sources, on the other hand, include published materials, databases and existing datasets that researchers use for their analysis. In the context of our research, the choice of data sources is crucial as it directly impacts the reliability and validity of the study findings. Our research must carefully select and evaluate the data sources to ensure the accuracy and relevance of the information being used. Properly documented and reputable sources enhance the credibility of research outcomes and support evidence-based conclusions. Moreover, advancements in technology have led to an increase in digital and online data sources, providing us with vast amounts of data for analysis, although we must still critically evaluate the quality and authenticity of these sources. The data sources for this research paper were selected to ensure accuracy and reliability. Specifically, OECD data for export and import trade provided comprehensive insights into the trade dynamics between nations. Additionally, migration data was sourced from the OECD International Migration Outlook 2015, a reputable and authoritative reference, ensuring the reliability of the migration statistics analysed in this study. These trusted sources form the foundation of our research, guaranteeing the credibility of our findings and conclusions.

Conclusion:

The analysis of the given data reveals crucial insights into the relationship between Net Migration from India to Germany, Net Foreign Direct Investment (FDI) from Germany to India, and Net Imports from Germany to India.

The negative coefficients associated with both FDI and Net Imports indicate an inverse relationship with net migration. As FDI and imports increase, net migration decreases, highlighting the influence of economic factors on migration patterns. Moreover, the statistical significance of these relationships underlines their importance.

Policy Suggestions:

1. **Promote Investment Friendly Environment** - To reduce migration, Indian policymakers should focus on creating a conducive environment for foreign investments. Streamlining regulations, offering incentives, and ensuring a stable economic climate can attract more FDI, potentially reducing the need for individuals to seek opportunities abroad.

2. **Enhance Trade Partnerships** - Strengthening trade ties with countries like Germany can positively impact the economy. Increased imports suggest a vibrant trade relationship. Policies encouraging exports and imports can bolster economic growth, providing more opportunities domestically and potentially reducing migration.

3. **Skill Development and Education** - Investing in education and skill development programs can empower the Indian workforce. A skilled workforce attracts investments and enhances domestic industries, reducing the necessity for migration in search of skilled employment opportunities.

4. **Diversify Economic Sectors** - Diversifying the economy beyond traditional sectors can create a wide range of job opportunities domestically. Encouraging sectors such as technology, renewable energy, and healthcare can generate employment, reducing the urge to migrate for employment prospects.

5. **Monitoring and Regulation** - Regular monitoring of migration patterns and understanding the reasons behind individual decisions to migrate can help tailor policies effectively. Regulations ensuring fair treatment of migrants and addressing social challenges can also mitigate migration pressures.

6. **International Collaboration** - Bilateral collaborations with countries like Germany can involve initiatives promoting education, research, and technology exchange. Such collaborations can enhance domestic capabilities, making India an attractive place to live and work.

Incorporating these policy suggestions can contribute to a balanced economic growth, providing ample opportunities within India and reducing the need for migration. By fostering a conducive environment for investments, promoting education, and enhancing domestic industries, India can potentially minimise the outbound migration trend.

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Wealth Inequality And Social Mobility In India: Assessing Government Interventions And Challenges

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Introduction:

Social mobility is the extent to which people are able to move between socio-economic strata during their lifetime (intra-generational mobility). Traditionally, the study of the social mobility of individuals has conceived of mobility as the difference between an initial and subsequent status (Hawkes, 1972). We know that countries with higher income inequality tend to have lower social mobility as is the case with India, the wealthiest 10 per cent own more than 72 per cent of wealth, which is higher than the pre-pandemic years (2018-19). Policies aimed at improving social mobility are often targeted on the most disadvantaged individuals and specifically the least skilled (Mayson, 2011). While equality of opportunities leads to more social mobility, higher income inequality threatens social mobility (Singh et al., 2021). The concept of social mobility is important to the study of societies because it is suggestive of equality of opportunity: the idea that while everyone will not have the same outcomes, they should have the same opportunities (Chapman, 2020).

Equalizing opportunity can help unleash the potential of the population, which as it stands is constrained by persistent income and occupational rigidity and for that India must address and improvise the specific policy areas that constrain equal access to opportunities.

This complex socio-economic issue has captured the attention of policymakers, economists, and social scientists alike, sparking a critical examination of government interventions and the persistent challenges hindering equitable progress. The objective of this research is threefold: first, to comprehend the multifaceted landscape of wealth inequality and social mobility in India; second, to scrutinize barriers impeding economic progress within the lower class; and third, to critically evaluate the efficacy of government policies in fostering social mobility & mitigating economic disparities and providing solutions for the same.

Britannica defines social mobility as movement of individuals, families, or groups through a system of social hierarchy or stratification (Britannica, 2014). However, cardinally measuring the change in social hierarchy is difficult and beyond the scope of this study. For this research, we will study the change in economic situation of the lower class as it is a good indicator of a person’s social standing, especially in India.

Literature Review:

Authors	Name Of The Paper	Objective	Methodology	Findings
Sanjay Kumar, Anthony Heath, and Oliver Heath(2002)	"Changing Patterns of Social Mobility: Some Trends over Time"	Assess the success of state-sponsored efforts in redressing caste-based social inequalities in India, analyze trends in social mobility, and explore the relationship between caste and occupation.	Used data from the National Election Studies (NES) conducted in 1971 and 1996 by the Centre for the Study of Developing Societies (CSDS). Used probability proportionate to size sampling methods. Analyzed data using models and residuals to determine changes in mobility patterns.	Fathers' jobs are moderately linked to their sons' education. It reveals that family background affects what job someone gets. Poor education qualityexplains why education doesn't strongly determine jobs.

Miles E. Simpson (1979)	"The Consequences of Social Mobility: The Problem of Indicator Measurement Error"	Discuss the importance of comparative social mobility and address the disagreements regarding the methodology and reliability of indicators used in the study conducted by Melvin Seeman.	Analyzed a study conducted by Melvin Seeman on the consequences of social mobility in France and the United States. Criticized the methodological and conceptual problems of the study.	The results show that going up or down can have good and bad effects. Some things get better with moving up, like job happiness, while other things get worse, like feeling alone or stressed. The study says we need more research to be sure about these ideas.
A. Singh A. Forcina K. Muniyoor (2021)	"Social mobility in india"	To determine the role of education in achieving higher-level jobs in India and analyze the association between education and occupation.	Used the 68th round of NSSO data and applied an extended version of the Row-Column (RC) association models to analyze data on occupation mobility and education attainment.	Findings show that there's a connection between fathers' jobs and sons' education. Government policies and family efforts, even kids from humble backgrounds have a good chance to get at least a secondary education. There is strong tendency for people to follow their family's job path.

Shenggen Fan, Ashok Gulati, Sukhadeo Thorat (2008)	"Investment, subsidies, and pro-poor growth in rural India"	Assess the impact of government subsidies and investments on agricultural growth and poverty reduction in rural India.	Analyzed data from the High School and Beyond study, NELS of 1988, and the Michigan Panel Survey of Income Dynamics. Estimated equations using system and single equation approaches.	The study finds that investing in farming research, education, and rural development is best for helping both agriculture and reducing poverty. investing in research, education, and roads has a bigger effect on reducing poverty. To do well in the long run, it's important to decrease subsidies and focus more on research, education, and infrastructure.
Peggy Froerer (2011)	"Education, Inequality and Social Mobility in Central India"	Examine educational engagement in a marginalized tribal community in Chhattisgarh and explore the Oraons' comparative success in education and social mobility.	Analyzed data about the Oraon Christians and Hindu households in a village. Explored factors contributing to educational success and social mobility.	It says the Oraons invest in education and have good jobs, helped by the Church. The paper says education can make differences between people and talks about traditional jobs going away and new jobs appearing.

Anirudh Krishna, Swapnil Agarwal(2017)	"Promoting Social Mobility in India: Modes of Action and Types of Support Organizations"	Understand the work and impact of organizations promoting social mobility in South Asia and analyze their challenges and methods.	Discusses the methodology used by various organizations in the field of education and youth development. Emphasizes the need for collaboration and innovative thinking.	The groups in the document are trying to give money, advice, and encouragement to kids who don't have many chances. They want to help them learn more and find good jobs.
Robert Haveman and Timothy Smeeding(2006)	"The Role of Higher Education in Social Mobility"	Examine the relationship between family economic position, education attainment, and social mobility, and identify ways to improve educational opportunities for low- and middle-income students.	Used data from various studies to analyze the relationship between higher education and social mobility. Emphasized the need for bold policy recommendations.	To enable poor and middle-class kids to learn more, strong concepts like smaller colleges, better classes, and links between high schools and colleges can be helpful. Colleges should focus on what they do well and seek assistance with other tasks, such as providing housing or teaching fundamental skills.

K. C. Panchanadikar (1962)	"Determinants of Social Structure and Social Change in India"	Examine the determinants of social structure and social change in India, analyze the impact of different factors on social organization, and explore challenges and potential outcomes of social change movements.	Analyzed various factors and historical changes in social structure in India.	India's challenge is to keep stability between its urban and regional parts. The urban Indian and linguistic regional elements of society have different loyalties and interests, and the challenge is to maintain stability and equilibrium between them within the political society of India.
John P. Neelsen(1975)	"Education and Social Mobility"	Explore the relationship between education and social mobility in egalitarian societies, examine the necessity of education for positional allocation, and analyze the connection between education and social inequality.	The study uses a theoretical and methodological approach, referencing comparative empirical data to examine the relationship between education and mobility.	The fact that education is a necessary prerequisite for positional allocation and social mobility is determined by the functional demands on role performance in industrial societies.

Sanjay Kumar, Anthony Heath, Oliver Heath(2002)	"Determinants of Social Mobility in India"	Analyze the determinants of social mobility in India, focusing on class, caste, and community classifications, and explore the impact of occupational changes on social movement.	Analyzed data from the 1996 National Election Study (NES) conducted by the Centre for the Study of Developing Societies (CSDS), employed robust sampling methods, and created an eightfold class schema and a six fold caste and community classification.	These inequalities likely stem from differing resources possessed by various classes, rather than caste-based factors. While historical caste legacies matter, similar inequalities could be present in casteless economies at similar development stages.
Amanda Gilbertson (2014)	"Mugging up versus exposure- international schools and social mobility in Hyderabad"	Explore the impact of formal education, particularly differential access to quality education, on social mobility in suburban middle-class Hyderabad. Analyze the emergence of 'international' schools and their influence on cultural	Ethnographic research involving participant observation and semi-structured interviews in two schools: Riversdale (an 'international' school) and Miyapur High School (a 'normal' school).	The concept of "exposure" education, which focuses on variety of experiences and communication skills, is seen as valuable for securing employment. However, this type of education is often only accessible to the upper middle class, creating a barrier for lower middle-class students to move up the social ladder.

		capital and class dynamics.		
Roland K. Hawkes(1972)	"Hawkes methodological Problems explaining-1972"	Compare the traditional approach to measuring and explaining social mobility with the newer approach introduced by Blau and Duncan in 1967. Investigate how different methodologies can yield counterintuitive results.	Compare and contrast the traditional approach with the approach proposed by Blau and Duncan, highlighting the complexities in analyzing social mobility relationships.	It demonstrates that the relationship between achievement orientation, status attainment and social mobility are complex and can yield counterintuitive results based on methodology. It is important to consider individual status measures and their causal relationships when studying social mobility. By estimating the parameters and examining the relationship between achievement orientation and mobility, we can avoid these methodological difficulties and draw more accurate conclusions. The examples presented underscore the need for careful analysis and consideration of how factors are measured to avoid

				misleading conclusions. This underscores the importance of refining research approaches to accurately capture the intricate interactions between these key social factors.

Research Gap:

While various studies have explored social mobility globally, there is a notable gap in research concerning the impact of government schemes, policies, and subsidies on social mobility in India. This gap is significant due to the unique complexities of India's social structure, the relevance of its policy landscape, and the need to better understand how government interventions affect individuals' ability to move up the social and economic ladder. In order to fulfil the gap, we have identified the following objectives:

Objectives:

1. To Understand the Landscape of Wealth Inequality and Social Mobility in India.
2. To Understand the Barriers to Economic Progress in the Lower-Class Families.
3. To Evaluate the Role of Government Policies in Social Mobility and Analyse Factors Hindering Utilization in the Lower Class.

Data and Methodology:

Data description

The study has been based on primary data and secondary data collection. Primary data was collected by interviewing public bank's officials and people of low-income groups of the western regions of Mumbai. We collected secondary data from authorized sources such as reports by the government and public banks and analysed the government policies that provided a real time data of the schemes and number of populations availing them. Moreover, case studies and comparative analyses provided a broader viewpoint.

Methodology:

The paper employs both quantitative and qualitative methodologies. After a regressive questionnaire and then personally interviewing the people of low-income groups, we found their perspective about the schemes and the barriers for people which stops them from opting for it. In-depth interviews of people of low-income groups provided insights into personal experiences and perceptions. Expert interviews from public bank’s officials provided qualitative insights. We extracted information regarding the schemes available, awareness, govt. Initiatives to make awareness, interest rates, complexities in the process and documentations required. We have analysed personal interview with people of low-income group and bank managers with the help of Bar graphs, Pie charts, Scattered chats.

Analysis:

Understanding the landscape, the data analysis can be divided into 3 categories namely-

1. Understand the Landscape of Wealth Inequality and Social Mobility in India
2. Reasons why people are stuck in poverty
3. Impact of Government scheme / policies / subsidies in reducing friction in social mobility

The following next sections will talk about these.

Understand the Landscape of Wealth Inequality and Social Mobility in India:

This multifaceted challenge of Wealth Inequality and Social Mobility has profound implications for the lives of millions of Indians, shaping not only their economic prospects but also their access to education, healthcare, and opportunities for personal growth. In this exploration, we will delve into the intricate landscape of wealth inequality and social mobility in India, dissecting its root causes, consequences, and potential solutions. By gaining a deeper understanding of this issue, we can pave the way for a more equitable and inclusive future for all members of this vast and diverse nation.

To understand Wealth Inequality and Social Mobility in India we did a thorough survey, interviewing low-income people, asking questions about their income, expenditure, their behaviour if income increases, etc. We tried to understand using both secondary and primary data and on the basis of this we are presenting the following analysis.
Compared to 2016, the poorest 20% of India saw a 53% drop in their income in 2021 (ICE360 Survey, 2021).

As per World Inequality Report 2022, the top 10% accounts for 64.6% of total share of wealth in the country while the bottom 50% holds only 5.9% and the difference is at an all-time high (World Inequality Lab, 2022). According to World Bank, 83.80% of Indians live in poverty as on 2019, a 1.2% increase from 2018 (*Poverty headcount ratio at $5.50 a day is the percentage of the population living on less than $5.50 a day at 2011 international prices*) (MacroTrends, 2020).

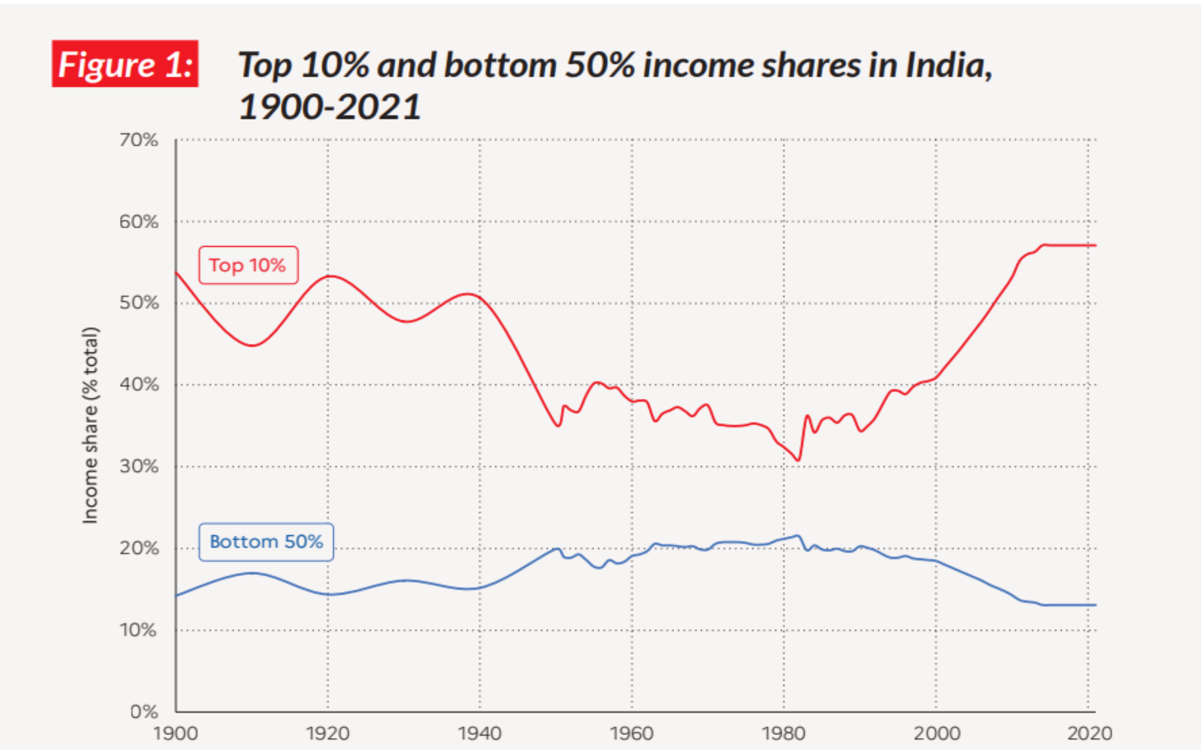
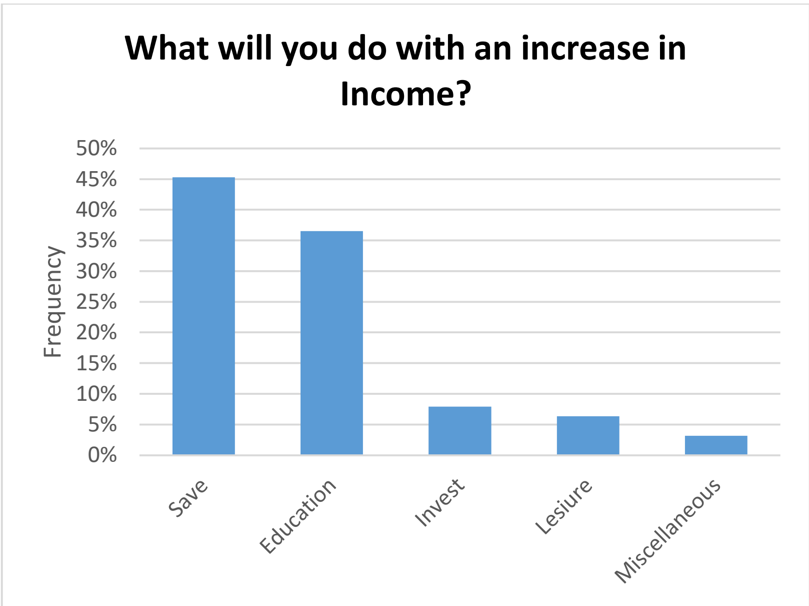


Figure 1: ***Top 10% and bottom 50% income shares in India, 1900-2021***

Source: *World Inequality Report 2022*

The increasing gap of wealth inequality can be further illustrated by the fact that 6.5% of UPI users are responsible for approximately 44% of transactions and 1% Indians account for 45% of all flights. Kunal Shah, founder of Cred and an Angel Investor, states that top 5 million customers probably drive 60% of all ecommerce sales in India (Blume Venture Advisors Private Limited, 2022). The Global Social Mobility Report 2020 ranked India on 76th position out of 82 countries (World Economic Forum, 2020).

In our personal interviews, people were asked what they will spend on first if they see a surge in their income. This was done to identify the area they want to spend most on, but are unable to do so due to their limited income.



Source: Authors own calculation

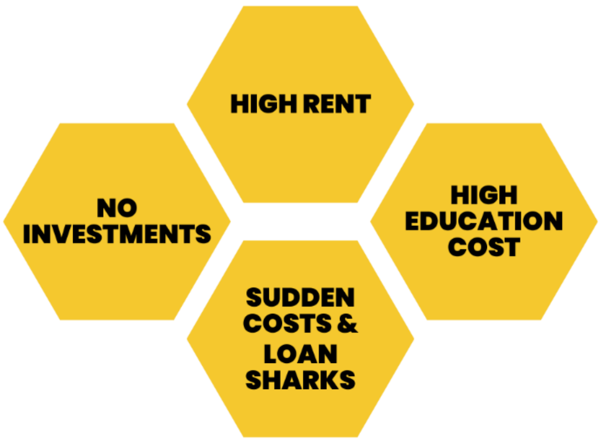
The data reveal that what the majority wants achieve most is future financial security through savings. However, the rate of financial literacy can also be seen here as majority would prefer to not invest their money and instead save it with themselves or at most with a bank. The next most desired expenditure is seen to be education as the quality of education which is available at the prices which they can afford is not high and secure and thus people want to educate their children in a better way, with more opportunities.

Reasons Why People Are Stuck in Poverty:

Poverty is a complex and multifaceted issue, and there are numerous reasons why people find themselves trapped in poverty for example lack of education, underemployment, low wages, healthcare cost, inadequate infrastructure, family circumstances, etc. (Project, 2020).

While our study is not aimed towards finding out exact reasons of poverty, some patterns have been recognised while performing the primary research which have been analysed through asking questions like the areas under which major part of their salary gets used, etc.

1. High rent
2. High education cost
3. No investments
4. Sudden costs and loan sharks

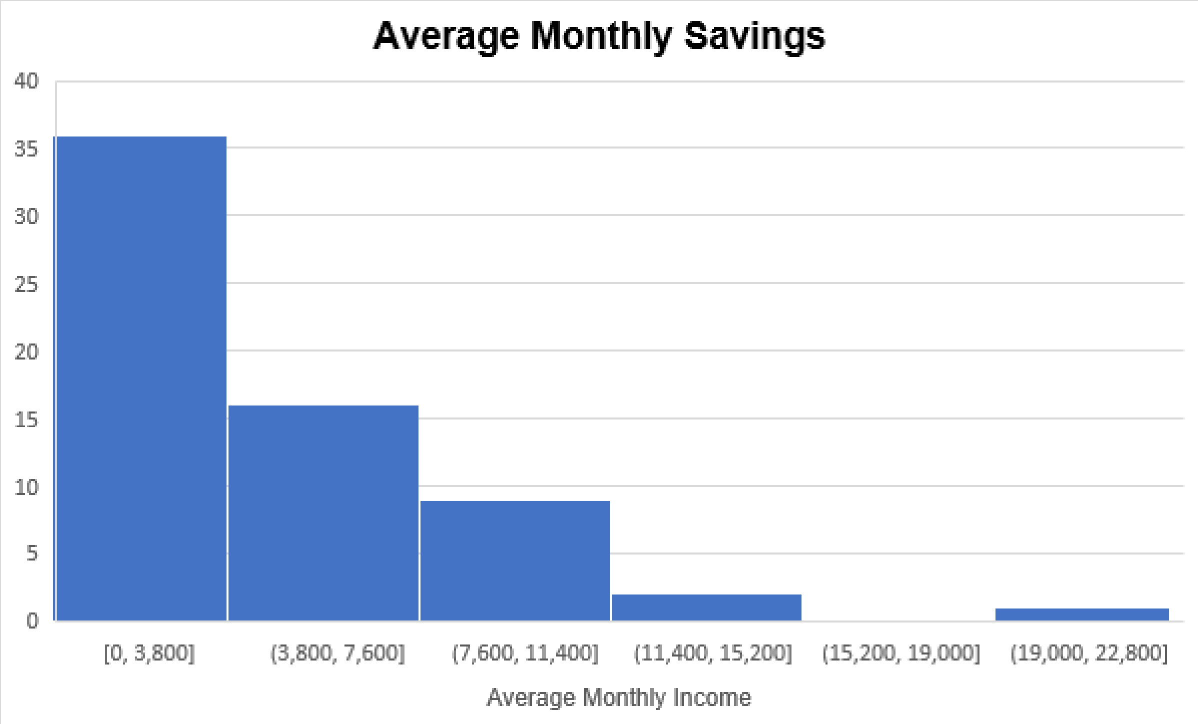


Majority of people have a very low income to begin with. Adding on the high costs, especially after covid and increasing rate of inflation, there remains little to no savings. In our sample, apart from people who were being provided a living place by the employers (security guards for example) or owned a small house since a long time (in slums etc.), majority were spending more than 50% of their income on rent. Ones who had the advantages of not paying for rent were also the ones who actually had some savings.

A lot of these people were migrants from other states and cities and they take out some amount for their living expenses (such as groceries etc.) and send the rest back to rural areas where their families live. This made tracking of their expenses harder and the savings, if any, were just collect at home for future contingencies since the knowledge and accessibility of other schemes and investment is poor and the general public is not very open minded.

Another big component of their monthly expenditure was found to be education; including but not limited to expenses such as school fees, coaching / tuition fees, school supplies, uniforms, shoes etc. Education, from a purely economic point of view, is an investment which give returns after a very long period of time. Students preparing for competitive exams such as JEE, UPSC, or army jobs etc. face increased uncertainties due to high competition. In this period constant monetary investment is required which has been getting more and more expensive. Lack of free quality education by the government is also a very important factor. Naturally the lower class is unable to afford the higher quality institutes, and hence even after spending for years, the children of the lower class are not equipped with the necessary skills required for the real world, as well as have a lower chance on average while competing with other in competitive exams. This is another reason due to which the lower often sees education as unfruitful and thinks that spending the same amount of time in labour market would yield more results. Which in the short term might be true, but in the long term, it results in generations being stuck under the poverty belt.

With low incomes and rapidly increasing expenses, an average lower-class house has zero or very less savings. In our research, more than 67% of the sample saved less than Rs. 2000 while almost 33% of these had zero savings. While barely making enough to cover the costs, an unpredictable medical emergency pushes the lower class further deep into poverty. In most cases, people tend to go to loan sharks who charge absurdly high interest rates on loans. This deepens the already caused financial blow.



Source: Authors own calculation

Impact of Government scheme / policies / subsidies in reducing friction in social mobility.

Poor have very less additional funds. Any financial emergency in such scenarios puts immense financial strain and may lead to them getting stuck with loan sharks or private lenders who charge as much as 60% p.a. interest rates (Vishwakarma, 2022) (Anand and Jadhav, 2020).

Most importantly, schemes which aim to bring about a change in the regular ways of dealing with finance help more in changing the perception and creating a population which has an open mind. This alone can help elevate the standard of living and expose this segment to nontraditional financial literacy. For example, if along with helping reduce the costs, the government also helps educate people to invest the increased saving; resulting in an increased marginal propensity to invest which some times in the rural areas is zero. Schemes such as PMJDY can act as a gateway and a stepping stone for such plans (*Reserve Bank of India - Reports*, n.d.).

From our data, people who actively invest and utilise the Government schemes, policies, and subsidies, on average have higher savings when compared to others. Apart from the direct benefit this group receives, this might also be an indicator of better financial literacy and awareness as well as better spending habits.

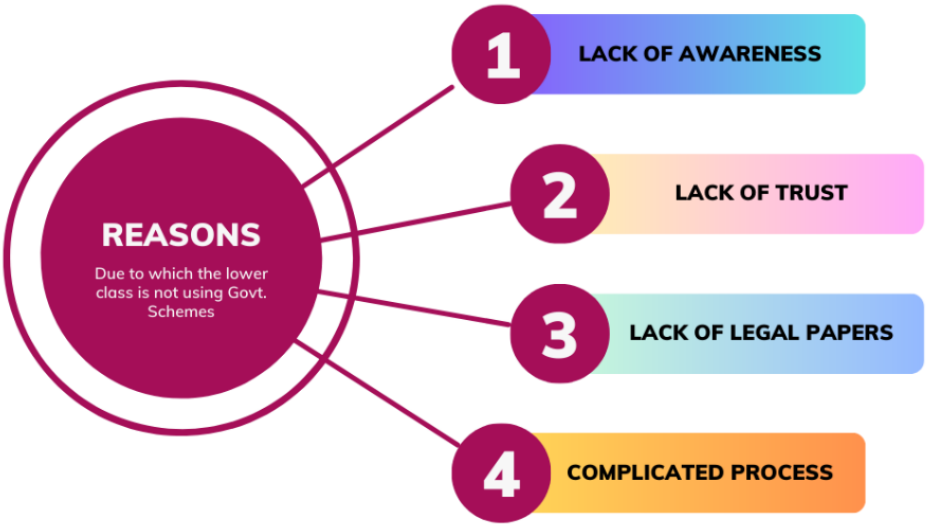
When inquired about the biggest cost, the answers were mostly split between education and rent. If government help make these cheaper, it will have the biggest impact on their finances.

Sudden and unplanned expenses such as medical bills are also a big issue. When government provides medical insurance at low cost, they can save the lower class from going through sudden financial hardships. Similarly, in the unfortunate event of death of the working member of family, the family loses its sole source of income. In these scenarios, and more so after the COVID-19 period where the mortality rate has increased, life insurance policies by the government can ease the impact.

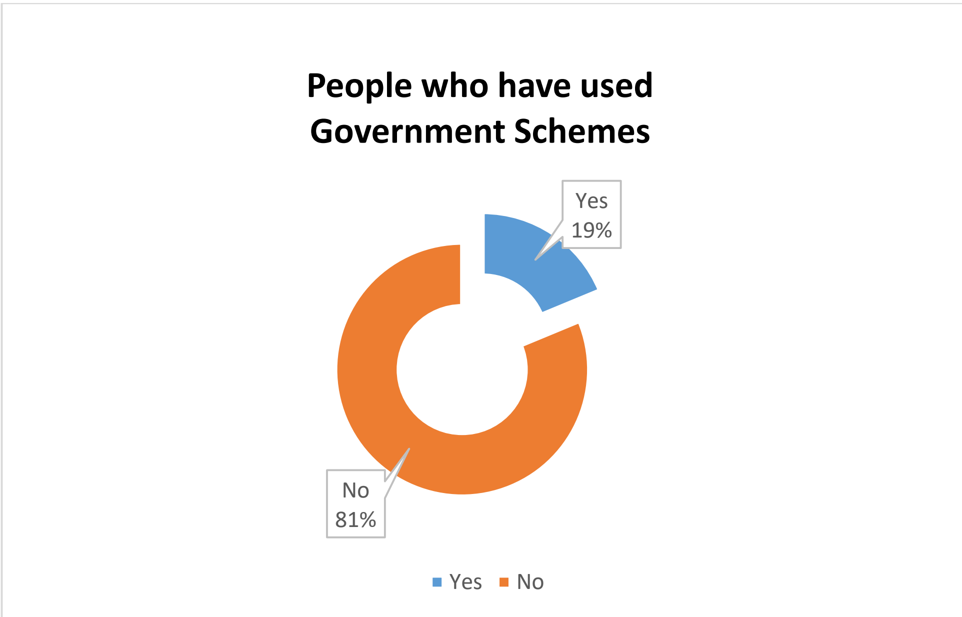
Some already existing Government schemes are mentioned. Financial inclusion is promoted via the Pradhan Mantri Jan Dhan Yojana (PMJDY), a programme that makes it simple for people to open bank accounts. Affordable insurance for accidental death and disability is available under the Pradhan Mantri Suraksha Bima Yojana (PMSBY). The Atal Pension Yojana (APY) aims to give citizens pensions in their senior years. The Pradhan Mantri Mudra Yojana (PMMY) provides loans to help small enterprises. At a low cost, the Pradhan Mantri Jeevan Jyoti Bima Yojana (PMJJBY) offers life insurance protection. These programmes seek to increase peoples' financial stability and general well-being throughout India. (*Financial Inclusion: Definition, Examples, and Schemes*, n.d.)

Why is the lower class not availing the benefits of the schemes?

It is clear that is the current scenario, the Government schemes, policies, and subsidies are needed and can help the lower class a lot in reducing their costs as well as providing opportunities for growth in income. Given that there are many schemes, policies, and subsidies already in effect to tackle these issues, majority of the lower class should be gaining from the benefit of these. However, this is not the on-ground reality.



In our research 81.25% of the lower-class sample had not enrolled or taken benefit from any government schemes. When inquired further as to why they were not using these, some patterns were spotted:



Source: Authors own calculation

1. *Lack of Awareness:*

   Out of the entire population sample, 78.13% claimed that they have no information about any scheme, policy, or subsidy provided by the government. A very small group of people (15.63%) had the knowledge about the government schemes and utilised it. The rest had some idea about what schemes were provided but had no in-depth knowledge about it and hence had no investments.

There was also a group (26.15%) which neither had any knowledge, nor wanted any. It may seem as if there is a lack of willingness on their part, but after analysing the social and mental background of these people, this can too be attributed towards lack of awareness since these people are hesitant to move towards change especially in financial matters. The lack of awareness creates a perception that these schemes are not of any help for them.

2. *Lack of Trust:*

   Many people don't actually trust these ideas, according to the individuals we spoke to. They believe that agents assist in controlling the majority of these plans. Many people in areas without large cities struggle to read and rarely use computers. They don't trust these agents because they fear they might take away the funds they contribute to government programmes that are intended to be helpful to them. Many people from remote areas were duped in multiple scams such as the Sahara Scam. People now have little faith in these policies and the government as a result of this and other frauds.

3. *Lack of Legal Papers:*

   The people interviewed cited that some schemes required paperwork, such as displaying documents of income etc. But obtaining these documents is not simple for those who are daily wage earners.

4. *Complicated Process:*

   Through our interviews we discovered that, despite people from weaker financial background are aware of the government's initiatives to assist them, trust it, and possess the necessary documentation, sometimes they feel as if the process is too complex for them to fully understand. They have a perception that they will have to go through extremely complicated steps. As a result, they believe that even though they are willing to, they cannot avail benefits from the government.

It is however important to note that these factors are only what the respondents have cited for their non-participation in these schemes. While further information was collected through personal interviews from bank managers and officers, we came to know that the issues cited by the sample in only partially correct.

All bank officials denied that for these schemes, people had to go through complicated process or get multiple documents. For majority of the schemes, nothing more than a bank account and an Adhaar Card and Pan Card is needed.

Sonam Kejriwal, a Service Manager at an SBI Bank, gave us more insights as to how this issue of perception holds more people from taking benefit of these schemes. She stated that most of the issues have already been completely removed by the government. Now, there are no middlemen required for these schemes and the process and requirement of documents have been made much more streamlined and simpler.

However, one issue she acknowledged that still remains and is of great significance is the lack of awareness in the general public especially in the section that needs it the most. Also, the banks are so crowded that it is not possible for the bank employees to explain the schemes to everyone in detail. People in the rural areas are also nervous and reluctant to directly approach the bank officials. She shared the experience from her previous posting in a rural area of Jharkhand where people were hesitant to directly approach the bank staff and would look for peons as an intermediary.

This means that very less or no direct advertisement of schemes is being done by the bank employees. Advertisement which remains from banks is only the posters and banners, which when factoring in illiteracy, has a reduced impact. She also feels that instead of the lower class, many people from the middle and even upper class are using these schemes, and in such cases, banks can’t deny the service despite these not being meant for them. This is due to the reason that either schemes have no upper income / wealth limit, or people fake these parameters.

Ways to make the existing schemes more accessible

Combining the results from our primary research as well as the interviews, we can safely state that the only major problem which is currently holding back people from using the government schemes, policies, and subsidies is the lack of awareness in terms of both, details about the scheme as well as the process required to enrol oneself for the scheme.

In our research, less than 22% of the sample population was fully aware of the government schemes & policies and the situation in the rural areas would be worse due to the reasons discussed in above section. Therefore, it is clear that more advertising of these schemes is necessary. Increased advertising through print media might yield some results in urban areas where the literacy rate is comparatively higher but for rural areas, other means will be necessary. It should also be noted that according to Digital 2023 Report, 51.3% of Indians still don't use the internet (We Are Social and Meltwater, 2023). The population which is hardest to reach (due to illiteracy, lack of infrastructure, lesser technological integration etc.) needs it the most. Hence marketing plans should be developed keeping these factors in mind. Sonam Kejriwal, in her interview, mentioned that for the rural areas, the best option would be to promote these schemes with the help of village Mukhiyas or Sarpanchs. This method ensures that trusted and credible people advertise the schemes and there is no lack of trust. Other than these, local champions can also be identified to promote and educate about the schemes. The main aim of these promoters will be solely to raise awareness about the schemes and guide people to enrol themselves from the banks. This ensure no corruption or dishonesty would be possible from any third party.

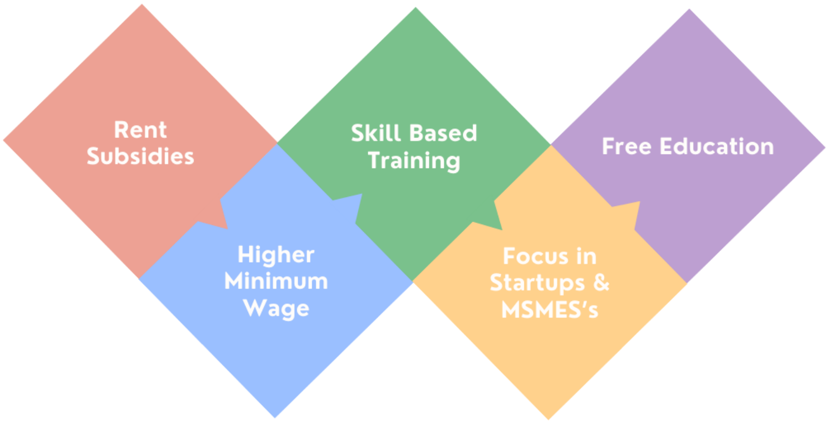
Another approach that can be implemented is to use college students to promote and educate the section about these schemes personally. These groups of students might go door to door or visit stall, street hawkers, and small shops, and guide them regarding the entire process as well as the prerequisites. This will offer support to the lower class on a personal level and will increase the enrolment rates.

Lastly, a striking majority of our sample has some form of LIC policy. It would be helpful to see the factors behind the success of LIC and replicate the same model for other schemes. The biggest factor which made LIC successful was its network of agents. Using a similar model for extended reach, even in the remote areas of the country will result in better utilisation of the schemes as well as them reaching their target population.

Other Government Scheme / Policy Suggestions:

The basic financial issue of the lower class is lack of money. This can be solved both from the expenditure side (reducing the expenses) or the income side (increasing the income).

Some other policies, schemes, or subsidies that the government can implement for this are given below.



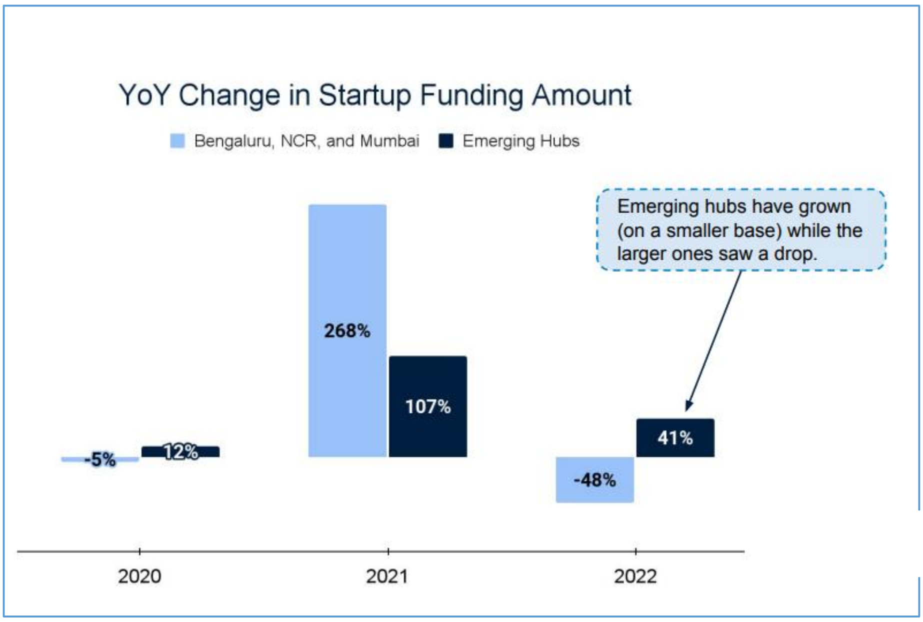
Housing has been recognized as a human right under a number of international conventions, however, majority of people, especially in urban areas and metro cities spend a major part of their income on rent. (OHCHR, n.d.). This prevents them from spending on other productive tasks and may even require cutting in the education expenditure of their children. Hence, reducing the expenditure on rent will provide the lower class with an increased income. Some ways the government can take steps are:

1. Increasing funding for affordable housing programs. This can include programs that provide financial assistance to low-income households to help them afford rent or purchase a home.
2. Implementing inclusionary zoning policies. This involves requiring developers to include a certain percentage of affordable housing units in new developments.
3. Providing tax incentives for landlords who rent to low-income tenants.
4. Increasing funding for programs that help low-income households with home repairs and maintenance. This can help keep housing costs down by reducing the need for costly repairs.
5. Providing financial literacy and education programs for low-income households to help them better understand the housing market and make informed decisions about housing.
6. Building more social housing. This can include government-funded housing developments for low-income households.

7. Implementing rent control policies to help keep rental costs affordable for low-income households.

Another issue is that the incomes, especially of labourers are too less for them to have a decent standard of living. The minimum wage rate, especially after COVID-19, due to the increased rate of inflation, has not kept up with the current prices (Spencer n.d). The only change which was seen in the lower class after this period was a drastic reduction in income. The Government can raise the minimum wage rate to ensure a higher income level. While this may initially have a negative impact on the demand, a cost & benefit analysis can be done to calculate if the income level and the standard of living of an individual increases or decreases. Next, instead of focusing on increasing the income of, labourers for example, Government can educate people, by which they can change their career and shift towards a higher paying one. The important aspect here will be to focus on the distribution and reaching the remote areas and helping the ones with absolute lack of resources.

Finally, Government should also focus on promoting startups and MSMEs as they are crucial for reducing friction in social mobility due to their potential to generate employment, foster innovation, and bridge economic disparities.



Source: Indus Valley Report, 2022

India's diverse population and wide range of skill levels necessitate multifaceted approaches to address wealth inequality and enhance social mobility. Here's why focusing on startups and MSMEs is particularly effective:

1. Employment Generation: Startups and MSMEs are significant contributors to job creation, absorbing a large portion of the workforce. By promoting these enterprises, the government can provide ample opportunities for the economically disadvantaged to access meaningful employment and improve their socio-economic status. The diverse nature of roles within startups and MSMEs caters to various skill levels, offering avenues for both skilled and semi-skilled workers. (P. Raj, 2023)
2. Inclusive Growth: Startups and MSMEs have the potential to operate in a decentralized manner, establishing operations in rural and semi-urban areas. This decentralized growth approach facilitates inclusive development by bringing economic activities and employment opportunities closer to communities that often face barriers to accessing urban job markets.
3. Reduced Urban Migration: Promoting startups and MSMEs in rural and semi-urban areas can help reduce the exodus of people to urban centres in search of better opportunities. This, in turn, alleviates pressure on already crowded urban spaces and addresses urban-centric inequalities.

Even in the current market, emerging hubs have seen an increase in fundings while the already established one have seen a drop. While there are already many schemes and policies which promote the growth of startups and MSME's their awareness, especially in amongst the lower classes is low. There are at least 18 schemes listed on the scheme booklet from Ministry of MSME but their awareness in our sample was zero. This is the reason for the extremely low adoption rate amongst the class that needs it the most. Along with raising awareness, the government should also focus on a more wholesome coverage of different aspects of business in which a person from a disadvantaged background might need help in.

Education should be focused on. Good quality education should be provided free of cost. This works both ways as it will cause a significant reduction in the fixed monthly costs as well as increase the potential income of future generations. Some way in which good quality free education can facilitate greater social mobility:

1. Equal Opportunity: One of the primary barriers to social mobility is unequal access to quality education. By providing free education, regardless of socio-economic

background, the government can ensure that all individuals have an equal opportunity to acquire knowledge and skills. This levels the playing field and opens up avenues for individuals from lower-class backgrounds to compete on merit rather than financial ability.

2. Skill Development and Employability: Free education enables individuals to acquire relevant skills and knowledge needed for the job market. This enhances their employability, enabling them to secure better jobs and income levels. This, in turn, uplifts their economic status and contributes to upward mobility.
3. Breaking the Cycle of Poverty: Education has the potential to break the cycle of poverty. When individuals from lower-class families receive quality education, they are better equipped to secure higher-paying jobs, thereby improving their living standards. As they achieve financial stability, they can invest in the education of their future generations, further perpetuating upward mobility.
4. Reducing Income Inequality: A well-educated workforce can contribute to economic growth and productivity. This growth, when inclusive, can help in reducing income inequality. When individuals from lower-class backgrounds can access education and contribute meaningfully to the economy, the overall wealth distribution becomes more equitable.
5. Access to Networks and Opportunities: Educational institutions often serve as platforms for networking and exposure to diverse opportunities. Free education would allow individuals from lower-class backgrounds to interact with peers from different socio-economic strata. These interactions can lead to valuable connections and collaborations that can accelerate their social mobility.
6. Entrepreneurship and Innovation: Free education can foster a culture of entrepreneurship and innovation. When individuals have access to education without financial constraints, they are more likely to pursue innovative ideas and start their own businesses. This can create jobs, stimulate economic growth, and provide additional avenues for social advancement.

Additionally, for all of these schemes, government can take the help of various businesses and organizations through their CSR initiatives. Some companies, like Tata Motors for example, already do this in some way or other (*Tata Motors vidyadhanam - corporate social responsibility on education programs: Tata Motors Limited* 2022). Organising these scattered efforts will yield better and more efficient results.

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Need To Make Generic Medicines Accessible in India

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This paper was presented at the Aavishkar Inter-College Research Competition.

Abstract:

Generic medicines are drugs sold after the patent of branded medicines expires, with the same capabilities. The distribution in India is looked after by the Pradhan Mantri Bhartiya Janaushadhi Pariyojana. Price control of such medicines is done by National Pharmaceutical Pricing Authority only for medicines specified in the National List of Essential Medicines.

The research work done under this topic aims at-
1. Discovering the malpractices in the sector
2. Suggest ways to correct the malpractices and
3. Spread more awareness about generic medicines.

To attain the objectives, opinion of experts such as doctors, pharmacist etc. was taken. It was then found out that people doubted the quality and impact of generic medicines which may be negative. Solution such as analyzing the components of stability test and using marketing for the same were suggested as the possible solutions by experts. Supply side factors, government incentives were also analyzed.

Government schemes being restricted to government stores, unawareness, and lack of marketing as compared to branded drugs were found out to be the shortcomings.

Innovative suggestions such as providing tax exemptions to pharmacies, expanding the NLEM list and encouraging public-private partnership can be implemented.

Introduction:

I have been very keen on finding a solution to make generic medicines reach out to the people of India. This is because I feel generic medicines is one of the best solutions for most of the problems of the Indian medical sector. This eagerness is also due to some of the experiences that I have come across either on shows like Satyamev Jayate or people sharing personal experiences. I have been fortunate enough to find some innovative solutions which I desire to bring to your notice through this research paper.

Generic medicines are drugs that have the same physical and chemical components as branded medicines but are very cheap as compared to them since the patent for those medicines has expired and therefore no charges need to be paid to acquire permission to produce the same. Distribution

The distribution of these medicines is looked after by the Indian Government in India under the Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP) through Janaushadi Kendras and medical stores while in countries like America it is distributed by retail pharmacies. The system followed in India is not able to connect to a large number of people as people usually reach out to the medical store which is nearest. The medical stores have limited generic medicines due to low profit margins. This causes a gap as medical is a field where urgent needs need to be catered to.

Price: In India the pricing is controlled and subsidized only for the medicines which fall under the National List of Essential Medicines (NLEM) by National Pharmaceutical Pricing Authority (NPPA). There have been several reminders to increase the constituents of NLEM as there are only 384 medicines at present in the list while in USA it is estimated that91% of all prescriptions are filled as generic drugs, with more than 32000 generic drugs approved by the Food and Drug Administration (FDA) to date.

Scope of the Research:

The scope of the research has been divided into two categories – National and Global.

National Level- At the national level the target is to make generic medicines available to the people of India at affordable prices and also the required medicines by expanding NLEM. Malpractices need to be curbed to achieve the same. The impact of the malpractices has been quite well notices through recent events such as-
https://www.etvbharat.com/hindi/chhattisgarh/state/korba/korba-patients-not-getting-facility-of-generic-medicine-awareness-dhanvantari-medical-store/ct20231226224559464464737
According to this article, the doctors do not write down the formula but the name of the branded medicine since they get a lot of commission from these companies. Patients are made to return the medicines to the shops. Some doctors have also said that the required combination is not available in generic medicines.

For e.g. A doctor will have to prescribe three different generic medicines for headache, cough and cold while only one branded medicine can serve the purpose.

Global Level- The improvement in this sector will enhance India's presence in the medical sector. Not only will medical tourism increase in the country but with more inflow in the number of patients it will also result in more research and development in the healthcare sector. Problems for which foreign countries need to be visited today, things may so turn out that those citizens would visit India. Also, low prices will be an attraction for the patients. This may also result in foreign medical institutes related setting up campuses in India.

Objectives:

The objectives of this research are as follows-

1. To identify the malpractices in this sector. There have been several malpractices in this sector such as giving commission, gifts etc. Recently it came to light that Dolo650, a medicine that became a household name during the Covid-19 pandemic had actually given gifts of crores of rupees to doctors. Strong nexus of doctors also do not allow the consumption of generic medicine by following a practice of not to recommend it as was highlighted by one of the doctors in the Aamir Khan hosted show Satyamev Jayate.

2. Suggest ways to correct the malpractices. The implementation of stricter laws and regulations can help achieve this objective. Better regulation can also be a good weapon

in this field. In India according to Section 304A of the Indian Penal Code Act, a medical professional who causes death of an individual due to negligence has to face only two years of imprisonment or a fine or both. This is very less as compared to the punishment received against murder which of 14 years as the crime done is almost the same.

3. Spreading more awareness about generic medicines. A major problem with generic medicines is that about its awareness. Most people think that since the medicine low prices it is not as efficient as the branded ones. People do not even know about the alternatives available to them. Medicines like Crocin have become popular due to well -planned advertising campaigns. The Indian government should therefore use such ways where the public in large is approached, along with opening of janaushadi kendras.

Methodology Used:

A mix of primary survey method and interview method has been used to collect data and form an opinion. For the purpose of primary survey method, data was collected from pharmacies and aushadi kendras in Mumbai. Medical stores near the college, teachers and doctors were personally interviewed to get an opinion.

Observations and case studies were referred so that the current situation and recent developments in the area can be tracked. This helped in understanding the pattern of malpractices and also the approach followed towards them and the gap which was discovered in that.

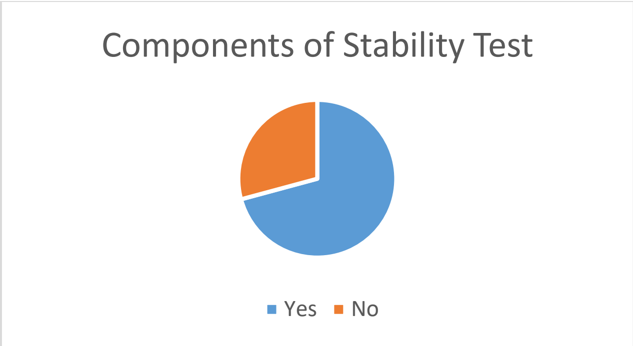
Opinion of peers and society members was taken to know about the quality and availability of generic medicines in the area. This also helped in understanding the effectiveness of government schemes and various measures and whether it was beneficial to the people.

Questions asked were related to the quality, supply, reliability of generic medicines and also about the encouragement from government, recommendation by doctors etc. Experts were also able to give an opinion on the physical components of the medicines and its efficiency.

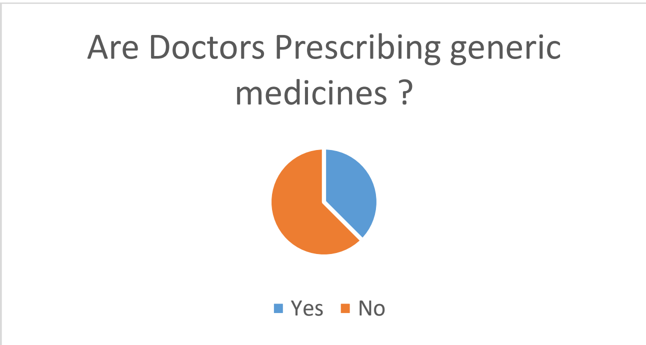
Data Analysis and Interpretation:

The first question asked to experts was how to curb malpractices? To this the experts replied that Govt. Should make medical education less expensive. Take feedback from patients. A doctor who has spent lacs of rupees or crores to become post graduate will always try to recover from innocent patients. It was also suggested to read all the components behind the medicine before buying or else consult a doctor other than that malpractice can't be stopped on a consumer base but it can be done on a manufacturing level. Other solutions given include stricter laws by FDA, dedicated helpline number etc.

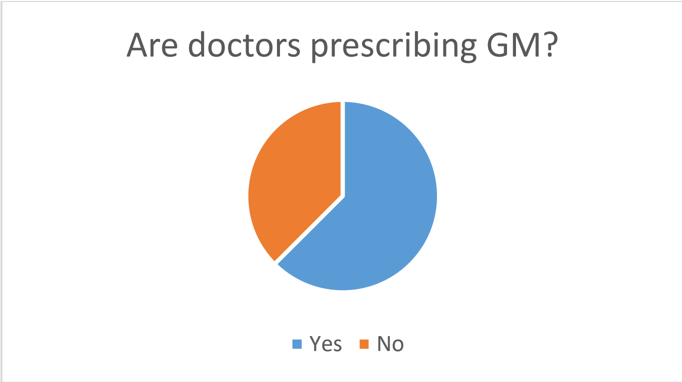
The next question asked was whether the components of the stability test of the medicines is reliable? The responses were-



Then the experts were asked if doctors were prescribing generic medicines?



The next question was, Are suggestions like expanding the NLEM list, providing tax benefits to pharmacies, reformulating prices good suggestions?



When asked about an overall opinion on generic medicines, the experts said, just as medical representatives canvass branded medicines Government should canvass generic medicines of reputed companies. Experts suggested that Government should spread awareness and open more retail outlets. Some experts commented saying that "generic medicines are good, economical and available, will advise for long term use. Antibiotics I prescribe only branded."

Conclusion:

Gap Analysis

Government schemes introduced for the promotion of generic medicines are largely confined to limited government stores in the country.

Lack of accessibility and availability discourages people to use generic medicines. Need to meet the urgency in the sector is required.

3) Awareness among consumers is required about the rules and ways of procuring generic medicines.

4) To compete with branded medicines, marketing at that level is required.

Innovations and Suggestions:

Innovative solutions using various disciplines of knowledge have been found out such as-

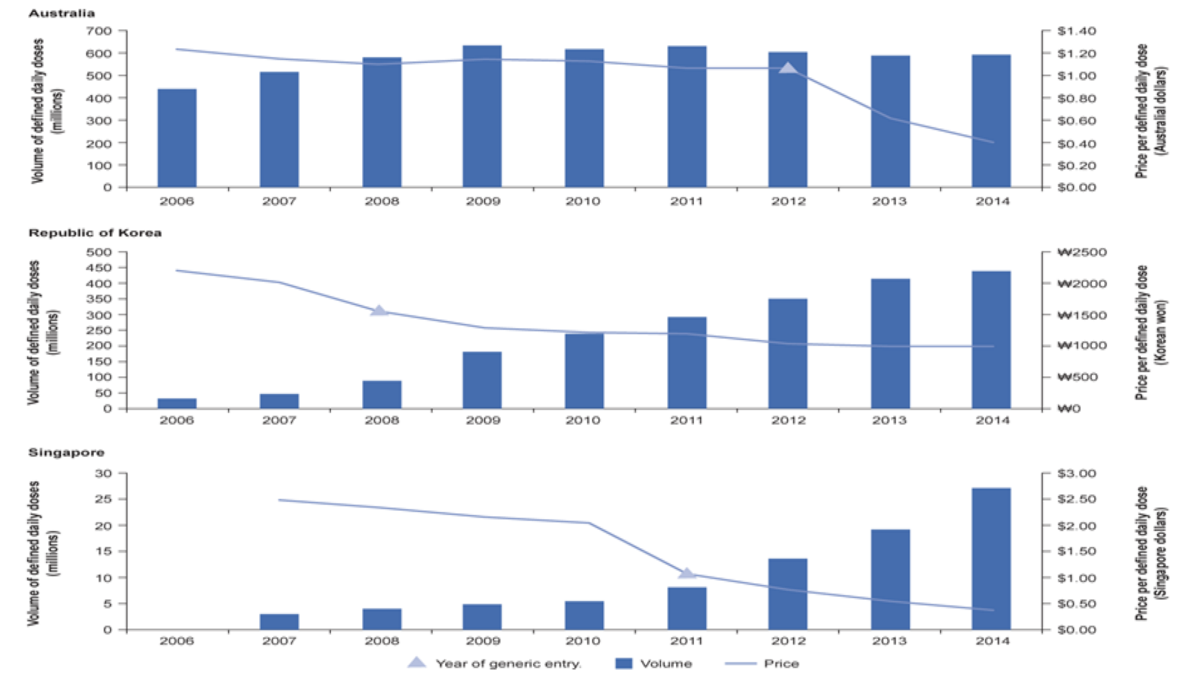
- Providing pharmacies with tax exemptions and benefits
- Reformulating the pricing to instill people's confidence and making it affordable,

- Encouraging government to expand the NLEM list.
- Public- Private partnership for distribution of generic medicines.

Expected Result

The research has been focused on **increasing confidence of people in generic medicines**. Opinion of experts have a significant impact.

Trends have been studied on consumption of generic medicines in rich and poor countries. The study of trends will be effective in marketing the medicines rightly and filling in the gaps.



Answer to questions such as what stops people from buying generic medicines, is there any reason to doubt their quality, actions to be taken to stop malpractices with regards to them have been found out. These reasons can be used to overcome the shortcomings.

Innovative suggestions can be used to reach people, win their trust and make them aware about generic medicines. Once, people understand that generic medicines are for their welfare, the motive of generic medicines will be achieved.

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Affinity And Factors Influencing Purchase From Fast Fashion Brands Among Youth In Suburban Mumbai

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Abstract:

The research study aims to understand the affinity for, and factors that influence the purchase of fast fashion brands among youth living in Mumbai's suburbs. Fast fashion refers to less expensive clothing styles produced at a large volume, influenced by popular culture. Online survey method was used to collect first hand data from 106 respondents. Findings suggest that core values and philosophy, and emotional connect have an association with purchase from fast fashion brands. Quality, variety, and income are the top factors influencing purchases. Hence brands could use these insights to better their marketing and promotional strategies.

Introduction:

Engel, Blackwell, and Mansard, define consumer behaviour as, 'the actions and decision processes of people who purchase goods and services for personal consumption' (The New College). The global apparel market was valued at 1.53 trillion USD, as of 2022 (Smith, 2023), with India ranking sixth in market size (Amed, et al., 2019).

Fast fashion is characterised by multiple designs, continuous production and large volumes of low quality and cheap clothing, influenced by popular culture. (Stanton, 2023). This industry accounts for nearly 7% of the global apparel industry and is estimated to grow at a pace of 10.13% between 2023 and 2030 (Verified Market Research, 2022).

India's fast fashion industry is expanding, driven by urbanisation, higher purchasing power, brand awareness, fashion consciousness and media among youth (Paliwal & Bansal, 2017).This paper aims to assess the factors affecting the purchase of fast fashion wear among the youth in suburban Mumbai, and their affinity towards the same.

Scope:

This study focuses on the affinity towards, and factors influencing the purchase from fast fashion brands among youth in Mumbai suburban. Youth aged between 16- 24 are considered since large part of this group is gaining greater independence in their purchases. Exploratory research methodology has been used, relying on qualitative primary data. Data collection method used is convenience sampling through an online survey. Responses were gathered from 106 participants within a time frame of two weeks. Non parametric methods are used to test the hypothesis. The paper examines the affinity for fast fashion brands, and factors such as financial, social, product features, media influence, etc.

Objectives:

1. To understand the affinity for fast fashion brands among urban youth in Mumbai.
2. To investigate the similarity between the amount willing to pay, and amount actually paid for fast fashion brands by the consumers.
3. To identify the factors that influence the purchase of fast fashion brands among youth in suburban Mumbai.

Hypothesis:

Hypothesis 1

H0: There is no significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.

H1: There is a significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.

Hypothesis 2
H0: There is no significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.
H1: There is a significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.

Hypothesis 3
H3: There is an association of the customers online interaction with the brand and the purchase decision of youth living in suburban Mumbai for fast fashion brands.
H0: There is no association of the online interaction with the brand and the purchase decision of youth living in suburban Mumbai for fast fashion brands.

Hypothesis 4
H0: There is significant difference between the amount the respondents are willing to pay, and actually pay for their preferred fast fashion brands.
H1: There is no significant difference between the amount the respondents are willing to pay, and actually pay for their preferred fast fashion brands.

Importance:

1. Studying consumer behaviour is an interesting topic for business students to gain an insight on its influence in rapidly growing industries such as fast fashion.
2. The research will help fast fashion brands understand the affinity of youth in suburban regions of Mumbai towards and the factors driving their consumer behaviour. It can enhance the effectiveness of their marketing and sales strategies.
3. This research could benefit Indian fast fashion brands to understand their potential market position among urban youth in suburban regions of Mumbai.
4. The study adds to existing literature by examining consumer behaviour among youth in Mumbai, their preferences, spend habits and factors driving the same.

Limitations:

The study is restricted to the regions of Mumbai's suburbs region and does not extend to other cities. The study considers youth aged between 16-24, and does not align with the

Indian Government's definition youth between ages of 13 to 35. (National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India, New Delhi, 2022).

The affinity towards fast fashion brands is limited to the parameters of- alignment with core values, emotional connect and online interaction with the brands. The fast fashion brands have not been specified; hence precise conclusions cannot be drawn. The list of factors influencing purchases is not exhaustive. The research design is exploratory with qualitative data, limiting statistical testing. Convenience sampling may lend to respondent bias, and data inaccuracies. The sample size is small and unrepresentative of the entire population. Findings may not be generalisable to other cities, age groups or in different external situations.

Research Methodology:

Research Design: The study employs exploratory research design to investigate the various factors influencing youth's consumer behaviour in suburban Mumbai. The design is flexible to accommodate changes, and suits the use of a small sample. Variables studied include, affinity and factors (financial, social, media, accessibility, product features) affect that buying decisions.

Data Collection: Primary data was collected through online survey using Google Forms. The survey primarily collects ordinal data in the form of dichotomous questions, and Likert scales.

Sample Design: Sample unit consists of individuals aged 16-24 years residing in Mumbai's suburbs, universe included every individual aged 16-24 years residing in Mumbai's suburbs. The sample size was 106 respondents. Convenience sampling method was used, distributing online questionnaire- Google Forms.

Tools & Techniques Used for Data Analysis: Likert Scale is used to collect data on degree to which factors influence the purchase behaviour of fast fashion clothing. Non-parametric testing Chi Square- Test of Independence, and Mann-Whitney U Test was used for testing the data.

Literature Review:

Several studies have explored the dynamics of consumer behaviour in the fast fashion industry. Their finding highlight various factors that influence consumer behaviour in this rapidly evolving industry.

Research conducted by Prof. Lakshminarayana and Dr. Sreenivas (2018) indicated the preference of style and status-consciousness among the ages of 20 and above in Karnataka revealed a penchant for branded clothing, driven by a desire for style and status consciousness. Durability, variety, and quality are other prime factors that influence their purchase.

Research by Bhanver, Bansal, Arya, Puri, & Pareek (2023) supported that price, style, and quality are the primary factors deciding purchase decisions. The 200-respondent survey suggested that social media marketing, promotional activities, and company values has a low impact.

In contrast, Nakalinda's (2021) overseas study in the UK found that psychological and personal factors such as age, income, and lifestyle significantly impacted buying behaviour. Social factors (social status, family, and reference groups) had no significant impact on buying behaviour.

Wang's (2010) research on Swedish customers between the ages from 13 to 55, indicated that decision-making process, involvement, and individual and group differences as key factors driving purchase decisions for the brands H&M, Zara, and Gina Tricot. Meyner, Moa, & Fager (2023) also researched the factors deciding purchase decisions for fast fashion goods in Sweden, highlighting the preference for low prices over environmental considerations. Considering the impact of celebrity influencers in fast fashion, Liu's study suggested the increased trustworthiness, credibility, and attraction towards fast fashion goods.

While considering physical store settings in West Surabaya, research by Agustiono & Clarissa Verrelie (2022) found that price had low significance compared to promotional strategies; brand image has a mediating role.

Research conducted by Patil (2023) study focused on customer perceptions regarding fast fashion brands. It reaffirmed that customer perception was largely influenced by quality, variety, and promotional efforts.

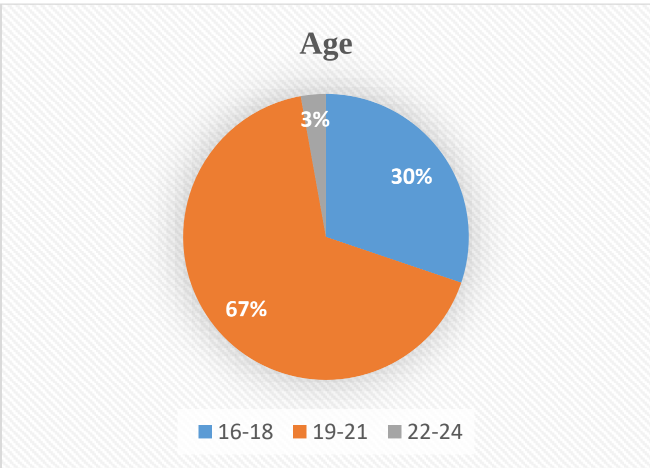
These studies indicate mixed findings. While some highlight price, quality, durability, gender, social factors, and media influence, some indicate a strong influence of involvement and individual differences on purchases.

Analysis and Interpretation:

1. Respondent demographics

Following represents the demographics of the respondents of the survey:

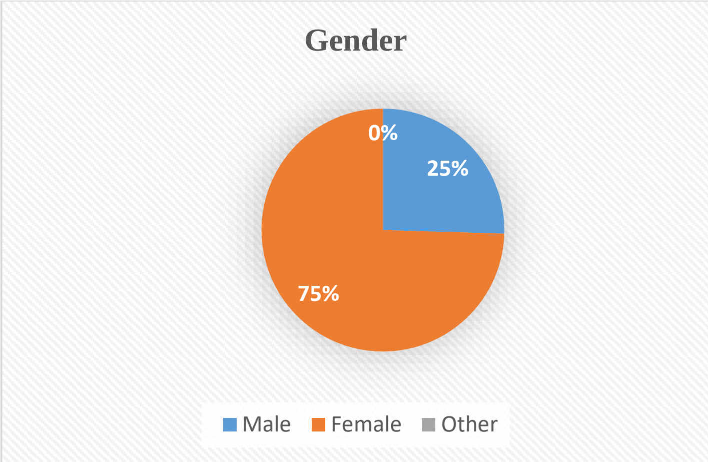
(i) Age of respondents



Source: Primary Data

The respondents were within the ages of 16-24 years. 67% of the respondents were between the ages of 19-121 years, 30.2% between 16-18 years, 2.8% between 22-24 years of age. Hence, majority respondents were between the ages of 19-21.

(ii) Gender of respondents

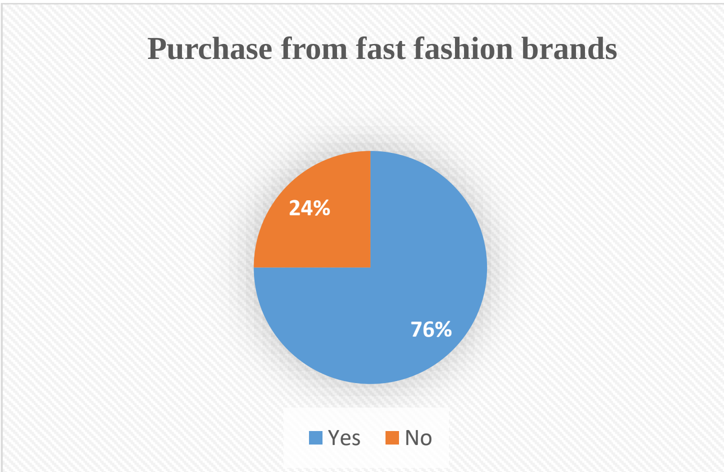


Source: Primary Data

74.5% of the respondents were females, and 25.5% were males.

(iii) Location- Their locations were in Mumbai Suburban.

2. Respondents who purchase from fast fashion brands such as H&M, Zara, Marks and Spencer's, Roadster, Mango, etc.



Source: Primary Data

This shows that 76.4% of respondents prefer purchasing from fast fashion brands, while 23.6% of respondents do not prefer purchasing from such brands. Hence, majority respondents purchase from fast fashion brands.

3. Awareness of the core values and philosophy of the fast fashion brands.

This aims to assess the one aspect of affinity towards a particular brand, by checking if the core values/philosophy of the brand is associated with the purchase from the fast fashion brands.

H0: There is no significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.
H1: There is a significant association of awareness of the core values/ philosophy of the brand, on the purchase decision of youth living in suburban Mumbai for fast fashion brands.

Chi Square Test of Independence is used for hypothesis testing.

Table 1

Alignment with core philosophy/ values and Purchase (observed frequency)

Purchase from fast fashion brands	Alignment with core values/ philosophy of the fast fashion brand.		
	Yes	No	Total
Yes	32	49	71
No	7	18	35
Total	39	67	106

Source: Primary Data

Critical value= 3.841
X^2 value= 5.167187

Since X^2 value is greater than the critical value, (5.167187 > 3.841) we reject null hypothesis and accept alternate hypothesis, at 5% level of significance and 1 degree of freedom. Hence, there is an association between the alignment of the respondents with core values/ philosophy of the brand, and purchase of such fast fashion brands.

4. Emotional connect with the fast fashion brands.

This title aims to assess the affinity towards a particular brand, by observing if the consumers emotional connection with brand is associated with their purchase decision.

H0: There is no association of emotional connect with the brand on the purchase decision of youth living in suburban Mumbai for fast fashion brands.
H1: There is an association of emotional connect with the brand on the purchase decision of youth living in suburban Mumbai for fast fashion brands.

Chi Square Test of Independence is used for hypothesis testing.

Table 3
Emotional connect with fast fashion brands and their purchase (observed frequency)

Purchase from fast fashion brands	Emotional connect with the brands purchased from		
	Yes	No	Total
Yes	29	52	81
No	3	22	25
Total	32	74	106

Source: Primary Data
Critical value= 3.841
X^2 value= 5.135624

Since X^2 value is greater than the critical value, (5.135624 > 3.841) we reject null hypothesis and accept alternate hypothesis, at 5% level of significance and 1 degree of freedom. Hence, there is an association between the Emotional connect of the customers with the brand, and purchase of such fast fashion brands.

5. Online interaction with the fast fashion brands.

This aims to assess the affinity towards a particular brand, by observing if the consumers online interaction with brand is associated with the respondents purchase decision.

H0: There is no association of the customers online interaction with the brand on the purchase decision of youth living in Suburban Mumbai for fast fashion brands.
H1: There is an association of the customers online interaction with the brand on the purchase decision of youth living in Suburban Mumbai for fast fashion brands.

Chi Square Test of Independence is used for hypothesis testing.

Table 4

Online interaction with fast fashion brands and their purchase (observed frequency)

Purchase from fast fashion brands	Online interaction with the brands purchased		
	Yes	No	Total
Yes	30	51	81
No	8	17	25
Total	38	68	106

Source: Primary Data

Critical value= 3.841

X^2 value= 0.227615

Since X^2 value is lesser than the critical value, (0.227615< 3.841) we accept alternate hypothesis and reject null hypothesis, at 5% level of significance and 1 degree of freedom. Hence, there is no association between the online interaction with the brand, and purchase of such fast fashion brands.

6. Similarity between amount willing to pay, and amount actually paid for fast fashion brands.

A difference between willingness to pay and amount paid would indicate whether brands should price their products lower or higher. Since the data is not normally distributed, hence non-parametric Mann- Whitney U test is selected.

H0: There is significant difference between the amount the respondents are willing to pay, and actually pay for their preferred fast fashion brands.

H1: There is no significant difference between the amount the respondents are willing to pay, and actually pay for their preferred fast fashion brands.

Table 6

Mann- Whitney U Test

Sign Test	
Alpha	0.05
Hyp Med	0
Tails	2
Median	0
p-value	0.90877693

Since the p-value, 0.91 is greater than 0.05 (level of significance), we reject null hypothesis and accept alternate hypothesis at 5% level of significance. Hence there is no significant difference between the amount customers are willing to pay, and actually pay for their preferred fast fashion brands.

8. Factors influencing the purchase of fast fashion brands:

The following table indicates the factors that influence the purchase of fast fashion brands among youth in Mumbai suburban, grouped according to their highest frequencies.

Table 7

Factors influencing purchase of fast fashion brands

Factors	Rank
Quality	1
Variety	2
Income/ Allowance	3
Online availability	4
Sustainability	5
Social media and advertisements	6
Retail availability	7
Family	8
Friends	9
Celebrities and Influencers	10

This shows that quality, variety, and personal income, and online availability have the strongest influence over the purchase decisions of fast fashion brands among youth in Suburban Mumbai. Sustainability, social media, retail availability follow. The factors least influencing consumer behaviour are friends and family and celebrities and influencers.
(Annexure B provides additional details regarding responses.)

Findings and Conclusion:

The findings indicate a strong link between youth in Mumbai, and their affinity for fast fashion brands. Key drivers included alignment with core values and philosophy and emotional connect with the brands purchased.

The data indicates the amount customers willing to spend, and actually spend when shopping align. The top three purchase influencers are quality, variety, and personal income. Hence, product features and financial take precedence. Social, and media factors like friends, family and celebrity influencers have the least influence.

These findings align with prior researches which suggest that factors like durability, variety and quality (Prof. Lakshminarayana & Dr.Sreenivas, 2018), price, style (Bhanver, Bansal, Arya, Puri, & Pareek, 2023), product, individual, and social dimensions (Madushika & Welege Naduni, 2021) influence purchase behaviour.

In summary, product features of durability, quality and style, variety are at the top of factors influencing purchase behaviour.

To conclude, this study gives an insight into key parameters that affect purchasing decisions. Greater knowledge about consumer behaviour can be beneficial in current dynamic fashion markets, to both existing and upcoming business in this industry. Understanding buying behaviour among youth: with their greater independence and purchasing power is important to attain market growth. This research adds value to the understanding of consumer behaviour.

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Annexure A

Questionnaire

Customer Preference Survey Questionnaire

Section 1

1. Age
    a. 16-18
    b. 19-21
    c. 22-24
2. Gender
    a. Male
    b. Female
    c. Other

3. Nearest Railway Station

4. Primary Occupation
    a. Student
    b. Intern
    c. Full-time professional
    d. Entrepreneur
    e. Other

5. Allowance/ Salary per month
    a. <10,000
    b. 10,000-20,000
    c. 20,000-30,000
    d. 30,000-40,000
    e. 40,000+

6. Do you purchase from fast fashion brands such as H&M, Zara, Marks and Spencer's, Roadster, Mango, Forever 21, etc.?
    a. Yes
    b. No

7. Are you aware of the core values and philosophy of the fast fashion brands you purchase from? (Brand identity represents a person's desire to reflect his own personality or influence others' perceptions about him)
    a. Yes
    b. No

8. Do you identify with the fast fashion brands you purchase from?
    a. Yes
    b. No

9. Do you have an emotional connection with your preferred fast fashion brands?
    a. Yes
    b. No

10. Do you interact with the content uploaded by your preferred fast fashion brands on online platforms?
    a. Yes
    b. No

11. At what price are you willing to pay for a single item from your preferred fast fashion brand? (E.g., Rs. 2,000)

12. What price do you actually pay for a single item from your preferred fast fashion brand? (E.g., Rs. 1,500)

Section 2

The next few questions are about various factors that may influence your purchase of fast fashion clothes.

13. Your purchase of fast fashion clothes is influenced by your income/ personal allowance.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

14. Your purchase of fast fashion brands is influenced by the retail stores around your residence.
    a. Strongly agree

b. Agree
c. Neither agree nor disagree
d. Disagree
e. Strongly disagree

15. Your purchase of fast fashion brands is influenced by the options available online.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

16. Your purchase of fast fashion brands is influenced by your family's views.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

17. Your choice of clothing is influenced by your friends.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

18. Your choice of fast fashion brands is influenced by celebrities and influencers.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

19. Your choice of fast fashion brands is influenced by social media and advertisements.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree

    d. Disagree
    e. Strongly disagree

20. Your choice of fast fashion brands is influenced by the quality and durability of the material.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

21. Your choice of fast fashion brands is influenced by the sustainability of materials.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

22. Your choice of fast fashion brands is influenced by variety and design of products.
    a. Strongly agree
    b. Agree
    c. Neither agree nor disagree
    d. Disagree
    e. Strongly disagree

23. Do you believe in buying from Indian brands?
    a. Yes,
    b. No

24. If a product of an Indian brand matched the quality of a product of an international brand, would you make the purchase?
    a. Yes
    b. No

Annexure B

Factors influencing the purchase of fast fashion brands

The data was collected using a 5-point Likert scale, with the influence of each factor being followed by the option of Strongly Agree, Agree, Neither Agree nor Agree, Disagree, Strongly Disagree.

The tabulated frequencies were collapsed into a three-point scale. The frequencies have been listed below.

The primary data collected is as follows-

Table A1

Factors influencing the purchase of fast fashion brands (frequency)

	Income/ allowance	Retail	Online	Family	Friends	Celebrity	Social media	Quality	Sustain ability	Variety
Agree	90	59	70	52	52	38	63	99	68	93
Neutral	11	24	23	27	26	28	24	6	26	9
Disagree	5	23	13	27	28	40	19	1	12	4
Total	106	106	106	106	106	106	106	106	106	106

A Study On Financial Inclusion In India

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Abstract:

This paper discusses the relationship between financials literacy and financial inclusion by way of a survey. The role of incorporating both financial literacy and financial inclusion is highlighted in this paper. It is important to note that the findings of this study are limited to the well-educated members of Indian society. This paper also takes into consideration the psychological role that one's city of origin plays in shaping the financial behaviours of adults. Technology and innovation are also among the other key aspects that play their part in financial literacy and inclusion.

Keywords: financial literacy, financial inclusion, society, psychology, technology.

I. Introduction:

The topic of financial inclusion is one that cannot be studied independently. A comprehensive understanding of the multitude of variables that constitute inclusion is of utmost importance.

The true extent of inclusion goes far beyond literacy. It includes accessibility and innovation of novel financial products and services and their effective use. Financial literacy has varied definitions in different countries. A developed country may consider a financial literate individual to have knowledge about a multitude of investment avenues, taxes, credit cards and insurance. Whereas a developing country may define a financially literate person as one who operates basic banking facilities, borrows wisely and can manage their personal finances in an efficient manner.

Financial inclusion can be defined as a socioeconomic measure that determines the degree to which an individual has access to financial products and schemes offered by banks and their governments.

The concept of financial inclusion can be viewed from two perspectives- the demand and the supply of financial products. The demand for financial products can be measured by the level of financial literacy of individuals and by their willingness to participate in the financial system. On the other hand, the supply of financial products can be measured by the reach of banks and government schemes and the degree to which organized institutions create and innovate accessible and all-inclusive financial products.

II. Literature Review:

Garg, S., & Agarwal, P. (2014), have defined and stated the importance of financial inclusion in a developing economy like India. To properly understand financial inclusion, financial exclusion must be studied first. The paper not only discusses the extent of financial exclusion in India but also highlights the initiatives taken by the Indian government to create an all-inclusive financial system that uplifts the unbanked and underserved regions of the country. Some of the approaches taken by the RBI and GOI for financial inclusion are - product led approach, bank led initiatives, government led initiatives, regulator led approach, technology and knowledge led approach.

Akileng, G., Lawino, G. M., & Nzibonera, E. (2018). has highlighted the correlation between financial inclusion and financial literacy as well as the relationship between financial innovation and financial inclusion. They have used a cross sectional survey to study the adult population in both urban and rural settings. Their findings show that financial inclusion and financial literacy have a strong correlation. Financial inclusion and innovation are also positively correlated. Financial inclusion is directly linked to financial literacy and so all governments must focus on pushing the financial literacy agenda through technological innovation.

Cohen, M., & Nelson, C. (2011)., discuss the pathway to better financial inclusion through financial literacy. This paper highlights the lag between financial inclusion and financial literacy and emphasises the need for financially literate individuals to make better use of the available facilities through education. Education bridges the gap between active participants in the financial system and the literate population. The paper also demonstrates the need to educate individuals by taking their financial background into consideration. The paper guides the readers to effectively impart financial education and promote literacy by appealing to various demographics and by keeping the objectives of the government, the banks and the economy in mind.

Frączek, B. (2016). discusses the influence of innovative internet technology as a pillar supporting informal education for students, thereby promoting financial literacy among them. The paper also sheds light on the ease of access of information for students that enables them to understand financial concepts better due to the instant availability of historical data and analytical programs. These tools provided by modern technology help the students not only learn new concepts but also allows them to practice them.

III. Scope of Research:

This paper focuses on the degree of financial inclusion and literacy of Indians. This study was conducted to ascertain the relationship that may exist between financial inclusion and financial literacy. One of the main reasons this paper was written was to highlight the key points between inclusion and literacy and to test the financial literacy levels of individuals who are financially included.

Some things to be kept in mind before proceeding further- the participants of the survey were all well-educated individuals and most of them were raised in a tier 1 city in India therefore the degree of access to financial products is quite high.

IV. Objectives:

- To identify the relationship between financial literacy and financial inclusion.
- To analyze the extent of financial inclusion among Indians.
- To understand the influence of the participants' background and age on the level of financial literacy.

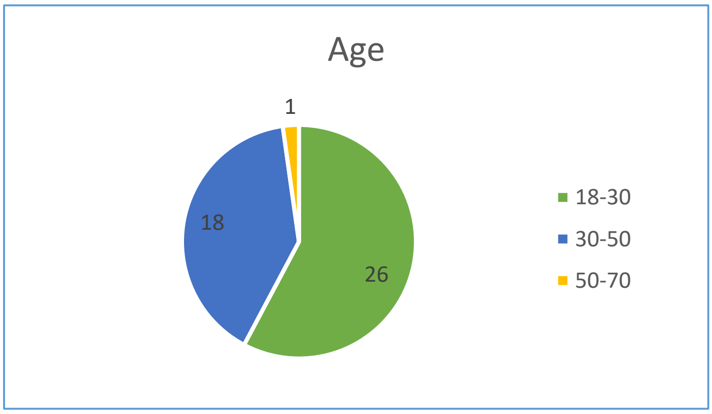
- To learn about the significance of technology in financial inclusion and financial literacy.

V. Research Methodology:

This paper is based on data derived from primary sources as well as secondary sources. A survey was conducted to collect data from adult Indians about their financial behaviour, use of financial products and to study the impact of technology in their lives. The data collected is based on the responses from forty-five individuals aged between 18-70. The questionnaire circulated contained a combination of open-ended and close-ended questions. The data is collected from secondary sources includes information from several research papers available on Google Scholar.

VI. Data Analysis and Interpretation:

a. *Analysis of age:*

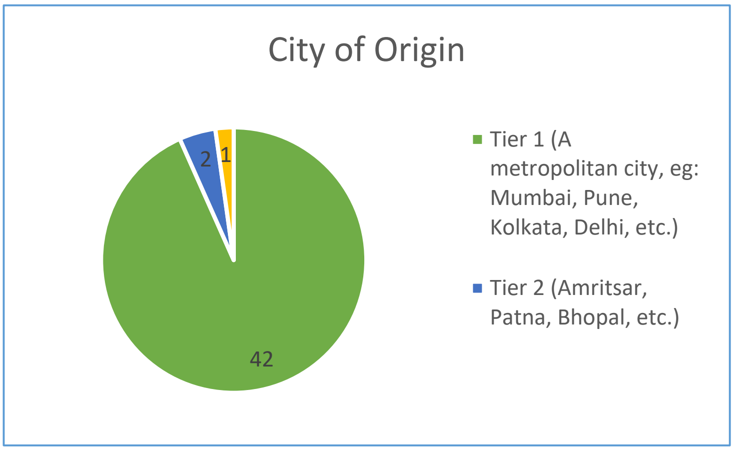


The data collected is a sample of the youth and middle-aged individuals of India.

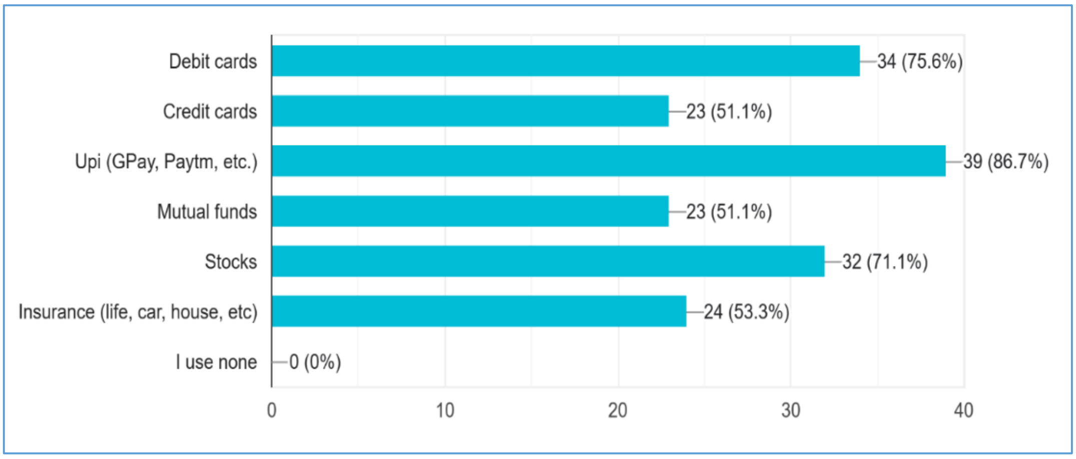
57.8% of forty-five respondents were aged between 18-30 years, 40% between 30-50 years and 2.2% between 50-70 years.

b. *Background analysis:*

93.3% of the respondents were raised in a metropolitan city in India, 4.4% were raised in a tier 2 city and the rest in a small town or village.



c. Financial inclusion:

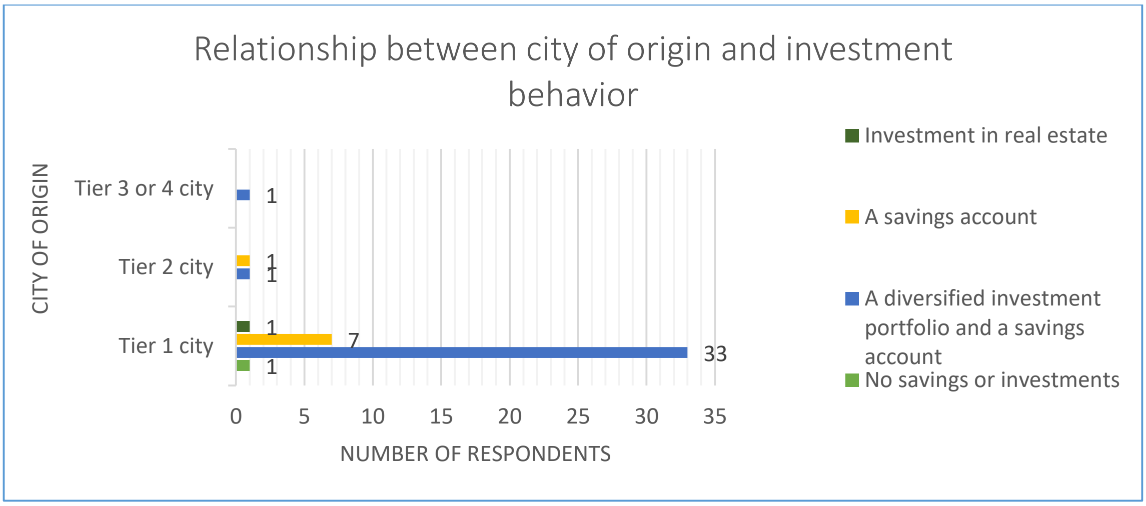


All 45 participants made use of at least one of the following financial products- debit cards, credit cards, Unified Payment Interface (UPI), mutual funds, stocks, or insurance.

86.7%of the participants used UPI as a mode of transaction, 75.6% used debit cards, 71% invested in stocks,53.3% had active insurance plans, 51% used credit cards and 51% invested in mutual funds.

All of the respondents actively participated in the financial system and made use of at least one of the most commonly available financial products. This shows that 100% of the participants are financially included, irrespective of their age, gender or the city they were raised in.

d. Influence of background on financial behavior:

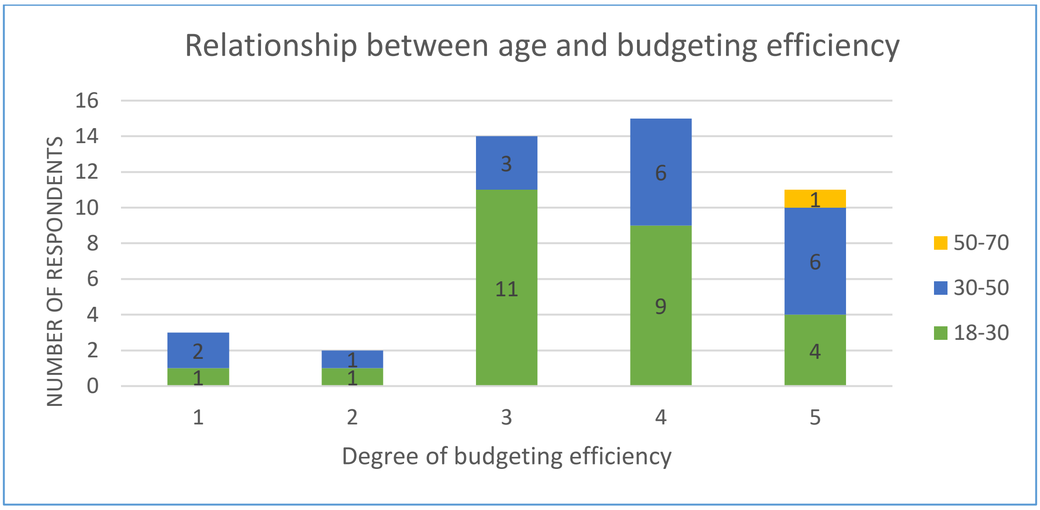


Out of the forty-two respondents raised in a metropolitan city, 33 had a diversified investment portfolio and a savings account, 7 had only a savings account, one invested in real estate, and one did not save or invest. the respondent originating from a small town or village had a diversified investment portfolio and a savings account.

Out of the two respondents from tier 2 cities, one had a diversified investment portfolio and savings account while the other only had a savings account.

All in all, 77.8% of the respondents had a diversified investment portfolio and 17.8% had only a savings account.

e. Budgeting efficiency analysis (financial literacy):

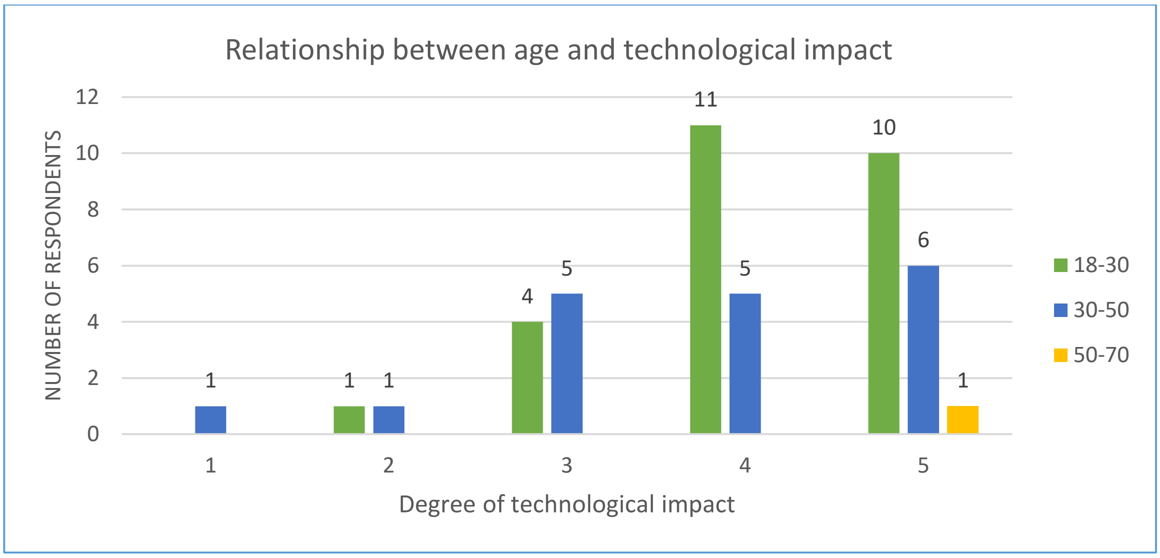


57.7% of the respondents reported above average budgeting efficiency which meant having enough savings for long term goals and owning a diversified investment portfolio. Out of these 26 individuals, 50% were aged between 18-30, 46% aged between 30-50 and 3.8% between 50-70.

31.1% of the total respondents considered themselves to be average at budgeting their expenses while 11.1% could not plan efficiently to meet their short-term needs and therefore took on debts to finance them, leaving them with not enough money to save or invest.

Most participants planned their expenses in a manner that allowed them to live comfortably. This proves that most of the participants possess the foresight to plan for the long term and to protect themselves in uncertain times.

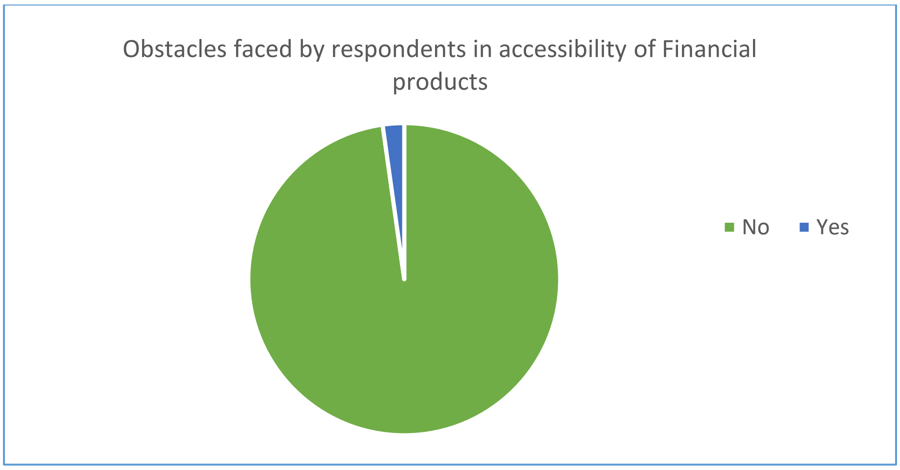
f. *Impact of technology on financial decisions:*



73.3% of the total respondents reported technology to have a significant impact on their financial decisions with regards to awareness of new avenues of investment and ease of access to financial products. Out of these, 63.63% were individuals aged between 18- 30 years, 33.33% between 30-50 years and 3% between 50-70 years.20% of the respondents reported technology to have a neutral impact and 11.11% reported technology to have a minimal impact on their financial decisions.

Most of the participants from all age groups considered technology to have a significant impact on their financial decisions. These participants attributed technology to play a pivotal role in terms of awareness of financial products and investment and ease of usage.

g. *Obstacles in accessibility:*



97.8% respondents did not face any obstacles in accessing or using any financial product. However, one respondent stated that a change in government regulations impacts previously established financial norms which in turn hinders the accessibility of certain financial products.

VII. Conclusion:

Financial inclusion and financial literacy are one of the key indicators of economic growth. However, achieving one does guarantee the success of the other. The findings of this study demonstrate the lag between these vital components. All forty-five participants used at least one of the most commonly available financial products. This proved 100% financial inclusion of the sample.

To further support this, participants were asked to provide instances of the obstacles they faced in accessing or using any financial product. The results showed that only one respondent had trouble using financial services due to the ever-changing norms regarding government regulations.

Since India is a developing country, the definition of financial literacy is limited to the budgeting efficiency of individuals.

VIII. References:

Akileng, G., Lawino, G. M., & Nzibonera, E. (2018). Evaluation of determinants of financial inclusion in Uganda. Journal of Applied Finance and Banking, 8(4), 47-66., *Cohen, M., & Nelson, C. (2011). Financial literacy: A step for clients towards financial inclusion. Global Microcredit Summit, 14(17), 1-34.,*

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An Economic Perspective into the Adoption and Implementation of Carbon Pricing Mechanisms in India

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Abstract:

This research paper explores the vital role of carbon pricing mechanisms in addressing the external costs associated with greenhouse gas emissions. By assigning a price to carbon, these mechanisms empower emitters to make sustainable choices, achieving environmental goals flexibly and at minimal societal expense. The study investigates India's ambitious climate commitments, emphasizing achievements in surpassing emission reduction targets and advocating for equitable global climate action. Analysis of India's Energy Conservation Amendment Act 2023 reveals strategic frameworks for carbon credit trading and non-fossil energy use mandates. The global exploration of carbon pricing mechanisms provides insights into various approaches, advocating for a nuanced implementation in India to mitigate challenges. Proposed policy recommendations focus on the transfer of climate finance, health management cost reductions, tax compliance enhancement, and support for environmental industries. Aligning climate goals to broader economic and societal benefits, these recommendations aim to create a comprehensive framework for successful carbon pricing implementation in India, fostering sustainable development, cleaner technologies, and a resilient green economy. The study underscores the significance of integrating economic signals through carbon pricing to drive environmentally responsible practices while achieving societal and economic benefits.

Introduction:

Carbon pricing is designed to account for the external expenses associated with greenhouse gas (GHG) emissions. These costs, which the public bears, include damages like crop harm, healthcare expenses resulting from heat waves and droughts, and property losses due to flooding and rising sea levels. Carbon pricing links these costs to their origins by assigning a price, typically a fee on emitted carbon dioxide (CO2). Doing so shifts the responsibility for GHG emission-related damages back to the entities causing them. Rather than stipulating emission reduction specifics, carbon pricing offers economic signals. It empowers emitters to choose between transforming their practices to reduce emissions or continuing with emissions and paying the associated costs. This approach achieves environmental goals flexibly and at the least societal expense. Establishing a sufficient price for GHG emissions is crucial for incorporating the external costs of climate change into a broad array of economic decisions and creating financial incentives for clean development. Such pricing can mobilize the necessary financial investments to encourage clean technology and market innovation, fostering new avenues of low-carbon economic growth. (World Bank, n.d.) This study aims to understand the global design and potential impact of Carbon Pricing Mechanisms and pinpoint their importance to India.

This study further aims to explore India’s climate commitments at the Conference of Parties (particularly COP26, COP27, and COP28) and relevant laws that facilitate these commitments (particularly the Energy Conservation Amendment Act, 2023). The study aims to analyze the effectiveness of existing mechanisms in India and improve upon them to better the output of industries and increase the awareness, presence, and demand for sustainable goods in the Indian market.

Scope of Research:

This study proposes policy recommendations by investigating global practices in designing and implementing carbon pricing mechanisms. It also examines current carbon pricing policies and tools in India to explore strategies to enhance market demand for sustainable products through carbon pricing.

Objectives:

This study aims to meet the following research objectives -

a. Identifying key challenges in the Indian economy with respect to adopting and implementing carbon pricing mechanisms

b. Providing policy recommendations to mitigate challenges such that initiatives percolate to all industries and levels of society

Methodology:

This study meets the stated research objectives with the help of secondary research using an inductive approach for analysis. Sources used are open-access resources or available via institutional access. Any data stated has been taken from resources as cited.

Data Analysis and Interpretation:

Global players have a significant headstart in the field of carbon pricing mechanisms. Various carbon pricing mechanisms have been implemented to address climate change. Carbon taxes, found in countries like Sweden, Norway, Finland, and Canada (e.g., British Columbia), involve levying charges on the carbon content of fossil fuels, motivating businesses and individuals to curb carbon emissions. The Cap-and-Trade system, observed in the European Union, California, New Zealand, and parts of China, establishes a cap on total allowable emissions, with permits distributed or auctioned. Entities can trade these permits, fostering emission reductions (*EU Emissions Trading System (EU ETS)*, n.d.). Carbon offset programs, spanning various countries and industries, enable companies or individuals to invest in emission reduction projects, generating offset credits to compensate for their emissions (*Carbon Offset Markets: Fighting Climate Change Together*, 2023). Baseline and Credit Systems, implemented in specific regions and industries, reward emission reductions below predetermined baselines with credits that can be traded or used for compliance. As in some U.S. states like California, Carbon Intensity Standards set criteria for carbon intensity in specific sectors, imposing penalties on entities failing to meet these standards. Hybrid Systems, found in different combinations globally, integrate carbon taxes and cap-and-trade elements for a flexible and comprehensive approach (Stavins, 2020). On an international scale, mechanisms like emissions trading, introduced by the Kyoto Protocol and continued under the Paris Agreement, facilitate countries trading emission reduction units to achieve targets more cost-effectively (*What Is the Kyoto Protocol?*, n.d.). While India does not levy an explicit carbon price, fuel excise taxes, Coal Cess, Perform Achieve Trade schemes, and Renewable energy certificates are implicit forms of carbon pricing (*Carbon Taxes Could Be India's*

Inclusive Climate Mitigation Strategy, 2023). Additionally, the EU's Carbon Border Tax aims to address carbon leakage by taxing certain imports based on their carbon footprint. Intending to protect EU industries and encourage global emission reductions, it raises concerns about trade tensions and impacts on developing nations while emphasizing international cooperation on climate action (*Carbon Border Adjustment Mechanism,* n.d.).

While a "one solution for all" method does not work practically, India can take inspiration from such players and modify policies, as suggested later, to maximize the potential and impact of carbon pricing mechanisms. To begin with, India has outlined ambitious climate commitments in recent COPs, particularly at COP26, where it pledged to reach 500 GW of non-fossil energy capacity by 2030, derive 50% of its energy from renewables, reduce carbon emissions by one billion tonnes, cut carbon intensity by 45% by 2030, and achieve net-zero emissions by 2070 (*India's Stand at COP-26*, n.d.). At COP27, the focus shifted to climate resilience and productive decarbonization pathways (*India Delivers National Statement at COP 27*, n.d.). COP28 highlights India's significant progress, surpassing its NDC targets by achieving a 33% reduction in emission intensity and attaining 40% non-fossil fuel-based electric capacity, nine years ahead of schedule. India also launched the Global Biofuel Alliance, emphasizing collaboration for biofuel adoption (*COP 28 NATIONAL STATEMENT by Union Minister for Environment, Forest and Climate Change Shri Bhupender Yadav*, n.d.).

In light of meeting these commitments, India's Energy Conservation Amendment Bill 2022, now the Energy Conservation Amendment Act, amended the Energy Conservation Act of 2001 and came into force on January 01, 2023. The Act grants the central government the authority to establish a carbon credit trading framework to meet India's climate commitments by (i) facilitating the achievement of COP-26 goals and (ii) introducing concepts such as mandated use of non-fossil sources and carbon credit trading to ensure faster decarbonization of the Indian economy. The key features of the Act include the introduction of Carbon Credit Trading, the obligation to use Non-Fossil Sources of Energy, the Energy Conservation code for buildings, standards for vehicles and vessels, and the composition of the governing council of the Bureau of Energy Efficiency (BEE). Additionally, certain consumers -(i) industries such as mining, steel, cement, textile, chemicals, and petrochemicals, (ii) the transport sector including Railways, and (iii) commercial buildings, as specified in the schedule, must fulfill a percentage of their energy requirements using non-fossil sources (*The Energy Conservation (Amendment) Bill, 2022,* n.d.).

The Energy Conservation Act of 2023 establishes the necessary measures to tackle a crucial challenge in India's journey towards Net Zero Emissions: the high emission levels in the Indian Energy Sector, accounting for 43% of carbon emissions. While it marks a positive step towards India's goals, addressing numerous challenges is essential for the widespread adoption of these initiatives across various industries and societal levels.

Implementing carbon trading, cap and trade systems, and carbon border taxes in India poses a multifaceted challenge due to potential issues such as the emergence of a black market for carbon credits, endemic corruption risking the integrity of emissions data and allocation of carbon credits, bureaucratic hurdles and regulatory gaps hindering effective enforcement, the risk of market manipulation by influential entities, complexities in accurately measuring and verifying emissions reductions, concerns over social equity with certain industries or communities disproportionately burdened, potential negative impacts on developing countries through carbon border taxes, adaptation challenges for industries facing new emission reduction requirements, technological and financial barriers hindering the adoption of cleaner technologies, and the imperative for strong political will and international cooperation to ensure the success of these initiatives amidst varying global commitments to address climate change.

Additionally, implementing carbon pricing mechanisms is considered a potent strategy for tackling climate change by internalizing external costs associated with carbon emissions. However, potential market failures pose challenges. Incomplete market coverage, marked by geographical inconsistencies, can lead to emission leakage. Price volatility, driven by uncertainties in carbon prices, hampers business planning. Social equity concerns arise as carbon pricing may disproportionately affect vulnerable groups, impacting low-income households and energy-intensive industries. Market power and monopolistic behavior could lead to distortions, where firms pass costs to consumers without emission reductions. Carbon leakage risk emerges from competitive disadvantages in regions with high prices. Regulatory uncertainty, policy reversals, lack of global consensus, measurement challenges, and limited consumer awareness complicate effective implementation.

Resolving market failures in carbon pricing mechanisms requires a comprehensive and coordinated approach. Firstly, policymakers should strive for comprehensive market coverage by harmonizing carbon pricing globally to avoid emission leakage. Mechanisms like price floors or ceilings can be implemented to address price volatility, providing businesses with stability for effective planning. Social equity concerns can be mitigated by designing progressive policies, such as revenue redistribution or targeted support for vulnerable groups. Antitrust measures can be enforced to curb market power and distortions to ensure fair competition and incentivize emission reductions. Carbon leakage risks can be reduced through border carbon adjustments or international agreements preventing the relocation of emissions-intensive industries. Regulatory uncertainty can be tackled by fostering long-term policy stability and providing clear transition pathways. Achieving a global consensus requires diplomatic efforts and incentives for nations to participate in carbon pricing initiatives. Improving measurement accuracy can involve investing in advanced monitoring technologies and standardized reporting practices. Lastly, raising consumer awareness can be achieved through educational campaigns emphasizing the importance of sustainable choices.

To mitigate the possible problems of implementing carbon pricing mechanisms in India, Carbon Pricing Mechanisms must facilitate domestic and international collaboration while aligning with India’s goals. To successfully implement carbon pricing mechanisms in India, policymakers should prioritize the transfer of climate finance and low-cost climate technologies to facilitate the nation's transition to a low-carbon economy. Encouraging international collaboration, particularly in the form of Foreign Direct Investments, will provide financial assistance and share crucial technological expertise, fostering sustainable development and emissions reduction. Additionally, emphasizing the potential for lower health management costs as a direct benefit of carbon pricing mechanisms is crucial. By reducing pollution and promoting cleaner technologies, such policies can lead to improved public health outcomes, resulting in substantial cost savings for the healthcare system. Leveraging carbon pricing mechanisms to enhance tax compliance through clear and transparent taxation structures related to carbon emissions is imperative. This approach encourages businesses to accurately report and manage their carbon footprint, contributing to a fairer tax system and creating incentives for emission reduction. Furthermore, supporting the growth of environmental industries through eco-subsidies will stimulate innovation and investment in sustainable technologies, fostering the development of a green economy. Incentivizing businesses to adopt sustainable technologies through financial rewards, tax incentives, subsidies, or rebates will reduce carbon emissions. By integrating these recommendations, India can create a comprehensive and effective framework for carbon pricing that addresses environmental concerns and promotes economic growth, public health, and technological innovation. Comprehensive and collaborative efforts involving governments, businesses, and civil society are essential to navigate these challenges and facilitate the successful implementation of carbon pricing mechanisms while mitigating adverse effects. Designing carbon pricing mechanisms to meet economic and social goals while setting up regulatory bodies to ensure effective nationwide implementation can enhance the chance of public acceptance and success.

Conclusion:

In conclusion, this research underscores the significance of carbon pricing mechanisms as a crucial tool for addressing the external costs of greenhouse gas emissions. By assigning a price to carbon, these mechanisms provide economic signals that empower emitters to make sustainable choices, ultimately achieving environmental goals flexibly and at minimal societal expense. The study delves into India's ambitious climate commitments, highlighting its achievements in surpassing emission reduction targets and emphasizing the need for equitable global climate action. The analysis of India's Energy Conservation Amendment Act 2023 reveals a strategic framework for carbon credit trading, non-fossil energy use mandates, and other measures to expedite decarbonization. The global exploration of carbon pricing mechanisms provides insights into various approaches, and the study advocates for a nuanced implementation in India to mitigate challenges such as corruption, market manipulation, and social equity concerns. The proposed policy recommendations, focusing on improving existing systems in India, highlight the transfer of climate finance, health management cost reductions, tax compliance enhancement, and support for environmental industries, offering a comprehensive strategy for successful carbon pricing implementation in India. By aligning climate goals with economic and societal benefits, India can pave the way for sustainable development, cleaner technologies, and a resilient green economy.

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Assessing The Smart Village Landscape In India: A Scientometric Approach

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1. Abstract:

As interest in the field of smart village development grows, there is a notable surge in research attention towards understanding and shaping the smart village landscape in India. Over the past decade, researchers have increasingly called for a more comprehensive examination of various dimensions within the context of smart villages. In response, this paper conducts a thorough review of the evolving trends and facets of smart village research in India over the past 17 years. Analysing a dataset of 542 documents retrieved from Scopus database, this study employs bibliometric tools such as bibliometrix and VOSviewer to illuminate the trajectory of smart village literature in India. Among the manifold contributions of this study, it provides a quantitative and objective method for not only evaluating the impacts and trends of the smart village landscape, but also identifies notable research gaps for future contributions. Furthermore, to the best of the researcher's knowledge, this is the first scientometric study in the smart village field in the Indian context, contributing a unique and comprehensive perspective to the existing body of knowledge.

2. Introduction and Scope:

A smart village is a concept that focuses on the holistic development of rural areas with an aim to redefine its socio-economic fabric. They are multifaceted, self-sustaining ecosystems that aim to improve overall rural living conditions (Mohanty, 2020). Characterized by a range of dimensions, they include but are not limited to governance, resources, village services, living, and tourism (Aziiza, 2020). These dimensions are further detailed as economy, ICT, people, governance, environment, living, and energy (Mishbah, 2018; Alhari, 2022).

In India, the rural population accounts for 90,88,04,812 individuals as of 2022 or *64.13%* of the total population (macrotrends.net), underscoring the critical importance of delving into this subject. Sen's capabilities approach (Sen, 1985) had laid the groundwork for understanding development beyond mere economic indicators, emphasizing the empowerment of individuals in rural communities. Varied works (Shukla (2016), Karki (2020), and Katara (2016)) highlight their contribution in specific dimensions of integrated planning, private sector-led programs, and the role of information and communication technology (ICTs) respectively. Despite these insights, a comprehensive understanding of smart rural development in India remains elusive. This research therefore endeavours to address existing knowledge gaps by synthesizing diverse perspectives.

3. Objectives:

Given the escalating significance of research in the smart village domain and the absence of a comprehensive review, the study has the following objectives:

3.1. To undertake an exhaustive synthesis of existing scholarly literature on smart rural development in India

3.2. To employ a bibliometric analysis, which *inter-alia*, provides:

- The temporal evolution of research trajectories in the smart village domain to identify emerging themes and shifts in focus over time
- Collaborative networks to understand authorship patterns
- Quantify the impact of different subject areas on smart village research
- Nuanced analysis of keywords to unveil the conceptual trajectories and burgeoning areas of emphasis within smart village research

3.3. To discern gaps in the current body of knowledge related to the smart village concept

4. Methodology:

In recent decades, the adoption of scientometrics as a quantitative method for uncovering transformative patterns and anticipating emerging trends has become widespread.

Seminal works by Börner et al., Ivancheva and Mingers and Leydesdorff underscore its pivotal role. Considering the same, the research workflow is described in the ensuing paragraphs.

4.1. Search Strategy and Inclusion Criteria

The selection of Scopus as the database is grounded in its recognized reliability and adherence to rigorous quality standards in academic indexing (Mongeon & Paul-Hus, 2016), typically suited for social sciences' literature (Norris et al.). The search strategy, executed on 22 December 2023, was crafted to ensure the comprehensive retrieval of scholarly publications related to the smart village concept, while restricting the country of affiliation to India. The primary search field encompassed the keywords "smart AND village", targeting literature specifically associated with smart village initiatives. To broaden the scope, an additional query, "smart AND rural AND development" was employed, ensuring inclusivity of relevant studies that might use a varied terminology. This dual-query approach yielded a total of 568 documents.

The study restricted the analysis to specific document types 'Conference paper', 'Article', 'Book chapter', and 'Book'. This focus aimed to ensure a comprehensive examination of substantive scholarly contributions while excluding document types such as 'Note', 'Letter', 'Erratum', 'Editorial' and the like, which typically provide less substantive or critical insights. Pursuant to this approach, the dataset was refined to 542 documents, ensuring the contextual appropriateness and scholarly rigor of the identified corpus.

4.2. Approach

Rightly highlighted by Wang et al., Cobo et al. compared nine bibliometric tools and found that no single tool could offer a complete suite of analyses. Consequently, the researcher conducted a scientometric analysis using two powerful tools: bibliometrix, an open-source R-tool by Aria and Cuccurullo, and VOSviewer, a professional program by Van Eck and Waltman. Bibliometrix offers extensive analytical techniques with its interface "Biblioshiny", while VOSviewer excels in network visualization, guided by the smart local moving algorithm.

Moreover, for the purpose of establishing a basis for comparison and identifying research gaps, primary data was acquired through interviews with representatives of Ekal

Vidyalaya. The organization's 'Integrated Villages Program' underscores a comprehensive strategy for the development of smart villages.

5. Data Analysis and Interpretation

5.1. Overview

The following table provides an information summary on retrieved studies pertaining to the smart village landscape in India:

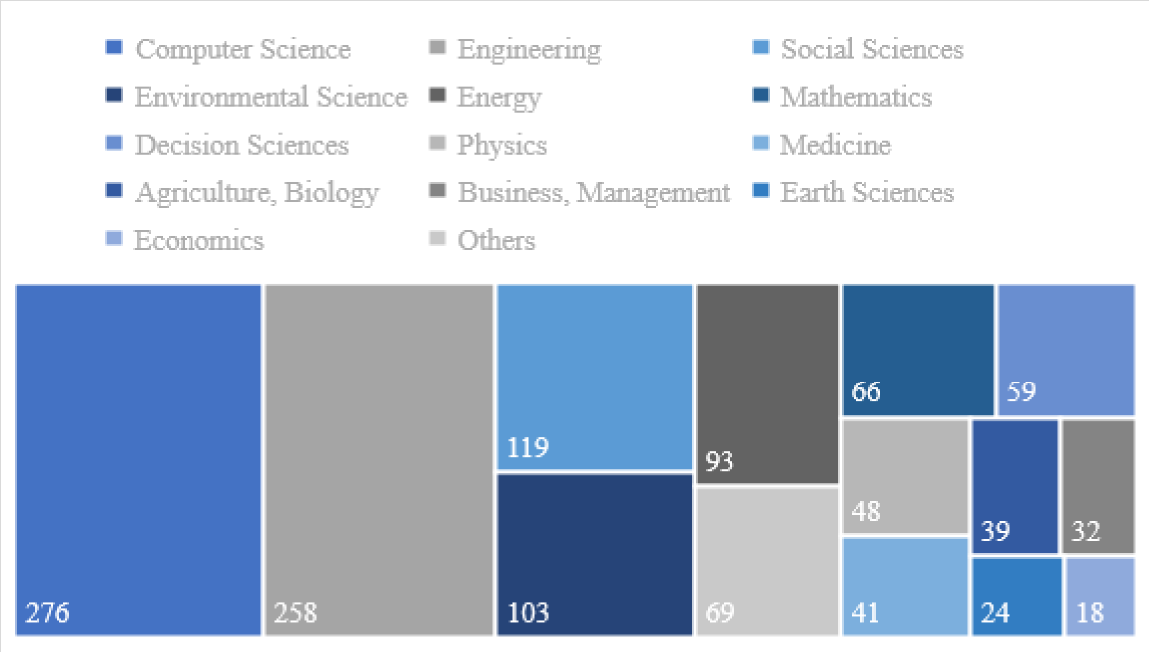
Table 1. Information summary on retrieved literature

GENERAL INFORMATION		**AUTHORS**	
Timespan	2006:2024	Authors	1794
Sources (Journals, Books, etc.)	397	Authors of single-authored documents	44
Documents	542	**AUTHORS COLLABORATION**	
Annual Growth Rate %	3.93	Single-authored documents	44
Document Average Age	3.41	Co-Authors per document	3.83
Average citations per document	7.57	International co-authorships %	19.85
References	13651	**DOCUMENT TYPES**	
DOCUMENT CONTENTS		Articles	204
Keywords Plus	3457	Books and book chapters	103
Author's Keywords	1979	Conference papers	237

5.2. Subject Area Contribution

Contrary to the popular belief that smart village development would predominantly reside within specific dimensions; the Scopus subject area classification reveals a notable interdisciplinary nature (Figure 1). Among the top three subject areas, computer science (n = 276), engineering (n = 258), social sciences (n = 119) dominate, reflecting a confluence of technological and societal dimensions. With an additional 22 subject areas contributing, the analysis underscores the multidisciplinary approach inherent in the discourse on rural smart development.

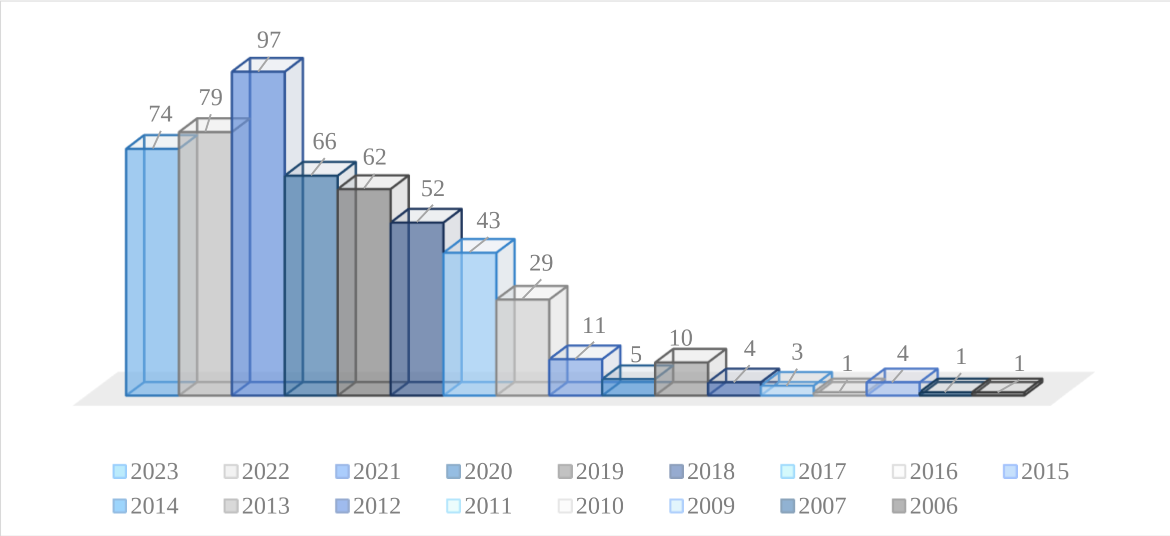
Figure 1. Quantification of contributions by subject area



5.3. Yearly trends

The smart village development literature, evolving from 2006 to present (Figure 2), showcases distinct trends. 58.30% of the literature has been produced during and post the COVID-19 pandemic, hinting at significant research attention towards vulnerability of rural areas in the crucial period. The onset of this literature, marked by Chowdhury et al., exemplifies the fusion of technology and healthcare in underserved rural areas. Notably, the government of India launched its 'National Rural Health Mission' (NRHM) in 2005. Further, an inflection point in 2016 accelerated research activity. Interestingly, two flagship schemes 'Pradhan Mantri Gramin Awaas Yojana'(PMAY-G) and 'Pradhan Mantri Fasal Bima Yojana' (PMFBY) were launched in the same year, illustrating the crucial interplay between scientific research and public policy in addressing critical challenges.

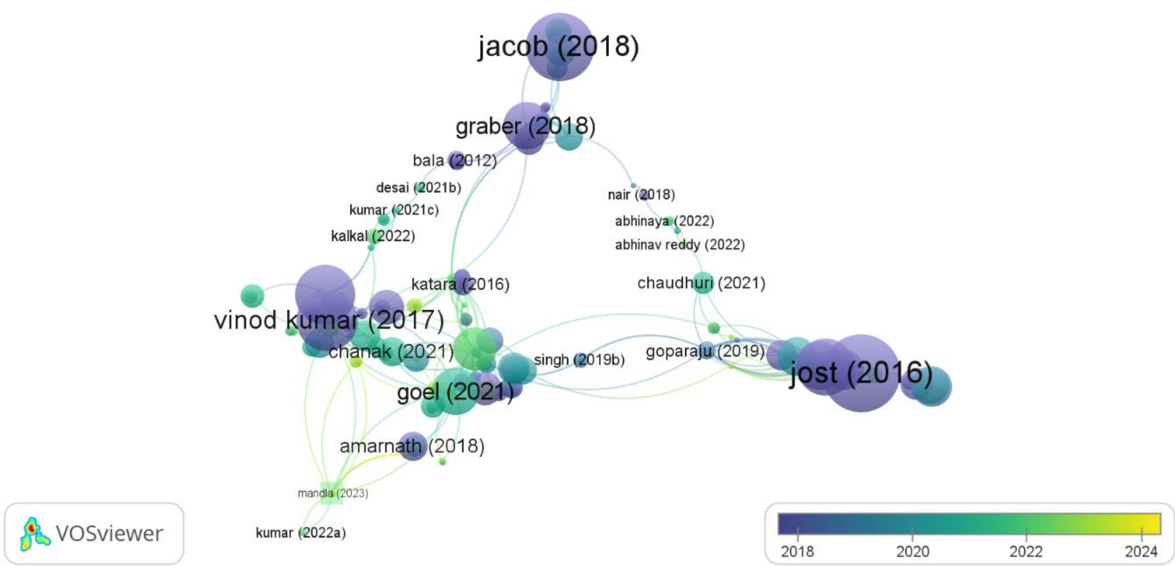
Figure 2. Publication trend over the years



5.4. Bibliographic coupling and country collaboration

Bibliographic coupling, examining shared references among scholarly works (Small, 1973, Glänzel, 2002), unveils the intellectual interconnectedness within a research field. As works accumulate common references, it signals a significant level of thematic affinity and potential research synergy. In the present study, employing bibliographic coupling revealed a subset of 184 documents out of the initial 542 that surpassed a predefined coupling threshold. (Figure 3).

Figure 3. Bibliographic coupling of the smart village literature in India



The intricate level of interconnection between authors implies the high level of authorial and institutional cooperation in the present research field, each cluster representing strong, collaborative groups.

Further, it is worth noting that besides India, a total of 18 other countries have contributed to the study of smart villages in India. Figure 4 depicts the inter-country and intra-country publications produced by each country, while Figure 5 depicts a world map demonstrating an overall collaborative network within countries.

Figure 4. Country wise contribution

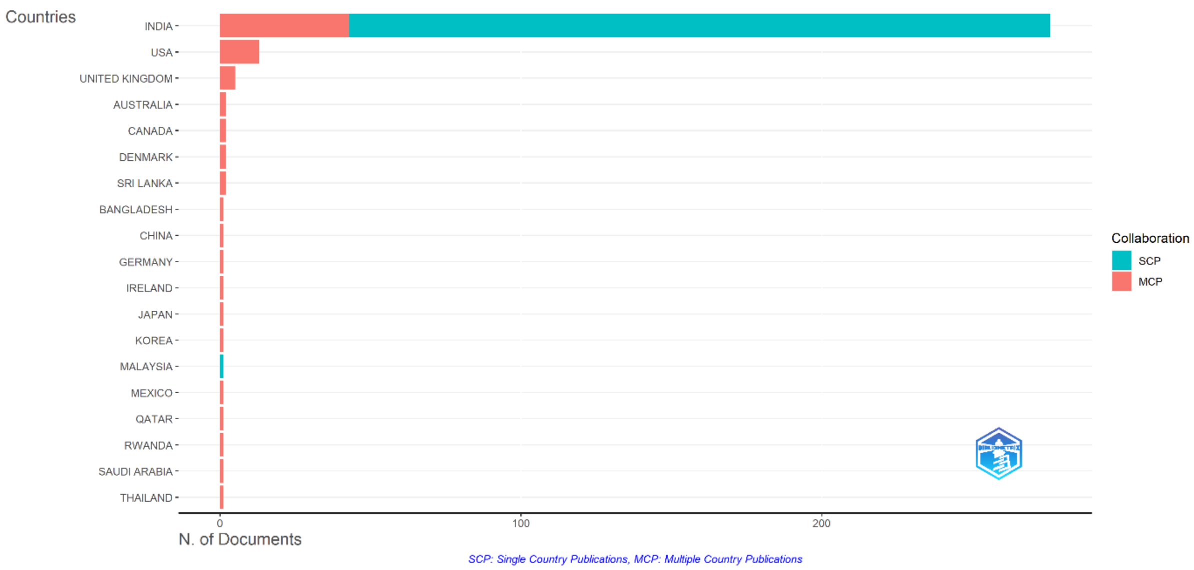
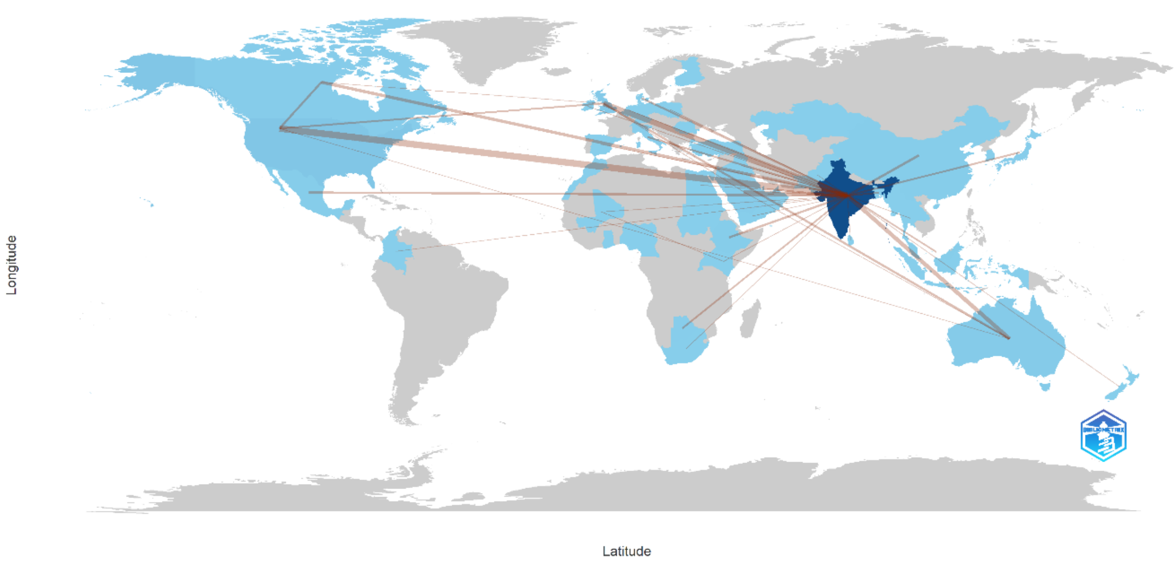


Figure 5. Collaborative network among countries



5.5. Keywords

As researchers navigate the dynamic terrain of smart village development, the frequency distribution and cluster analysis of keywords become instrumental in charting the conceptual trajectories and identifying emerging areas of focus (Börner et al., 2005). Author-assigned keywords, chosen directly by authors, provide a glimpse into the focal points and emphasis of the scholarly discourse, while indexed keywords offer an additional layer of insight through the perspective of database indexers (Elsevier). This dual-layered analysis not only quantifies the prevalence of specific terms but also reveals the multidimensional nature of the research landscape, aiding in the identification of key themes and trends (Tripathi et al., 2018).

Table 2. Most vital keywords in the overall context

KEYWORD	OCCURRENCES	TOTAL LINK STRENGTH	KEYWORD	OCCURRENCES	TOTAL LINK STRENGTH
internet of things	104	634	human	29	276
smart city	62	302	developing countries	26	161
agriculture	59	356	electric power transmission networks	26	208
iot	48	263	solar energy	25	136
sustainable development	47	323	smart power grids	24	178
internet of things (iot)	33	204	agricultural robots	23	168
climate change	32	135	smart grid	22	159
crops	29	230	monitoring	21	141

In relevance of the above, analysis of both author-assigned and indexed keywords (with frequency = 4,5 respectively) was undertaken to distil the essential thematic elements inherent in the corpus. Post exclusion of words like ‘smart village(s)’, ‘article(s)’, ‘India’, and the like, the researcher obtained a set of 73 and 157 items respectively, meeting the threshold. Table 2 provides the most vital keywords overall, while Figure 6, 8 map the relevant keywords to enable further cluster analysis. In the overlay visualization view (Figure 7, 9), the colour of each keyword represents the keyword’s average publication year, which was determined by taking the average of the publication years of all the documents containing the keywords.

Figure 6. Network of author keywords basis co-occurrence data

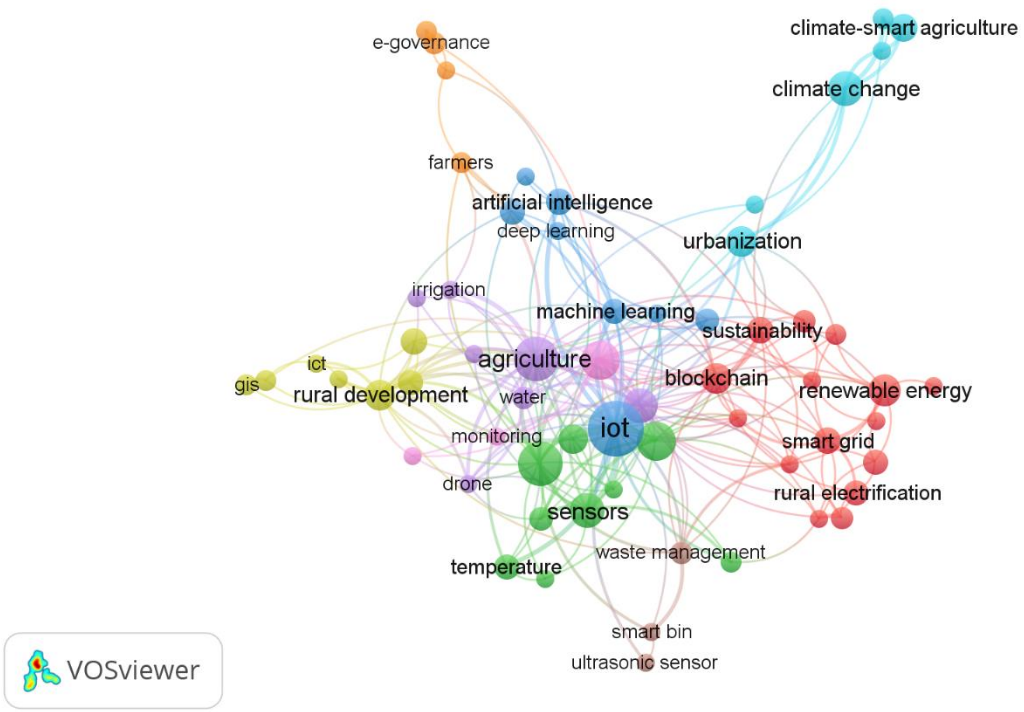


Figure 7. Network of author keywords basis co-occurrence data, overlay visualisation view

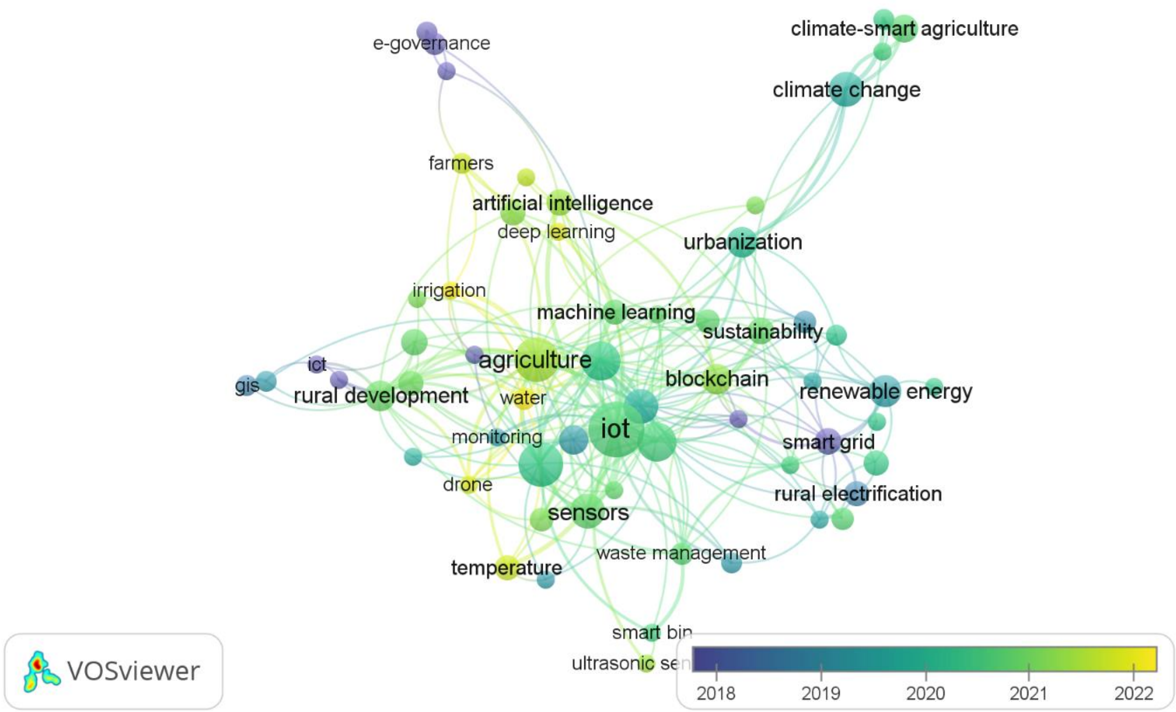


Figure 8. Network of indexed keywords basis co-occurrence data

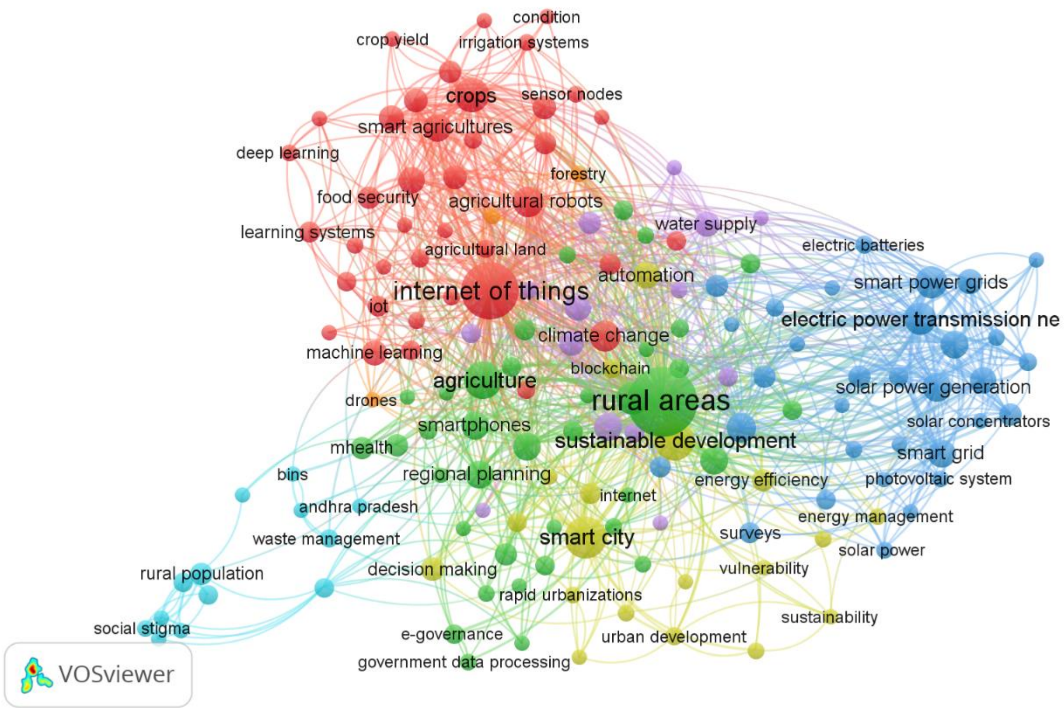
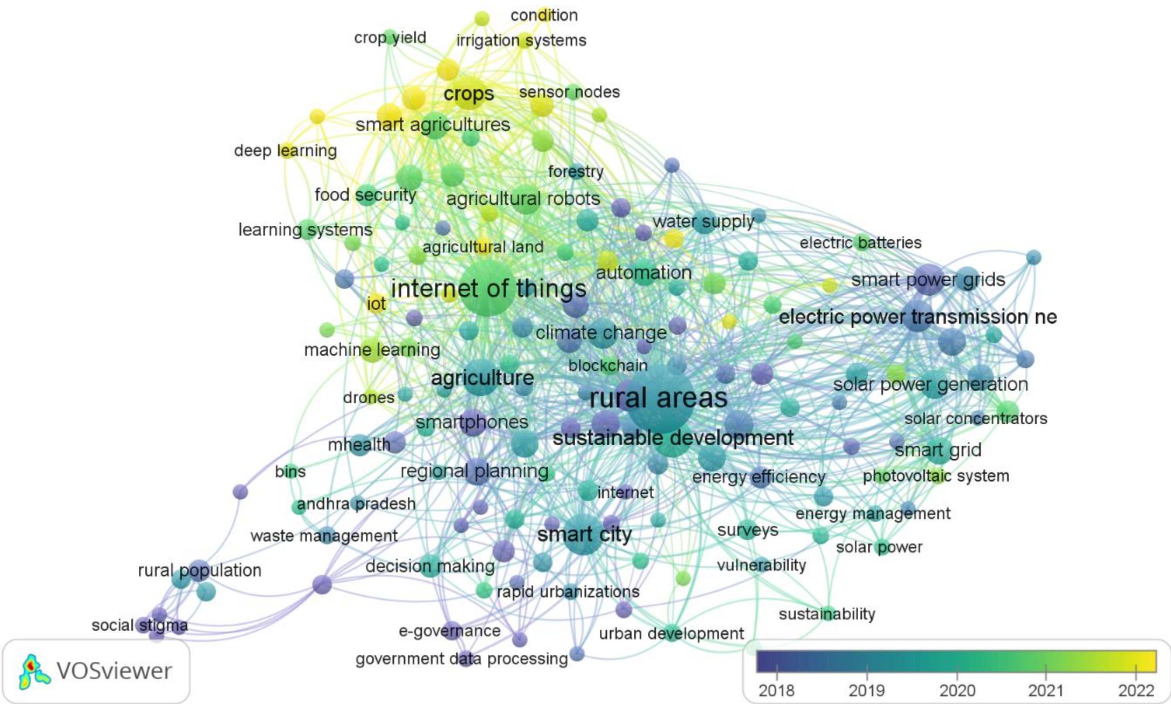


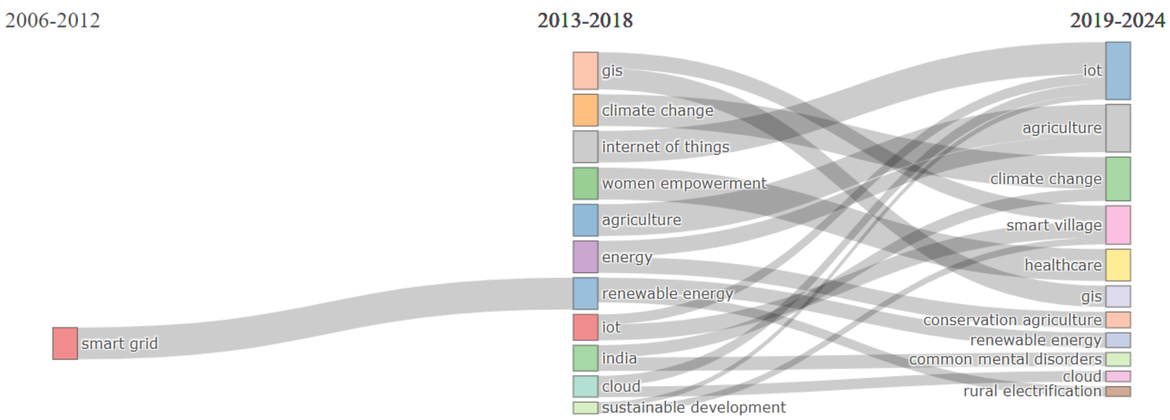
Figure 9. Network of indexed keywords basis co-occurrence data, overlay visualisation view



Performing cluster analysis to the above reveals how the smart village landscape in India has evolved from mere irrigation and agriculture to an increased focus on sustainable practices, evident from keywords ‘renewable energy’, ‘solar power generation’, ‘climate change’, ‘climate-smart agriculture’ and the like. Notable amount of attention has been given to the policy aspects, evident through ‘government data processing’ and ‘e-governance’, emphasizing again, the crucial interplay between research and policy initiatives. Themes of ‘waste management’ and ‘rural electrification’ have also captured substantial interest of authors in this domain. Lastly, the keywords ‘machine learning’, ‘deep learning’, ‘iot’, ‘drones’, ‘agricultural robots’ clearly highlight the role of technology and artificial intelligence in the smart village landscape, although relatively new and providing ample scope for expansion.

As a corroborative analysis, a thematic map is utilized to depict the evolving themes and relationships. (Xie et al.) The Sankey diagram (Figure 10) serves as a visual representation of thematic evolution, illustrating the flow quantity through arrow width. Each node corresponds to a topic, and its width reflects keyword frequency, emphasizing thematic relevance.

Figure 10. Sankey diagram based on the thematic evolution of keywords



Evidently, apart from the idea of a smart grid, there was no sign of significant research themes around smart villages in India during the initial phase (2006-2012), which only rose to relevance post 2013, laying a significant focus on climate and energy (sustainability) centric themes along with women empowerment. It continues to stay in focus at present, coupled with emerging themes around technology and agriculture, supporting the researcher's findings above. Notably, the themes 'healthcare', 'common mental disorders' underscore a new emerging area of prominence.

5.6. Interview results

Table 3 outlines the insights obtained on a typical NGO's areas of focus:

Table 3. Ekal Vidyalaya's initiatives for smart villages

THEME	INITIATIVE
Climate-smart agriculture	Educating farmers on organic farming methods; reducing dependence on chemical fertilizers/ pesticides
Education	'One teacher schools' provide non-formal free of cost education
Technology	Incorporating tailored digital learning; inclusive of tablets with audio-visual enhancements

	'Ekal on Wheels' to facilitate e-learning through mobile computer units
Healthcare	'Telemedicine Enhanced Healthcare' to deliver essential medical services and offer preventive healthcare education
	Disaster or pandemic relief efforts through mental health services, vaccination, and countering misinformation
	'Home Nutrition Gardens' to offer fruit, vegetable seedlings for organic farming
Non-farm rural employment	'Gramothan Resource Centers' offer state-of-the-art facilities for skill training
	Training communities in handicraft, pottery, carpentry and tailoring to kindle entrepreneurship
Women empowerment	Empowering local women in healthcare outreach
Cultural awareness	'Ethics and Value Education' for promoting local culture

A notable gap in areas of Education, Employment and Culture underscores the need for further exploration and understanding, emphasizing the importance of aligning educational, cultural and employment initiatives with others to foster comprehensive development. This in turn corroborates the findings of Wang et al., which calls for a human-centric approach, recognizing that the success of initiatives is ultimately measured by their positive impact on the lives of the people.

6. Conclusion:

The study of smart village landscape in India is multidisciplinary in nature, which has sparked interest across the globe with a well interconnected network of authors. Evolving from an agro-centric approach to the one of advanced technology and sustainable practices, emerging themes like healthcare have also been gaining prominence. However, for holistic development to occur, it is essential that different entities collaborate and support one another in their actions. In this context, a significant research gap is evident in domains of ‘Education’, ‘Culture’ and ‘Employment’, highlighting the significance of placing human needs, experiences, and well-being at the core of smart village development. Additionally, the researcher also wishes to draw attention towards ‘Rural tourism’, which despite its potential to significantly contribute to cultural preservation and economic growth in a country like India, is an overlooked aspect.

In its pursuit of understanding, this study has strived to lay a comprehensive foundation for the subject matter, with the hope that it will guide future research endeavours and contribute to the ongoing discourse on sustainable rural transformation.

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Optimizing Engagement Through Push Notification In Digital Marketing

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Abstract:

An upswing in the usage of electronic devices naturally leads to increased downloads; however, this doesn't necessarily translate into a higher customer conversion for companies. The primary culprit behind this issue is the lower engagement and retention rates. Despite users having a multitude of apps on their devices, the true value of these apps diminishes when users struggle to recall or utilize them when needed. This is where the significance of push notifications comes into play.

Push notifications serve as reminders, prompting users to engage with the app and reap the benefits that contribute to making their lives easier. Nevertheless, the crucial aspect lies in comprehending the mechanics of these notifications and their execution to effectively amplify user engagement. The universal law of quality over quantity prevails by simply centralizing customer oriented notifications instead of bombarding with a repetitive lot.

Introduction:

The digital landscape encompasses the hardware, software, and content interacting with digital advertising, such as email services, websites, computers, smartphones, videos, and blog posts. Push notifications as a marketing tool have gained significant importance in recent years in the digital landscape.

Push notifications are brief messages intended to alert users about real-time updates, application changes, or important information, aiming to divert attention and enhance user engagement. Advancements in push notifications marketing highlight the importance of modifying strategies for increased user engagement. It operates on an opt-in model, requiring businesses to remain relevant to retain subscriber interest.

Push notifications serve various purposes, from marketing timely offers to delivering useful information like flight times or purchase receipts. The types include mobile, web, and wearable notifications for updates, reminders, offers, marketing, and brand-related information. The importance of push notifications lies in generating good leads, interaction, and conversion. They are visible, direct, and effective in boosting conversions and retention. The concept of push notifications originated in 2009, pioneered by BlackBerry for real-time communication. Apple later introduced the Apple Push Notification service in 2009, and Google introduced Cloud to Device messaging for Android in 2010. The evolution led to widespread adoption, emphasizing customer privacy and preferences for personalized notifications.

Push notifications work through Operating System Push Notification Services (OSPNS), such as the Apple Push Notification Service (APNS) for iOS and services like Firebase Cloud Messaging for Android and Windows. While personalization has been implemented, the opt-out rate is increasing due to notification timeliness and frequency. The research emphasizes essential factors for brands to enhance their push notification strategy and ensure high conversion rates. Push marketing is integral, given its higher click rates compared to emails when executed strategically.

Push Notifications:

A push notification is a short message that appears as a pop-up on your desktop browser, mobile home screen, or in your device notification center from a mobile app. Push notifications are typically opt-in alerts that display text and rich media, like images or buttons, which enable a user to take a specific action. (What are push notifications? | IBM)

- OSPNS:

Push notification providers empower apps to send notifications to their users. They allow you, the app publisher, to easily send messages– from hot deals to friendly reminders to cart abandonment campaigns– that boost retention and conversions. A push notification provider gives you a platform on which you can create, schedule, and deliver messages to your users, whether or not they are using your app. (What is a push notification service and how does it work?)

- Click rates:

Click-through rate is the ratio of clicks on a specific link to the number of times a page, email, or advertisement is shown. (Click-through rate - Wikipedia)

Permission marketing represents a paradigm shift in the world of marketing, championing a consensual and customer-centric approach. This concept, popularized by Seth Godin, revolves around the idea of obtaining explicit permission from consumers before engaging them with promotional content. The shift from intrusive, interruption-based marketing to a more personalized and consent-driven model has significant implications for businesses in the digital age.

Scope of Research:

This study aims to investigate the impact of Push Notification Marketing Tactics for optimizing engagement in the Digital Landscape. Prior to the pandemic, brands relied heavily on traditional forms of advertising. However, post pandemic era marked a change in the traditional set up as digital marketing grew by leaps and bounds. After sailing through the terminologies, inferences pertaining to the various marketing strategies have been drawn citing a live example of application of those strategies in India's most famous food delivery application- Zomato. The research involves a quantitative analysis of audience's perception by assessing their reactions and response to the excessive, yet quirky push notifications received via various applications and the annoyance cause without any viable solution to control the frequency of the notification. While we draw a circumference to our solution depending on the user awareness and more importantly the company's willingness to adopt this solution as a block to the broken base, we believe in its practicality.

- **Objectives:**
  a. To understand the push notification strategy in the Digital Marketing space.

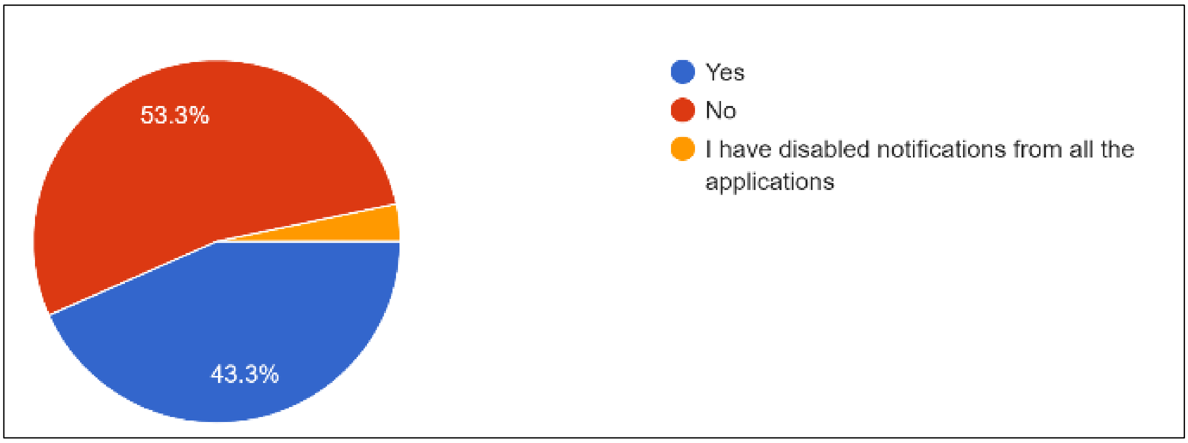
b. To understand various types of push notifications and strategies to increase user engagement.
c. To understand and study the consumer response to push notifications via a case study on Zomato's strategies.
d. To provide feasible solutions to the existing hindrances faced by companies in the push notification marketing tactics.

Research Methodology:

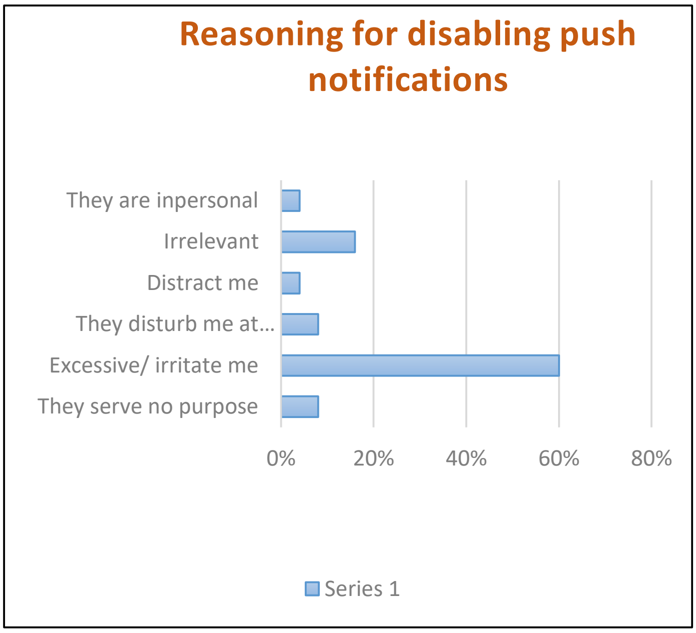
Research methodology on push notifications involved a structured approach of collecting, organising, analysing, and interpreting data using primary data, which was collected via google forms by targeting Zomato's Push notification strategy as a case study since it offered a convenient and efficient way to gather information from respondents. The method included both qualitative and quantitative aspects, providing data related to customer views on the notifications received, the frequency of notifications received, population's emotional sentiment attached to etc. Along with the primary data collected, the research also includes usage of secondary data for articulating the reasoning behind disabling of notifications in general.

Data Analysis & Interpretation

Users Disabling Push Notification



A comprehensive survey was undertaken to delve into users' notification preferences, revealing a noteworthy trend, a substantial 43.3% of participants have actively chosen to disable notifications. This sizable portion opting out suggests a significant shift in user behaviour. The consequences of this choice extend beyond mere preference, potentially resulting in a considerable reduction in application engagement and, consequently, a notable impact on overall sales. Understanding and addressing this trend becomes imperative for optimizing user experience and maximizing business outcomes.



Following thoughtful deliberations with peers and respondents, a nuanced interpretation was crafted regarding the motivations behind their decision to disable notifications. Remarkably, a significant 60% cited an excess of notifications, characterizing them as both intrusive and vexatious. Another 16% found the notifications lacking relevance, while an additional 8% perceived them as purposeless and untimely. In the final 8%, discerning participants expressed that notifications were both distracting and lacked a personalized touch, with 4% falling into each of these categories.

Strategic Insights: Unveiling Revenue Dynamics through Enabled Notifications:

While making analysis of Sales incurred from the respondents who have their notifications enabled from the primary data collected (43.3%), a few assumptions are made to test the hypotheses of "How push notification strategies can be used to enhance user engagement and inn return the turnover of the company"

1. ***Assumption for- How often do you prefer to receive push notifications from Zomato on your mobile device?***

Preferred having notification	No. of responses prefering notifications	Weights	Weighted preference	% share
Never(1)	6	20	120	6.82%
Rarely(2)	5	40	200	11.36%
ocassionally(3)	9	60	540	30.68%
Frequently (4)	5	80	400	22.73%
Very frequently(5)	5	100	500	28.41%
Total			1760	100%

When survey respondents were queried about their preference to notifications, their answers were categorized into five distinct groups. Subsequently, weights for user engagement were established in descending order, as illustrated below:

i. Very frequently (more than 10 notifications of Zomato per day) – 100
ii. Frequently (5 to 10 notifications of Zomato per day) – 80
iii. Occasionally (3 to 5 notifications of Zomato per day) – 60
iv. Rarely (1 to 3 notifications of Zomato per day) – 40
v. Never (0 notifications of Zomato per day) – 20

2. ***Assumption for- Do you think the frequency of Zomato's push notifications is:***

When surveying the population regarding the frequency of Zomato's push notifications, it was assumed that individuals who deemed the frequency as "just right" opened the notifications 80% of the time. Conversely, for those who perceived the notifications as "too frequent," it was assumed that they opened the notifications 50% of the time.

i. Just right – 80
ii. Too frequent – 50

3. ***Assumption for- How often do you order food online initiated through push notifications.***

When the survey participants were questioned about the frequency of ordering food online through push notifications, they provided responses falling into five distinct categories. Correspondingly, weights were assigned to each category based on conversion percentages.

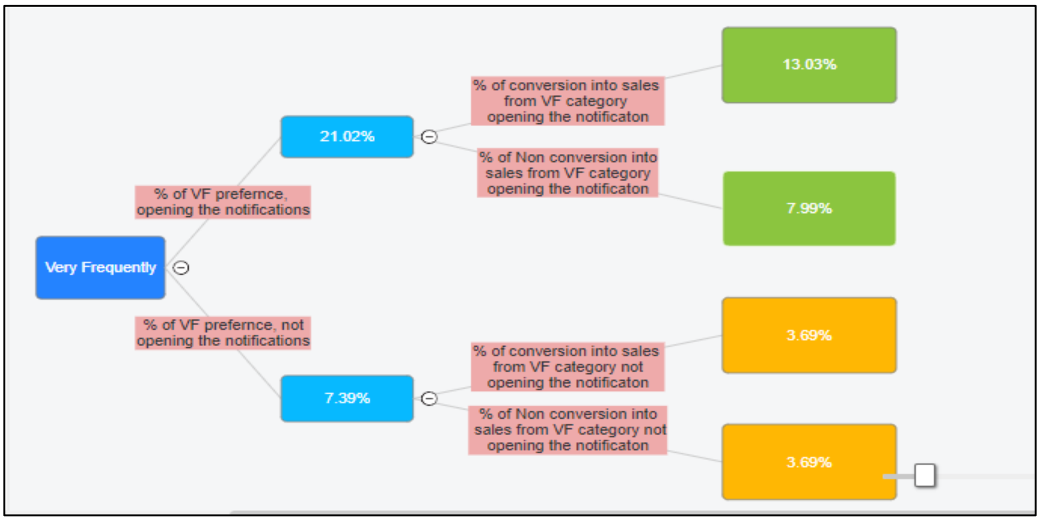
i. More than once a week – 100
ii. Once a week- 80

iii. Once a month- 60

iv. Once in 6 months- 40

v. Once in a year- 20

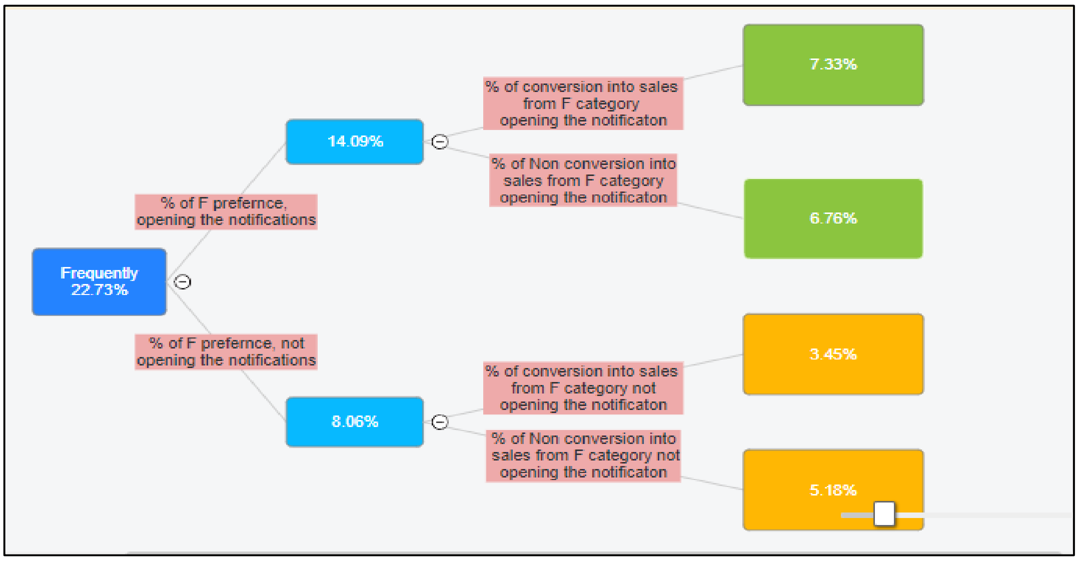
- **Maximizing Revenue: Strategic Alignment of Very Frequent Push Notifications and Seamless App Engagement**



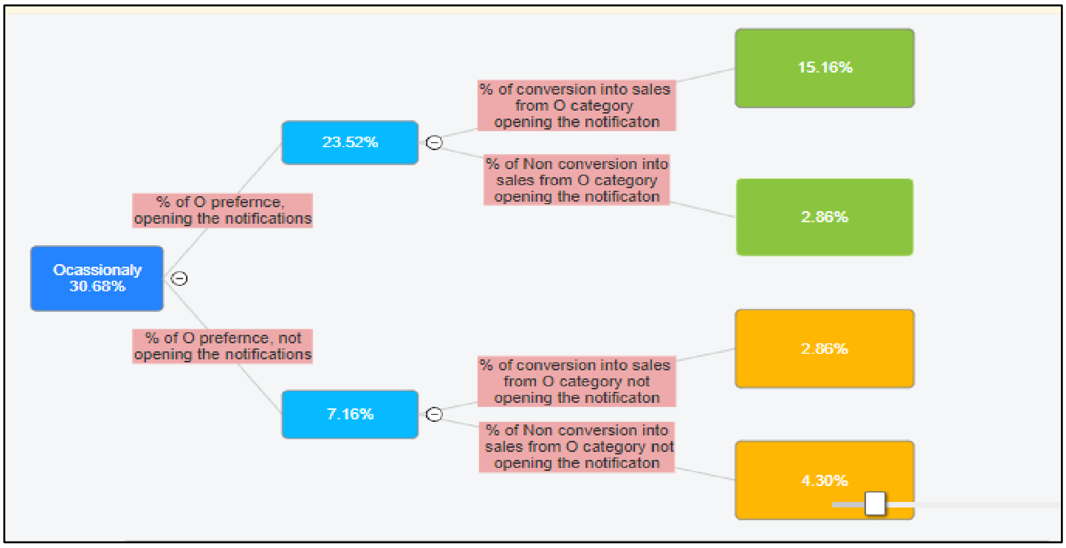
The chart illustrates the preferences of respondents, focusing on the 28.41% choosing very frequent push notifications. It details their engagement levels by revealing the percentage that opens notifications and subsequently converts into Zomato orders. Additionally, it acknowledges potential revenue from those who don't open notifications, providing a comprehensive view of revenue dynamics within this demographic.

- **Maximizing Revenue: Strategic Alignment of Frequent Push Notifications and Seamless App Engagement**

Graphic delineates respondent preferences, particularly highlighting the **22.73%** who opt for frequent push notifications. It outlines their interaction rates, showcasing the portion that opens notifications and proceeds to convert into Zomato orders. Furthermore, it recognizes potential revenue from those who abstain from opening notifications, offering a holistic perspective on the revenue landscape within this specific demographic.

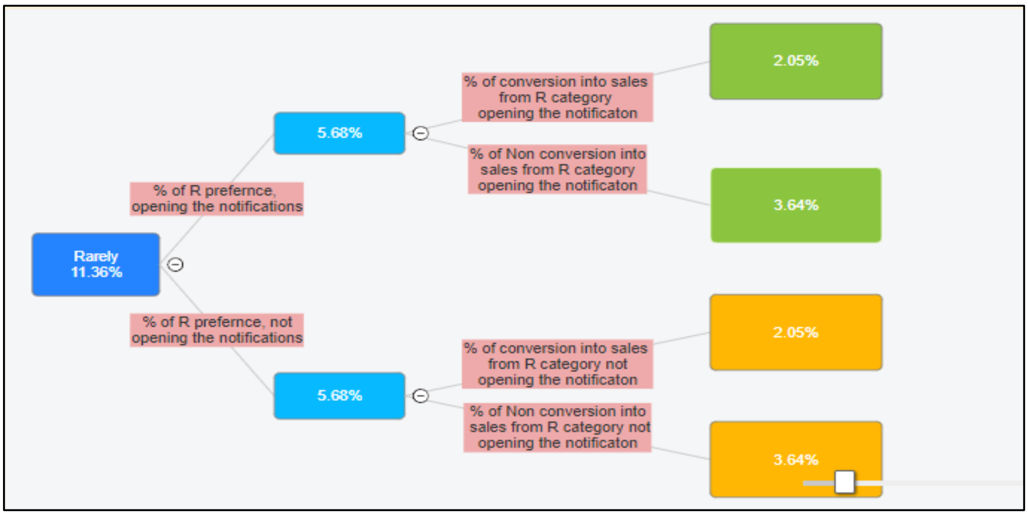


- **Maximizing Revenue: Strategic Alignment of Occasionally Push Notifications and Seamless App Engagement**



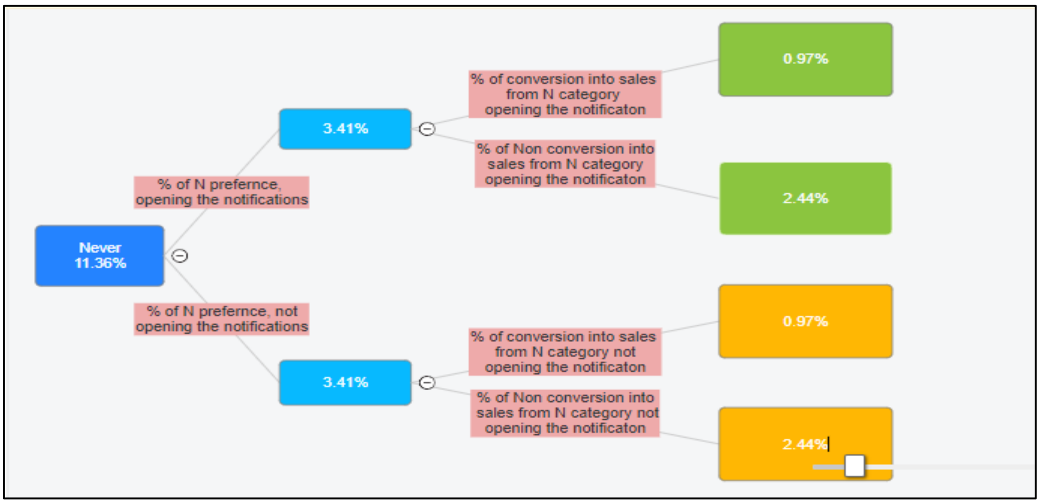
Similarly, this graphic portrays respondent preferences, with a specific emphasis on the 30.68% who choose occasionally push notifications. It details their engagement levels, highlighting the segment that opens notifications and subsequently converts into Zomato orders. Additionally, the graphic acknowledges the potential revenue from individuals who refrain from opening notifications, providing a comprehensive outlook on the revenue dynamics within this demographic.

- **Maximizing Revenue: Strategic Alignment of Rarely Push Notifications and Seamless App Engagement**



In a similar vein, the visual representation depicts the preferences of respondents, notably spotlighting the 11.36% who opt for Rarely push notifications. It elucidates their levels of interaction, emphasizing the subset that actively opens notifications and transforms this engagement into Zomato orders. Furthermore, the graphical representation recognizes the latent revenue possibilities from those who choose not to engage with notifications, offering an inclusive perspective on the revenue landscape within this specific group.

- **Maximizing Revenue: Strategic Alignment of Never Push Notifications and Seamless App Engagement**



The visual representation highlights that 11.36% like the rarely chosen option prefer This never having push notifications, emphasize their active engagement with Zomato orders.

It also recognizes potential revenue opportunities from those not engaging with notifications, offering a comprehensive view of the revenue landscape within this specific group.

Thus, after studying all these 5 distinct groups in detail, the total conversion rate only from push can be depicted as follows:

User Engagement	Total Conversion	Total Non Conversion	Total
Very frequently	13.03%	15.38%	28.41%
Frequently	7.33%	15.40%	22.73%
ocassionally	15.16%	15.52%	30.68%
Rarely	2.05%	9.32%	11.36%
Never	0.97%	5.85%	6.82%
Total	**38.53%**	**61.47%**	**100.00%**

The above analysed data clearly states that the accumulated conversion rate from push notifications of all these groups is only 38.53%.

As inferred "Users Disabling Push Notifications," 53.3% of users have opted not to disable their notifications. By correlating this with the earlier conversion percentage derived from the audience not disabling their notifications, the overall conversion rate amounts to 38.53% (total conversion from push notifications) of the 53.3% (total users who haven't disabled their notifications).

This results in a total revenue of only 20.53% (38.53% * 53.3%), showcasing the significant impact of notification engagement on overall revenue generation. In essence, we identify two prevailing challenges in the current scenario:

i. A notable concern lies in the high percentage of individuals, specifically 43.3%, choosing to disable their notifications.

ii. Furthermore, even among those who have notifications enabled, the conversion rate remains modest at 20.53%. These insights underscore the need for targeted strategies to address both the opt-out issue and enhance the effectiveness of notifications in driving conversions.

Solution:

Anything under our control seems a little more dear to us then anything against us. While technology manages to get information on a few clicks, it brings on its own set of cons list with it.

To keep the essence of digital marketing intact while user reactions being taken care of, an effective and a thoroughly customisable variant could make things fall in place. This can be taken care of by introduction of the *NUCLEUS MODE.*

The NUCLEUS MODE would be a customisable feature wherein one can take in charge of the Time, Mood and Category/Type (variable on the basis of the business offered by the application), based on their own requirements.

It's essential to serve the target audience at the right time and in the right manner.

- *Based On Time*: From setting a routine timeline to a confined schedule one can simply set a portion of their preferred time to receive a set of notification based on the application. Permission Marketing: Turning Strangers Into Friends, And Friends Into Customers.
  Example: Mr A, CEO of a company can set a time block of 10:00-11:00 to consume the waves of news articles while he travels to his office or Ms. D who in healthy food habits could control his set of notifications from the food delivery partners during her lunch/dinner time or Professor T, who has a planned course of a week could have the notifications catering her time constraints. The ease to set time restrictions for the notification helps to cut down the distractions while performing other tasks yet suffices its purpose when actually required.

- *Based On Mode*: While strolling in a new city one would want to try everything around, or the random cravings which are just difficult to get rid off, the MOOD feature would filter just the right set of notifications based on the selection and help our way out by in itself cutting down the unrequired options. P*ermission Marketing believes in turning Strangers Into Friends, and Friends Into Customers*. While Google existingly uses the auto recommendations feature based on one's current location, imbibing an application centric permission system would help the service provider act in a better manner while respecting customer privacy and satisfying their timely demands. A simple way to inculcate this feature could be by collecting information from audiences with basic questions.

- *Based On Category/Type*: From someone who just likes to shop ethnic or for someone who wants to track the capital markets or someone who is focussing on a vegan diet option, this feature would help to deliver just the right set of notification based on the category of their choice by simply selecting one or a few categories that pop up on their display. Narrowing down user choices to decode the key to optimal engagement based on preferences could potentially give a powerful outcome.

Conclusion:

As we conclude our exploration of this strategy, several key points emerge:

i. Personalization is Paramount:
Tailoring push notifications to individual user preferences and behaviours significantly enhances engagement. Utilize data analytics and user insights to craft personalized and relevant messages.

ii. Timing is the KEY:
The timing of push notifications plays a crucial role in their effectiveness. Understanding the target audience's habits and preferences can help marketers schedule notifications at optimal times, ensuring maximum impact.
Value-Based Content Drives Action:
Users are more likely to engage with push notifications that offer real value. Whether it's a special offer, personalized recommendation, or relevant information, the content should resonate with the user's needs and interests.

iii. A/B Testing for Continuous Improvement:
Implement A/B testing to experiment with different elements of your push notifications, such as headlines, images, or call-to-action buttons. Analyzing the results helps refine future campaigns and optimize engagement.

iv. Respect User Opt-In and Privacy:
Ensure that users have explicitly opted in to receive push notifications, respecting their privacy and preferences. Overstepping these boundaries can lead to user frustration and increased opt-out rates.

v. Continuous Monitoring and Analysis:
Regularly monitor the performance of push notification campaigns. Analyze metrics such as open rates, click-through rates, and conversion rates to identify trends and areas for improvement.

vi. Adaptability in the Evolving Landscape:
The digital landscape is dynamic, with user preferences and technology continually evolving. Marketers must stay informed about emerging trends, technologies, and consumer behaviours to adapt their push notification strategies accordingly.

In conclusion, optimizing engagement through push notifications demands a thoughtful and strategic approach while citing valuable learning from the permission marketing theory. By combining personalization, timing, valuable content, and continuous refinement based on analytics, marketers can create a powerful and effective push notification strategy in the ever-evolving digital landscape.

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Analyzing The Relationship Between Swadharma And Moksha While Contrasting It With Contemporary Entrepreneurship

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Abstract:

The relationship between Moksha, the ultimate state of spiritual freedom, and Swadharma, the idea of inherent responsibility, is examined in this research study along with its applicability to contemporary business. By looking at how combining human skills, passions, and responsibilities with entrepreneurial endeavours may increase personal achievement and fulfilment, it tries to close the gap between conventional philosophical beliefs and modern business practices. Incorporating philosophy, psychology, and business studies, the research employs a case study methodology to analyse actual instances of entrepreneurs incorporating Swadharma ideals into their businesses. The study also evaluates the applicability and practicality of Swadharma-Moksha ideas in the context of contemporary business, identifying potential challenges and restrictions in bridging traditional philosophical principles with the quick-paced corporate sector. The conclusions have consequences for business owners, corporate executives, educators, lawmakers, and those looking for all-encompassing methods of professional and personal growth.

Objectives:

1. To determine how well the notion of Swadharma resonates with and can be applied to the issues and openings that entrepreneurs encounter in moment’s business terrain.
2. To probe how embracing one's Swadharma impacts entrepreneurs' decision- making processes, and if it leads to further ethical, purpose- driven, and sustainable opinions.

3. To determine if understanding and clinging to Swadharma adds to entrepreneurs' overall well- being, pleasure, and adaptability as they handle the complexity of current business surrounds.
4. To explore if espousing Swadharma develops an intelligence favourable to invention, creativity, and the development of creative business models that might conceivably produce both particular success and salutary society influence.
5. To examine the foundational principles of Jainism as presented in Tattvartha Sutra, Samaysara and their applicability to the pursuit of Moksh Marg.
6. To assess the contemporary relevance of Moksha Marg and its implication for individual seeking spiritual liberation in the modern world.
7. To compare and differ the perspectives on Moksh Marg presented in the different textbooks to identify similarities and differences, and how they contribute to a holistic understanding of the path to emancipation.
8. To draw conclusion based on the research finding and offer insights into the significance of Moksha Marg in Jain philosophy and its potential impact on Swadharma, Individual, spiritual growth and Societal wellbeing.

Introduction:

The connection between philosophical pretensions and practical conditioning has gained attention in the business world. Swadharma and Moksha are two abecedarian generalities embedded in Indian gospel and church. As societies transition to a globalized frugality, entrepreneurship becomes a central focus. The confluence of Swadharma and Moksha can give perceptivity for navigating the challenges of ultramodern enterprise. Swadharma attendants' ethical life and helps achieve consonance between one's natural capacities, interests, and societal scores. Moksha, on the other hand, is linked to repudiation and detachment, egging a disquisition into how spiritual liberation might attend with fiscal achievement. This study aims to bridge the gap between ancient wisdom and ultramodern business dynamics by tracing the literal elaboration of Swadharma and Moksha, considering their complementary counteraccusations, and studying case studies of entrepreneurs who have effectively incorporated these ideas. Understanding the community between these ancient principles and contemporary bourns can offer a holistic frame for navigating the complications of the entrepreneurial world.

What Is Swadharma?

The Sanskrit word" Swadharma" may be divided into two corridor" Swa," which means” tone," and" Dharma," which basically means" duty" or" purpose." It alludes to a person's genuine calling or ingrain life purpose. The term" Swadharma" refers to a person's particular set of capacities, interests, values, and scores. It entails discovering what really speaks to one's inner tone and directing one's conditioning and opinions in agreement with this natural calling. In the environment of the study, Swadharma stands for the notion that people may witness success and fulfilment by following vocations or systems that are in line with their core beliefs and interests.

What Is Moksha?

Hinduism and Jainism are two Indian philosophical and spiritual traditions that use the term moksha, which is also deduced from Sanskrit. It represents liberty, enlightenment on a spiritual position, and the purpose of life itself. Release from the cycle of birth, death, and reincarnation(samsara) is known as moksha. In order to achieve a condition of inner calm, tone- consummation, and connection with the godly or the macrocosm, it entails prostrating worldly jones, attachments, and pride. Moksha is a conceit for the hunt of inner peace, selflessness, and spiritual development as people go through life, including their entrepreneurial peregrinations, according to the exploration.

What Is Modern Entrepreneurship?

Ultramodern entrepreneurship is the process of starting, running, and expanding an establishment in the ultramodern period with an emphasis on invention, rigidity, and a wider social influence. It includes the ideas of seeing and taking advantage of openings, taking prudent pitfalls, and efficiently employing coffers to make and develop enterprises. According to the exploration, ultramodern entrepreneurship places a great focus on ethical gestures, sustainability, and making a difference in society and the terrain in addition to profit- seeking. In order to link their profitable operations with their Swadharma and take a further purpose-driven approach, entrepreneurs of moment constantly aim to incorporate their own values, interests, and social bourns into those trials. In substance, the study looks at how contemporary business may be told and bettered by a person's alignment of their genuine purpose (Swadharma) with moral and spiritual values (Moksha). It aims to comprehend how accepting these ideas may affect in business opinions that are more moral, purposeful, and sustainable while fostering individual fulfilment and society enhancement.

Evolution Of Moksh And Its Meaning As Stated In Various Religions:

The evolution of the concept of moksha (liberation) has occurred over millennia within the diverse landscape of Indian philosophical and spiritual thought. While the core idea of Liberation remains constant, its interpretation, practices, and emphasis have evolved across Different philosophical schools and historical periods.

1. **Jainism**: Jain philosophy emphasizes the concept of moksha as liberation from The cycle of birth and death through the purification of the soul (Jiva) and adherence To strict ethical principles.
2. **Buddhism**: The Buddhist path to liberation (nirvana) involves understanding the Nature of suffering, following the Eightfold Path, and breaking free from desires and Attachments.
3. **Bhagavad Gita**: This text, part of the Mahabharata, presents diverse paths to Moksha, including the paths of knowledge (gyan Yoga), devotion (Bhakti Yoga), and Selfless action (Karma Yoga).
4. **Neo-Vedanta**: In the modern era, Neo-Vedanta philosophers like Swami Vivekananda emphasized the practicality of spirituality and encouraged individuals to Seek moksha while actively contributing to society.

Throughout its evolution, the concept of moksha has evolved from ritualistic practices to a Deeper understanding of the self, consciousness, and the interconnectedness of all Existence. Different philosophical traditions and historical periods have offered unique Perspectives on the nature of liberation, the path to achieve it, and the role of ethics, Knowledge, devotion, and meditation in the process. Despite these variations, the core goal Of moksha remains the transcendence of suffering and the realization of one’s true nature.

Literature Review:

1. **Bhagwat Gita** - Book by A. C. Bhaktivedanta Swami Prabhupada, ISBN-10: 938598618X, ISBN-13: 978-9385986185

The Bhagavad Gita emphasizes the importance of Swadharma, or one's natural responsibility, and Moksha, or freedom from the cycle of life and death. This concept is relevant to modern enterprise, where success often relies on pursuing passion, using abilities, and confronting problems with detachment from outcomes. Pursuing a business connected to Swadharma can lead to purpose and fulfilment, as entrepreneurs who focus on their abilities, skills, and interests are more likely to succeed. However, the current entrepreneurial landscape is complex and influenced by factors like technological advancements, globalization, and ethical concerns. To assess Swadharma and Moksha's relevance in modern enterprise, it is essential to examine how these principles align with contemporary ideals like innovation, social responsibility, and flexibility. Exploring case studies of entrepreneurs who have successfully pursued their Swadharma while positively contributing to society can also provide practical insights.

1.1. **Swadharma**

- Chapter 3 verse 35 –

  श्रेयान्स्वधर्मो विगुणः परधर्मात्स्वनुष्ठितात्।
  स्वधर्मे निधनं श्रेयः परधर्मो भयावहः।।3.35।।

  Dharma, a term commonly used in Hinduism and Buddhism, refers to responsibilities, duties, thoughts, and actions appropriate for oneself. It comes from the root word dhṛi, meaning ḍhāraṇ karane yogya. Our personal dharma, swa-dharma, is our personal dharma applicable to our context, situation, maturity, and profession. It can change as our context changes and spiritual growth. Shree Krishna encourages Arjun to follow his swa-dharma, stating that it is more enjoyable to be ourselves than pretending to be someone else. Conflicting with others' duties can create disharmony in our senses, mind, and intellect, hindering spiritual progress.

- Chapter 3 verse 43 –

  एवं बुद्धेः परं बुद्ध्वा संस्तभ्यात्मानमात्मना।
  जहि शत्रुं महाबाहो कामरूपं दुरासदम्।।3.43।।

Shree Krishna underlines the need for us to defeat this foe known as desire via self-knowledge. The soul is divine in nature since it is a component of God. Because all things in the universe are made of material, they cannot provide the heavenly happiness it craves, which can only come from a divine subject. It is pointless to harbour cravings for these things since they will never satisfy the soul's deepest needs. To think in this way, we must work hard and develop our intellect. Once trained, we may utilize it to exercise control over our minds and senses.

- Chapter 18 verse 47 –

श्रेयान्स्वधर्मो विगुणः परधर्मात्स्वनुष्ठितात्।
स्वभावनियतं कर्म कुर्वन्नाप्नोति किल्बिषम्।।18.47।।

Swa-dharma, or mandated vocational responsibilities, offer two benefits: they fit our temperament and are relaxing on the mind, allowing for commitment. However, giving up our responsibilities and assuming others' responsibilities might test our natural personalities. For instance, Arjun's Kshatriya character compelled him to participate in military and administrative tasks, but he should carry on with his responsibilities and serve God by presenting the results of his labours. Swa-dharma becomes the soul's dharma after spiritual enlightenment, resulting in unwavering devotion to God. The Bhagavad Gita is concluded with Shree Krishna advising the listener to "give up all varieties of dharmas and simply surrender unto me."

1.2. **Moksha**

- Chapter 2 verse 51 –

कर्मजं बुद्धियुक्ता हि फलं त्यक्त्वा मनीषिणः।
जन्मबन्धविनिर्मुक्ताः पदं गच्छन्त्यनामयम्।।2.51।।

Working without personal drive does not lower the quality of work; on the contrary, according to Karm-yog, it raises it. For instance, a true surgeon does his job without regard for the outcome, even if the patient dies. This demonstrates that being attached to outcomes does not improve our expertise but rather detracts from it. As opposed to feeling anxious, restless, terrified, tense, or enthusiastic when working, working without attachment enables us to perform at the highest level of our abilities. Arjun's own experience proves that letting go of a fruit addiction has no negative effects on productivity. He battled for his kingdom because he felt it was his obligation to God, but his inner drive shifted. Although his motive changed, it didn't make him less capable; rather, it gave him a greater drive to battle.

- Chapter 2 Verse 70 –

आपूर्यमाणमचलप्रतिष्ठं समुद्रमापः प्रविशन्ति यद्वत्।
तद्वत्कामा यं प्रविशन्ति सर्वे स शान्तिमाप्नोति न कामकामी।।2.70।।

The ocean is exceptional in that it can continue to exist in its natural condition despite being constantly flooded by rivers. The world's rivers continuously discharge into the seas, which neither overflow nor get exhausted. The phrase "pryama" (full from all sides) is used by Shree Krishna to explain how the ocean cannot overflow, despite rivers pouring all of their water into it during the rainy season. The realized sage behaves in a same way in both situations—while using sense items for physiological needs or lacking them—remaining still and undisturbed. True peace, or shanti, may only be attained by such a sage.

2. **The Art Of Man Making** – Swami Chinmayananda, ISBN-10: 817597060X, ISBN-13: 9788175970601

Swami Chinmayananda's spiritual and philosophical work "The Art of Man-Making" is centred on self-improvement, self-realization, and discovering the meaning of existence. The book offers advice on overcoming obstacles in life, finding inner strength, and living a life that matters. It is based on ancient knowledge and traditions. Self-discovery, dharma, mind control, goal planning, detachment, spiritual development, moral principles, scriptural direction, selfless service, social duty, meditation, and spiritual practice are among the major topics discussed. The book inspires readers to create lives that are in accordance with higher ideals, overcome obstacles, and reach their full potential as aware, mission-driven individuals. The book is a great resource for anyone who are trying to navigate the complexity of life with knowledge, integrity, and inner fulfilment.

3. **Paths To God: Living The Bhagwat Gita** – Ram Dass, ISBN-10: 9781400054039, ISBN-13: 978-1400054039

Karma Yoga is described by Ram Dass as a path of selfless action that emphasizes detachment from outcomes, striving for a higher cause, ending the ego cycle, acting without attachment, acting as devotion, carrying out Swadharma, spiritual development via action, and promoting harmony and oneness. To achieve inner serenity and emotional liberation, Karma Yoga includes taking deeds that have no personal benefit or effects. People may make a good difference in the world and connect their acts with the harmony of the cosmos by making all of their actions serve a greater purpose. People may change their life, discover their greater purpose, and develop a sense of oneness with the cosmos by engaging in acts of selflessness.

4. **Management Wisdom of Lord Krishna** – Dr Uday Vir Singh, ISBN-10: 8177081608, ISBN-13: 978-8177081602

Lord Krishna's leadership style emphasizes selflessness, honesty, and devotion, which can be applied to contemporary entrepreneurship to foster commitment and dedication among teams. Krishna's dual role as a celestial charioteer and spiritual leader demonstrates the importance of balancing strategic judgment and compassionate leadership. He is a great judge of character and a leader who values creativity and progress. Krishna's crisis management skills, effective coordination, and game theory can be applied to managing large-scale projects or expansions. By embracing Krishna's leadership qualities, entrepreneurs can cultivate a climate of commitment and dedication in their organizations.

5. **Jain "Tattvartha Sutra":** - IBSN 978-300-165-296

The "Tattvartha Sutra" is a Jain scripture written by the Jain scholar and philosopher Acharya Umasvati, also known as Umasvami or Umasvami. that discusses various aspects of reality, philosophy, and spirituality. It's a foundational text in Jainism. Regarding the concept of "moksha," which means liberation or spiritual emancipation, the "Tattvartha Sutra" touches upon it in its teachings. It emphasizes that achieving moksha requires the soul to be free from karma, attachments, and worldly desires, allowing it to attain a state of ultimate bliss and liberation from the cycle of birth and death. The sutra outlines the path to moksha through right knowledge, right faith, and right conduct, and it delves into the different stages and qualities of the soul's progression towards liberation.

6. **Jain Sutra “Samaysara”**: - IBSN 978-819-036-3938

In Jain literature “Samaysara,” written by Acharya Kundakunda, the concept of “moksha” refers to liberation or enlightenment. It’s the ultimate spiritual goal in Jainism, achieved through the shedding of karmas, which are thought to bind the soul to the cycle of birth and death. Moksha entails breaking free from this cycle and attaining a state of eternal bliss, knowledge, and purity. It’s considered the highest state of being, where the soul reaches its true potential and is freed from all forms of suffering and bondage.

7. **Shrimad Bhagvad Gita: -**

In the Bhagavad Gita, Chapter 2, Verse 47, Lord Krishna imparts a famous Sanskrit shloka on the concept of moksha. Here is the shloka along with its translation:
Sanskrit Shloka:
कर्मण्येवाधिकारस्ते मा फलेषु कदाचन।
मा कर्मफलहेतुर्भूर्मा ते सङ्गोऽस्त्वकर्मणि।।2.47।।
Translation: You have a right to perform your prescribed duties, but you are not entitled to the fruits of your actions. Never consider yourself the cause of the results of your activities, and never be attached to not doing your duty. This shloka is from Chapter 2, Verse 47 of the Bhagavad Gita, where Lord Krishna is advising Arjuna about the importance of performing one’s duties without attachment to the outcomes. He emphasizes that individuals should focus on their responsibilities without being overly concerned about the results, as true fulfilment comes from selfless action performed in accordance with one’s dharma (duty). This approach aligns with the concepts of both Swadharma (fulfilling one’s duties) and moksha (liberation from attachment and desires) discussed in the Gita.

8. **Jainism – 32 Aagam**: -

In the other Jain texts, moksha is often described as the ultimate liberation from the cycle of birth, death, and rebirth (samsara). This cycle is perpetuated by karma, which are subtle particles that accumulate on the soul due to one’s actions, intentions, and thoughts. The accumulation of karma binds the soul to the cycle of samsara and causes suffering. To attain moksha, Jains believe that one must engage in a path of self-purification and detachment from worldly desires. This involves practicing non-violence (ahimsa), truthfulness (Satya), non-stealing (asteya), celibacy (brahmacharya), and non-possessiveness (aparigraha). By living a life aligned with these principles and engaging in meditation, introspection, and self-discipline, one can gradually shed accumulated karma and attain a state of pure consciousness. The process of attaining moksha Is often depicted in Jain literature as a gradual purification of the soul, akin to removing layers of dirt from a precious gem. As karma is gradually eliminated, the soul's innate qualities of knowledge, perception, and bliss become more pronounced. Once all karma is shed, the soul attains its true nature and becomes eternally free from the cycle of birth and death. It's important to note that Jainism emphasizes the individual's effort and personal responsibility in attaining moksha. The concept of moksha is central to Jain philosophy and serves as a guiding light for leading a life of ethical conduct, spiritual practice, and self-realization.

Components/ Elements of Moksha:

1. Self-Realization: Understanding the true nature of the self (Atman) as eternal and divine, distinct from the physical body and mind.
2. Detachment: Letting go of material desires and attachments to achieve mental and emotional freedom.
3. Knowledge (gyan): Gaining profound insights into the nature of reality, the cosmos, and the interplay of existence.
4. Virtuous Living (Dharma): Following ethical principles and fulfilling one's duties without selfish motives.
5. Discipline and Control (Yoga): Engaging in practices such as meditation, concentration, and self-discipline to calm the mind and gain control over the senses.

Steps for Achieving Moksha:

1. *Self-Reflection*: Begin with introspection to understand your desires,
2. Attachments, and shortcomings.
3. *Study of Scriptures*: Immerse yourself in sacred texts and teachings to gain
4. Wisdom and insights into the nature of reality.
5. *Ethical Living*: Practice righteous living by adhering to dharma (moral duties) and
6. Treating all beings with compassion and respect.
7. *Meditation*: Cultivate a disciplined meditation practice to quiet the mind,
8. Achieve self-awareness, and transcend the physical realm.

9. *Detachment*: Gradually detach from material possessions, relationships, and
10. Ego-driven desires.
11. *Seek Guidance:* Find a knowledgeable teacher (Guru) to guide you on the
12. Spiritual path and provide insights.
13. *Service (Seva):* Engage in selfless service to society, contributing positively to the
14. Well-being of others.
15. *Prayer and Devotion*: Develop a deep connection with the divine through prayer,
16. Rituals, and devotional practices.
17. *Contemplation (Vichara)*: Reflect on the impermanence of life and the
18. Underlying unity of all existence.
19. *Transcendence*: Through consistent practice, insight, and inner transformation,
20. Attain a state of self-realization and liberation.

It's important to note that achieving moksha is a profound and individual journey that Requires dedication, perseverance, and self-discovery. The path can be challenging, but the Ultimate reward is liberation from the cycle of suffering and a profound connection with the Universal consciousness.

Methodology:

Case study approach is used in this work. Here, a number of scenarios are chosen to get the conclusion. To gain a thorough understanding of the situation, data is gathered through a variety of methods. The instances' surrounding circumstances were taken into account. After learning more about Swadharma and moksha, the query of whether these ideas had any relevance in the current technological age arose. Following cases were examined in order to arrive at the solution.

Case Studies:

1. ***TOMS- One for One Model***

Blake Mycoskie created the footwear and eyewear brand TOMS in 2006, and it's famed for its" One for One" business gospel. TOMS distributes a brace of footwear or eyewear to a person in need for each brace of goods bought. This case study explores the relationship that TOMS has created through its distinctive business model between Swadharma (bone’s genuine calling or purpose), Moksha (spiritual freedom), and ultramodern entrepreneurship.

1.1. Swadharma Integrations:

a. Alleviation from Travel Blake Mycoskie’s peregrination helped him discover his real calling. He got the alleviation to establish TOMS after seeing the goods of youths going around without shoes while on a holiday to Argentina. He decided to link his thing with helping individualities in need of footwear because of a particular experience.
b. Entrepreneurial Spirit The founding of TOMS was told by Mycoskie's entrepreneurial spirit. He saw the occasion to establish a long- lasting company that would also have a large social impact, reflecting his genuine purpose to make a positive difference in society.
c. Global Outreach TOMS works with communities each around the world who are in need. The charge and practices of TOMS are profoundly told by Mycoskie's love of aiding those in need and sharing in worldwide enterprise.

1.2. Moksha Integrations:

a. Selfless exertion by stressing selfless exertion, TOMS'" One for One" model embraces Moksha generalities. The company's pledge to contribute a product for each item vended demonstrates a sincere desire to reduce suffering and enhance lives.
b. Connection and Empathy TOMS encourages its guests to feel a sense of connection and empathy. guests are not simply buying effects; they are also taking part in a wider movement to help those in need, which is in line with the Moksha values of compassion and connectivity.
c. Building communities and charity are two areas in which TOMS is heavily involved. The company's strategy goes further simply giving away effects; it also involves investing in original communities, generating jobs, and advancing sustainable results.

1.3. Entrepreneurship Integrations:

a. TOMS has created a sustainable business strategy that blends fiscal success with positive social impact. The association has seen significant growth, demonstrating that a fidelity to social responsibility can be an effective business strategy.

b. Product diversification TOMS added sunglasses, coffee, and bags to its lineup of goods in addition to shoes. This diversification shows inflexibility in entrepreneurship by enabling a lesser effect while conserving the" One for One” gospel.

c. Responsibility and translucency TOMS uphold functional translucency and constantly publishes reports on its social effect. Its character as a business committed to social responsibility is increased by this position of responsibility.

1.4. Outcomes:

a. TOMS has made millions of donations of shoes and eyewear to those in need each across the world. They also have an effect on donors’ tone- regard via advancing education and health.

b. Client Engagement TOMS' distinctive business approach interacts tête-à-tête with guests. They witness an emotional connection to the company’s ideal, and this connection promotes client advocacy and brand fidelity.

c. Business Growth TOMS has seen considerable growth while being a socially conscious company, proving that businesses can succeed while putting social effect first.

The" One for One" business model of TOMS is a potent illustration of the relationship between Swadharma, Moksha, and contemporary entrepreneurship. The charge and practices of TOMS are profoundly invested with Blake Mycoskie's real calling to ameliorate the lives of people. The" One for One" strategy upholds a sustainable company that succeeds in the contemporary request while reflecting Moksha ideals of altruism and compassion. With the study content’s disquisition of the connection between particular calling, spiritual satisfaction, and ultramodern business styles, TOMS' success shows how entrepreneurship can be a potent armament for bringing about positive change in the world.

2. ***Swami Vivekanand’s Life Story***

A well- known Indian spiritual figure in the late 19th and early 20th centuries was Swami Vivekananda, also known by his birth name Narendranath Dutta. His conduct and achievements show a clear link between contemporary enterprise, spiritual liberation, and Swadharma, or one's real calling or purpose. His assignments still motivate people each around the world.

2.1. Swadharma Integrations:

a. Knowledge Seeking Narendranath showed a strong interest in church and philosophical debates from an early age. His ultimate calling was the hunt for knowledge and spiritual enlightenment, which eventually brought him to Sri Ramakrishna's training.

b. Spiritual hunt Narendranath's Swadharma was manifested in his close relationship with Sri Ramakrishna and his absorption in spiritual conditioning. He chose to live a life of continence and sustained for enlightenment.

c. Social Engagement Swami Vivekananda's ultimate calling went beyond individual church, according to his engagement in society. He understood the need of perfecting society. He was a hot supporter of social progress and the elimination of inequality and poverty.

2.2. Moksha Integrations:

a. Spiritual Development Swami Vivekananda had significant spiritual development during his life. He committed himself to the Moksha ideals of contemplation, tone-consummation, and the hunt for inner peace.

b. Swami Vivekananda was extensively impacted by the plight and suffering of the millions when he was on his spiritual path. He embodies the Moksha ideals of empathy and selfless action via his compassion and fidelity to helping others.

c. Impact on the World Swami Vivekananda's speech at the Parliament of the World's persuasions in Chicago in 1893 demonstrated his commitment to propagating spiritual knowledge and promoting understanding between individualities of all persuasions. This global effect fits with Moksha's end on making a good difference in the world.

2.3. Entrepreneurship Integrations:

a. Organizational Leadership Swami Vivekananda launched the religious and charitable Ramakrishna Math and Mission. In launching and directing this association, which is devoted to spiritual development and community service, he demonstrated business bents.

b. Fundraising and Resource Management Swamiji's aptitude as an entrepreneur was demonstrated by his capacity to induce plutocrat and oversee coffers for his cause. He struck a balance between the association's practical resource demands and its spiritual objects.

c. Swami Vivekananda emphasized the significance of education as a tool for empowering people and societies. He supported education as a means of society advancement and tone- reliance, in line with the ideas of contemporary entrepreneurship.

2.4. Outcomes:

a. Spiritual heritage Swami Vivekananda's training and jottings, which place a strong emphasis on tone- consummation and spiritual development, continue to motivate spiritual quest each over the world.
b. His fidelity to social change and education redounded in the construction of educational institutions and charitable enterprises that bettered the lives of in numerous people.
c. Global Notoriety The address given by Swami Vivekananda at the Parliament of the World's persuasions was a turning point in interfaith communication.

He vulgarized Hinduism and its gospel, promoting a better understanding of Eastern church in the West.

The training and life of Swami Vivekananda offer a fascinating case study of the relationship between Swadharma, Moksha, and contemporary business. His alignment with his genuine calling, fidelity to spiritual development, and commitment to social enhancement serve as exemplifications of how people may have a significant effect on the world while clinging to their core beliefs and callings. For individualities looking for a flawless emulsion of spiritual ideas and business undertakings, Swamiji's heritage is a constant source of alleviation.

3. ***Dr. APJ Abdul Kalam***

As the 11th President of India (2002 – 2007), Dr. A.P.J. Abdul Kalam, also known as the" Bullet Man of India," was a famed scientist. His conditioning and life story serve as important exemplifications of the profound relationship between Swadharma and Moksha as well as the fundamentals of contemporary enterprise.

3.1. Swadharma Integrations:

a. Alignment with True Calling: Dr. Kalam's real passion was for technology and aerospace. He spent his whole life working to advance India's space and bullet programs. His provocation came from his enthusiasm for and skill in this field.

b. Scientific benefactions: Dr. Kalam's involvement in India's bullet program, especially in the creation of the Agni and Prithvi dumdums, showed that he was aligned with his Swadharma. His sweats vastly increased India's capacity for defence.

c. Mentorship and Education: Dr. Kalam continued to exercise his Swadharma after leaving the administration by guiding expiring scientists and scholars. He emphasized the value of information sharing and education while inspiring and guiding the ensuing generation of originators.

3.2. Moksha Integrations:

a. Despite his successes, Dr. Kalam maintained his modesty and selflessness throughout his life. His precedence’s were the good of the country and the advancement of wisdom, not fame or fortune for himself. This is harmonious with the Moksha training, which place a strong emphasis on letting up of worldly jones.

b. Spiritual Depth: Dr. Kalam had a strong sense of church and he valued tranquillity outside. He constantly bandied the value of church and its part in discovering purpose and satisfaction in life, which was harmonious with Moksha's hunt for inner peace.

c. Influence on Society: Dr. Kalam's inspirational lectures and jottings have had a profound impact on the lives of innumerous people. He espoused the Moksha ideals of compassionate action, encouraging individualities to follow their heartstrings and give back to society.

3.3. Entrepreneurship Integrations:

a. Organizational Leadership Swami Vivekananda launched the religious and charitable Ramakrishna Math and Mission. In launching and directing this association, which is devoted to spiritual development and community service, he demonstrated business bents.

b. Fundraising and Resource Management Swamiji's aptitude as an entrepreneur was demonstrated by his capacity to induce plutocrat and oversee coffers for his cause. He struck a balance between the association's practical resource demands and its spiritual objects.

c. Swami Vivekananda emphasized the significance of education as a tool for empowering people and societies. He supported education as a means of society advancement and tone- reliance, in line with the ideas of contemporary entrepreneurship.

3.4. Outcomes:

a. Public Alleviation Millions of people in India and each around the world continue to be inspired by Dr. Kalam's life story and principles. His commitment to the Swadharma and Moksha training is proof that living a life in agreement with one's real purpose and pursuing it selflessly may affect in a meaningful and significant actuality.
b. Scientific heritage His benefactions to India's bullet and space systems have left a lasting heritage that has bettered the nation's technological and military muscle. This is in line with the ideals of contemporary entrepreneurship that one should thrive in their assiduity.
c. Spiritual Impact: Dr. Kalam's emphasis on inner peace and church has inspired numerous people to probe these aspects of their own life.

His training has demonstrated the significance of spiritual and particular development for leading fulfilled lives. In the frame of the exploration content, Dr. A.P.J. Abdul Kalam's life and deeds serve as a fascinating case study. His alignment with his Swadharma in the fields of technology and aerospace, as well as his personification of Moksha ideals via modesty, selflessness, and spiritual depth, serve as exemplifications of how someone might lead a purposeful and significant life. His heritage as a scientist, schoolteacher, and politician inspires people moment and exemplifies the close relationship between a person's purpose, spiritual satisfaction, and contemporary enterprise.

4. Patagonia – A Sustainable Business Model

Yvon Chouinard started the out-of-door vesture and outfit establishment Patagonia in 1973, and it's well known for its fidelity to environmental sustainability and moral commercial conduct. This case study explores how Patagonia has thrived in the contemporary entrepreneurial geography while forging a link between Swadharma (bone’s real charge or purpose) and Moksha (spiritual liberation). Patagonia was innovated by hot gemstone rambler and environmentalist Yvon Chouinard with the intention of offering top- notch outfit to out-of-door suckers. His factual calling was erected around his love of climbing and the outside. Chouinard’s fidelity to sustainable business styles and environmental responsibility eventually made Patagonia a leader in conscious capitalism.

4.1. Swadharma Integration:

a. Alignment with particular Values Chouinard's passion for the great outside and his fidelity to its preservation formed the foundational principles of Patagonia. His love of the outside is apparent in the company's products, which are made to repel the adversities of out-of-door conditioning while reducing environmental effect.

b. Cutting- edge Sustainable Practices Patagonia has constantly advanced Sustainable product. In order to connect its business styles with Chouinard's principles, it incorporated the use of organic cotton, recyclable accoutrements, and fair- trade procedures in its force chain.

c. Environmental Activism The business laboriously participates in environmental activism, backing issues like combating global warming and guarding nature. Patagonia's" 1 for the Earth" program, through which business gives 1 of deals to conservation groups, is a high illustration of their fidelity to environmental Swadharma.

4.2. Moksha Integration:

a. Consumer education Patagonia promotes a life that prioritizes gests above material effects and encourages guests to buy smaller, advanced- quality products. This helps guests connect with the Moksha generalities. Their" Do not Buy This Jacket" movement blamed materialism and promoted thoughtful purchasing.

b. Employee Well- Being The business culture of Patagonia places a strong emphasis on hand good. In keeping with the thing of equilibrium and inner tranquillity connected to Moksha, the establishment promotes out-of-door conditioning among its staff and provides flexible work schedules.

c. A Soulful Approach to Business Patagonia’s fidelity to conducting business" not just as usual" exemplifies a Soulful Approach to Business. They represent Moksha's values of selflessness and spiritual development by putting the health of the world and society above sheer profit.

4.3. Entrepreneurship Integrations:

a. Patagonia constantly innovates in terms of product design and accoutrements to lessen its environmental impact. As one illustration, they created the" Worn Wear" program, which encourages guests to buyer-owned Patagonia particulars, increases the lifetime of clothes, and minimizes waste.

b. Force Chain translucency by assuring force chain translucency, Patagonia elevates entrepreneurship to a new position. They make investments in Fair Trade pukka companies and give comprehensive information about each product's product process so that guests may make educated opinions.
c. Drum Shed Ventures, the adventure capital division of Patagonia, makes investments in entrepreneurs developing slice- edge responses to societal and environmental problems. This shows how an entrepreneurial mindset may be used to advance sustainability outside of its primary business.

4.4. Outcomes:

a. Financial Success Patagonia's fidelity to eco-friendly procedures and compliance with the principles of its author haven't obtruded with its capability to make plutocrat. The business's monthly gains are adding, showing that using ethical and sustainable business styles can be successful.
b. Environmental Impact Patagonia has significantly reduced its water use, CO2 emigrations, and waste generation as a result of its sweats to lessen its environmental impact. They've increased their effect by encouraging other businesses to apply similar procedures.
c. Social Influence Patagonia's commitment to social and environmental problems has won the company a devoted following as well as global sun.

They've shown that a business may be a potent agent for good change and yet succeed in a Machiavellian assiduity. Patagonia's development as a sustainable and socially conscious pot serves as an illustration of how Swadharma and Moksha have come to be nearly related in the world of contemporary enterprise. The company's success was erected on Yvon Chouinard's fidelity to ethical business conduct and environmental sustainability. Incorporating these values into its business strategy has helped Patagonia achieve fiscal success as well as environmental preservation, consumer education, and a fulfilling plant culture that are in line with the spiritual values of Swadharma and Moksha. This case study demonstrates the possibility for companies to prosper by clinging to their introductory principles and having a good influence on both society and the terrain.

5. *Mahatma Gandhiji:*

One prominent real-life case study regarding the concept of Moksha comes from the life of Mahatma Gandhi. Gandhi, a leader of India’s independence movement, exemplified the Pursuit of Moksha through his principles of nonviolence, self-discipline, and detachment from material desires.

Gandhi’s journey can be seen as a quest for spiritual liberation. He believed that Moksha Could be attained by living a life of truth, simplicity, and selflessness. Throughout his life, he Practiced asceticism, advocated for the welfare of the oppressed, and worked to eliminate Social injustices. Gandhi’s pursuit of Moksha was deeply intertwined with his political and Social endeavours, as he saw them as a means to contribute to the greater good.

His fasting and self-imposed hardships were seen as ways to attain spiritual growth and detachment from worldly desires. For example, during the Salt March in 1930, Gandhi and his followers walked over 240 miles to the Arabian Sea to protest the British salt tax. This act of nonviolent resistance showcased his dedication to social change and Moksha simultaneously, as he believed in the power of self-suffering to achieve spiritual Enlightenment.

Gandhi’s emphasis on self-realization, selflessness, and detachment aligns with the core Principles of Moksha. His life serves as a case study of how an individual can integrate spiritual pursuits with real-world actions, striving for liberation not just for oneself but for The betterment of society as a whole.

Contrast Between Swadharma And Moksha With Contemporary Entrepreneurship:

Modern entrepreneurship functions in a complex environment shaped by various philosophical, cultural, and economic elements. It takes a thorough investigation to comprehend how classical Hindu philosophical ideas like Moksha (freedom or spiritual enlightenment) and Swadharma (one's own responsibility or righteous path) interact with the intricate dynamics of contemporary enterprise.

Swadharma in Entrepreneurship:

Swadharma is a guiding concept that highlights the significance of carrying out one's moral obligations in all spheres of life. When it comes to entrepreneurship, this idea implies that people ought to match their commercial endeavours with their moral and ethical convictions. When making decisions, entrepreneurs that adhere to Swadharma are probably going to give ethical issues, social responsibility, and sustainability top priority. This congruence is demonstrated by the development of companies that benefit society, build enduring bonds with stakeholders, and advance a mission that goes beyond making money.

Complex Ethical Landscape:

When Swadharma is examined in the context of modern entrepreneurship, a complex ethical landscape is revealed. Although the idea promotes following one's moral convictions, entrepreneurs frequently encounter moral conundrums as a result of market competition, shareholder expectations, and the desire for profit. There are obstacles in balancing one's principles with the practicalities of business, which emphasizes how difficult it is to match Swadharma with contemporary commercial methods.

Moksha in Entrepreneurship:

Traditionally connected to spiritual emancipation, moksha adds a deep level of significance to the business path. Moksha proposes an endeavour for enlightenment and human fulfilment that goes beyond financial achievement in the framework of modern enterprise. Entrepreneurs who are motivated by the desire for Moksha may consider their businesses as a way to learn about themselves; they aim to use their job to transcend the ordinary and reach a higher level of consciousness. This endeavour may result in companies that place a high value on mindfulness training, staff well-being, and an all-encompassing strategy for success.

Material Success vs. Spiritual Fulfilment:

It becomes clear how the spiritual ambitions connected to Moksha differ from the materialistic objectives inherent in modern enterprise. In contrast to the conventional narrative of entrepreneurship, which places emphasis on invention, market dominance, and financial success, Moksha presents a different perspective that stresses self-realization, inner tranquillity, and disengagement from worldly wants. The conflict between these goals raises important concerns about whether achieving prosperity in the material world and pursuing spiritual enlightenment are compatible.

Harmony and Divergence:

A careful balance is needed to bring Moksha, Swadharma, and modern enterprise together. It is clear that ethical business practices and Swadharma are compatible, yet there are conflicts when Moksha's quest for spiritual enlightenment is contrasted with the cutthroat and profit-driven character of entrepreneurship. This section looks at examples of both harmony and divergence, examining if company owners can successfully resolve this conflict and incorporate spiritual values into their operations.

Global Views and Cultural Influences:

A variety of global and cultural viewpoints must be taken into account while studying entrepreneurship, Swadharma, and Moksha. These ideas may be interpreted differently in different cultural settings, which may have an impact on how entrepreneurs choose to connect their companies with philosophical ideas. This section explores the ways in which cultural subtleties affect the application of Moksha and Swadharma in different entrepreneurial environments, emphasizing the importance of a nuanced knowledge that cuts across cultural divides.

Decision-Making and its Consequences for Ethics:

The confluence of modern enterprise, Moksha, and Swadharma raises ethical questions. While navigating this challenging landscape, entrepreneurs need to make choices that both take into account the practical realities of the commercial world and their own ideals. The part examines the moral ramifications of these choices, questioning if following one's moral path and seeking spiritual enlightenment can coexist with the pressures of a cutthroat marketplace.

Conclusion:

In conclusion, this study has explored the complex web of connections that live between Swadharma, Moksha, and contemporary entrepreneurship, offering perceptive information on how these ideas complement and strengthen one another in the fast- paced business terrain of moment.

First of all, in ultramodern business situations, the idea of Swadharma has come a motivating factor for business possessors. Swadharma acts as a compass, guiding people as they negotiate the challenges of entrepreneurship by guiding them to connect their trials with their real calling, beliefs, and interests. Entrepreneurs can overcome obstacles and grasp openings with loyal devotion thanks to this alignment, which also promotes a feeling of purpose.

Secondly, accepting one's Swadharma has a significant impact on how opinions are made in entrepreneurial conditioning. Entrepreneurs who are in sync with their Swadharma generally choose conduct that are moral, meaningful, and sustainable. Their opinions are marked by a strong feeling of obligation to society and the terrain in addition to shareholders. In order to ensure that success is judged not only in terms of plutocrat but also in terms of societal value, they follow an ethical compass that directs them toward business styles that have a good influence.

Also, exploration has shown that a person's general well- being, satisfaction, and adaptability are greatly told by their appreciation of and adherence to their Swadharma. Entrepreneurs who are embedded in their Swadharma have lesser serenity and fulfilment in their entrepreneurial peregrinations in a time of unheard- of change and insecurity. This inner happiness gives them the resiliency they need to face challenges, failures, and the changing work terrain espousing Swadharma also encourages a mindset that's favourable to invention, creativity, and the creation of creative business generalities. Breaking from traditional thinking, entrepreneurs who connect their businesses with their real purpose constantly come up with creative answers to gruelling issues. This invention not only promotes individual achievement but also has a positive impact on society, opening the door for businesses that strike a balance between profitability and social and environmental responsibility.

This study has also looked at the abecedarian ideas contained in workshop like the Tattvartha Sutra, Samaysara, and Moksha Marg Prakashak within the environment of Jainism. The significance of moral jester, tone- control, and the junking of karmas as necessary way on the road to spiritual liberation has been emphasized in these Holy Writ. This exploration has anatomized these training to show the continuing wisdom of these generalities and to emphasize their applicability for contemporary businesspeople looking for balance, harmony, and significance in their trials.

This study emphasizes the important connections between ultramodern enterprise, moksha, and the principles of Swadharma. It has exfoliated light on how these values, anchored in particular calling, spiritual development, and ethical duty, direct company possessors toward a purpose- driven, long- term, and creative strategy. likewise, the study of the founding Holy Writ of Jainism has bettered our appreciation of these ideas, furnishing entrepreneurs with helpful perceptivity in their pursuit of individual development and society enhancement. This exploration emphasizes the possibility for people to realize their true purpose, find spiritual satisfaction, and bring about long- lasting formative change in the commercial world, serving as a testament to the dateless applicability of ancient knowledge in the ultramodern entrepreneurial geography.

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Cracking The Instagram Algorithm And How One Can Use It To Enhance Their Reach

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Abstract:

This study explores the dynamics of the Instagram algorithm in detail, aiming to reveal strategies for optimal navigation in the context of influencers and brands. Recognizing the pivotal role of social media algorithms in content visibility, the research addresses how to effectively crack the Instagram algorithm for enhanced engagement. Employing an exploratory research approach, the study engages with influencers, observes social media trends, and derives data from case studies using a combination of qualitative and quantitative methods. Findings reveal patterns in influencer practices and brand strategies, providing insights into successful content visibility on Instagram. The discussion section integrates empirical findings with theoretical insights, exploring the implications and challenges faced by influencers and brands. This research contributes a holistic exploration of the Instagram algorithm, providing practical insights for maximizing online presence, while opening doors for future research in the ever-changing realm of social media algorithms.

Introduction:

Instagram isn't just a digital image dispenser anymore – it's a marketing revolution. Days of Megaphone announcements are gone; instead, the brands whisper directly into the ears of the target audience. Instagram has rapidly become a basis in modern marketing strategies due to its global reach, interactive nature, impact and influence on consumer behaviour(Quick, 2021). In essence, the growing importance of Instagram in marketing reflects its ability to adapt to changing consumer dynamics and global connectivity, making it a vital tool for businesses and personnels in the digital age. Influencer partnerships amplify reach, real-time data and analytics fuels adaptation. It's like a tide that brands can't afford to ignore – they must dive in, adapt, and ride the wave of social media marketing to reach new shores of success.(Reiffers et al., 2014).

Forgeting luck on social media, everything you see is carefully chosen by algorithms. These behind-the-scenes systems pay attention to what you click and scroll through. They create a special bubble of content they think you'll like. The more you interact, the more this bubble grows, hiding posts that are less interesting. This system tends to promote eye-catching headlines and clickbait, possibly limiting unique content. Creators have to follow the algorithm's rules, and some people worry it creates closed-off groups and influences our thoughts(Cotter, 2019). It's not always clear how these algorithms work, and its fairness is debateable.

The gap that we can see in the current research papers present is that they don't define the boundaries or the things that one should do for his/her account or for a brand to increase its reach. There should at least be some steps or some guided way provided on how someone can discover such strategies or techniques to effectively utilize social media algorithms for maximizing reach and engagement or for the matter of fact build a niche for themselves or their brand(Abbassi et al., 2015). By conducting a thorough analysis of successful social media strategies and algorithms, one can unearth actionable steps and best practices to establish a unique niche for their brand. This exploration will not only offer a comprehensive understanding of current trends but also provide valuable insights for individuals and businesses aiming to elevate their online presence and impact(Cotter, 2019).

Scope of Research:

Instagram

Instagram, the subject of investigation in this research, stands as an explicit social media platform where users share their photos and videos. Now acquired by Facebook, it has become a hub for self-expression, brand promotion, and community development. The platform's algorithm, initially chronological and in now evolving into a more sophisticated model, tailoring users' feeds based on engagement metrics, while optimising content. Integral features like Stories and the Explore page contribute to a dynamic user experience, fostering real-time interaction and content discovery. Instagram's emphasis on visual content, hashtags, and user engagement has made it pivotal for influencers and businesses globally. In this research, Instagram serves as the central focus, influencing every spec of evidence, exploration, and interest, providing a comprehensive understanding of its role in the digital Horizon.

Feed Algorithm

Instagram's feed algorithm plays a crucial role in shaping users' experiences on the platform. This means that the feed is not just a real-time stream of posts but a specially curated selection influenced by engagement that contains factors like likes, comments, and shares(Scherr et al., 2020).

The algorithm aims to enhance user satisfaction and to give a dopamine hit by showing content it predicts will be most relevant and engaging for each user(Cotter, 2019). While this personalization improves the overall user experience, it has implications for content creators who must understand the algorithm to optimise visibility. The emphasis on engagement metrics and prompts strategies such as creating unique and compelling content while encouraging interactions to ensure posts are seen by a wider audience(Xu, 2022).

Content Ranking

Instagram's content ranking algorithm is a sophisticated system that determines the order in which posts appear in a user's feed, moving beyond a simple spam display(Xu,2022). This algorithm works by analysing various factors to predict and prioritize content that aligns with a user's preferences and interests. Key considerations include user engagement, where posts from accounts with which the user frequently interacts are given more eminence(Arriagada & Ibáñez, 2020). The algorithm also values recency, ensuring a balance between newer and relevant content. Additionally, content type and the user's historical engagement patterns contribute to the ranking. The algorithm aims to create a personalized and engaging user experience by showcasing content tailored to individual preferences. The algorithm remains integral to Instagram's strategy of delivering a dynamic and user-centric platform.

Time Frame

For this study the period following Instagram's declaration to improve user experience by displaying more relevant and fulfilling content based on individual preferences, indirectly referring to the utilization of "Algorithms", i.e. from **2016** (Cotter, 2019) when this announcement was made, until present.

Search Algorithm

Instagram's search algorithm functions as a dynamic system designed to assist users in discovering relevant accounts, hashtags, and content aligned with their interests. It takes into account user engagement patterns, prioritising accounts and content based on a user's past interactions i.e. likes and comments and preferences(Scherr et al., 2020). Additionally, the algorithm assesses the relevance of content, considering factors such as hashtags, location data, and keyword relevance in account names, bios, and captions(Cotter, 2019). By incorporating user activity on the Explore page, the algorithm aims to provide suggestions that align with trending and popular content.

Objectives:

1. To confront the major research problem that no specific guide or steps or strategies are available for cracking the Instagram algorithm or to increase the reach or visibility.
2. To establish a foundation for individuals and brands to determine what strategies will be effective for them, how they can reach these conclusions, and independently discover the answers.
3. To fulfil the absence of a comprehensive guide or specific strategies for deciphering the Instagram algorithm and enhancing reach and visibility.
4. To discuss the impact of Instagram's algorithm and how its potential benefit to users.

Methodology Used:

This research paper employs an exploratory research approach, aiming to investigate and gain deeper insights into the topic. The exploratory methodology allows for a flexible and open-ended exploration of the subject, laying the groundwork for a comprehensive understanding of the subject matter. This approach suitably uncovers new perspectives and generates hypotheses in areas where limited prior research exists.

Primary Research Methods Used:

Focused Groups

Interrogating with influences and brand managers who have made it to the top and have successfully developed a system, a niche for themselves. Questioning People who understand what algorithm does and how it works. Thus, generating a large follower base or a community of their own, and as a result having high engagement rates and reach.

QUESTIONNAIRE

1. What is your view on social media algorithm
2. Can on see instagram as a visibility game
3. How do u use it in ur favour
4. What are some techniques that one can use to make themselves more visible
5. What are ur thoughts on consistency, niche and engagement

Observations

Having gone through a period of observing growing trends as well as how brands and influencers use it in their favour. Observing key methods like using hooks, or the usage of appropriate hashtags, the need of traction to the post or reel that will help it bloom and reach new audience, while continuing to please their current viewers.

Secondary Research Methods Used:

Online Research

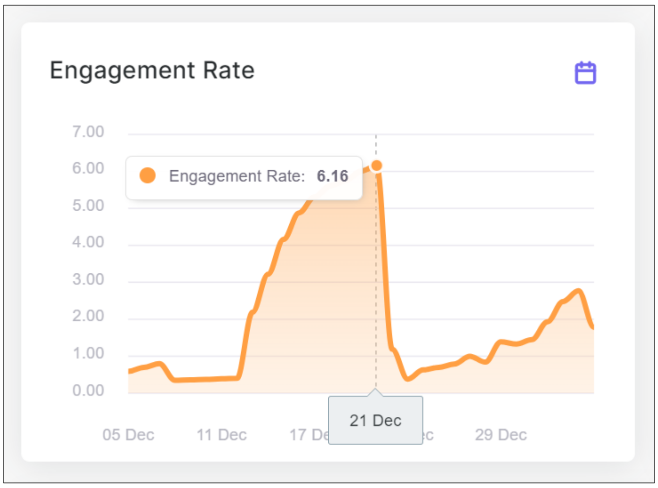
The Internet being a vast pool of knowledge ranging from websites to social media itself like Quora, Facebook, Reddit etc are some of the renowned sources for reliable data. Quora being one of the top places where people within this field share their observations and findings. Accessing these platforms has allowed you to tap into the insights and experiences of individuals who are actively engaged in the subject matter.

Literature Research

Read and learned from other research papers and got to know about the existing research and how can it be carried ahead to further advancement and clear path ways. Spotted loopholes in such research papers publisher by learned authors and scholars from renowned universities. This in-depth analysis had provided a solid foundation for formulating a robust methodology that will address the identified gaps and propel the research forward.

Case Study Research:

Tracked the analytics of specifically selected creators and brands with the help of Instrack website. Derived insights like engagement rate trend, frequency, follower trend, likes and post trend etc. With regular monitoring observed the trends or hooks or basically how these brands had sustained over such a long period while continuously expanding and exceling day by day.



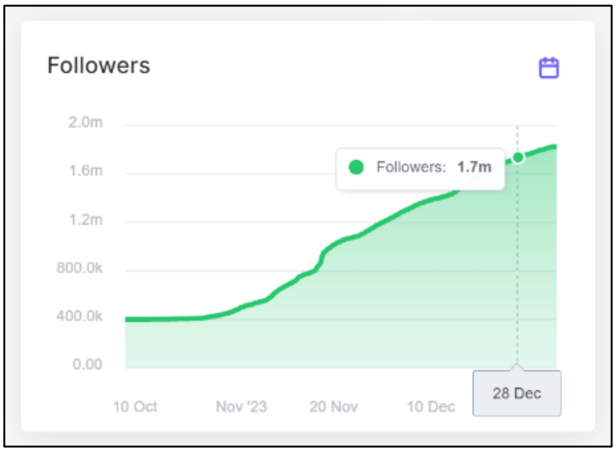
Data Analysis and Interpretation:

A thorough analysis of data has been done and results and insights have been derived by interacting with influencers and brand managers, with the help of case study of an influencers growth and his reach. Another analysis was done by following and observing the Instagram Trends, followed by checking out for Patterns and Anomalies.

Influencer and Brand Manager Insights

Connected with 5 mega creators and brand managers who had high engagement rate and creative content and had deep understanding about Instagram's Algorithm too. Conducted in chat interviews on Instagram itself with most of the creators, except for one where LinkedIn came into play. Specifically selected the influencers and brand managers from diverse niches being comedy, travelling creator, animator, personal brand manager and a brand manager of a renowned luxury villa renting platform. Each of them having their own strategies, niche and audience have performed extremely well having most of their reels reaching around 500k views. Collaboration dynamics were also discussed with each of them, some having done many collabs and some looking forward for some as it then allows the audience of all the collaborators to engage with the content hence forcing the algorithm to boost the content. Most of them relying on reels to pass or to showcase their vivid content, as reels section being the go-to place on Instagram. Trendy music was one of the sweet spots that everyone connected with as it easily gets on people while boosting the reel in the algorithm. One thing that each of them focused on was consistency, keeping the flow and concentrating Instagram regularly with their post, stories or reels, maintaining the engagement and bringing traction to their account as well.

Case Study



Carefully watched and observed an Instagram gimmick's page named as @ezsnippit found and run by Neeraj Walia, who is a website developer and coder. His basic aim is to teach functions of codes in different coding languages with incorporation of memes and eye-catching videos. This specific account has been taken for study as it shows the appropriate use of all the factors that influence the algorithm ranging from hook, niche, engagement to use of trendy effects and memes. Mostly Quantitative metrics like the no of shares, likes, comments, the overall engagement rate have been derived with the help of digital platforms and software. The timeline from October 2023 till the present date have been taken into account as it highlights all the highs and lows faced by the creator. According to our time line i.e. in October'23 when his followers were 400k, it self being a large number, but reaching 1.8 million followers from 400k in just 2 months is close to a miracle, but was possible due to his utter presence and understanding of how the algorithm works, and how he can use it in his favour. His consistency was on point and with his hooks and diversity his content was pushed forward, boosting his content. His account made success as he managed to bring all the trendy memes, or what his target audience would be watching otherwise as his hook and then turning it to his point of interest i.e. coding as a surprise element, while shocking the audience and preventing them from zapping. From this case we can derive three main points, firstly the consistency is the key and the perfect time of uploading when your target audience would be ready to watch, secondly the best use of hooks and memes to pull the viewer's attention to your point. Thirdly providing some value element, at the end of the day he is teaching coding and adding some value to viewers time, this being the reason for his rapid increase in followers.

Instagram Trends

Current Running Instagram trends were carefully observed and sensible data was collected. Trend can be of songs, certain dance steps or even lip sing to a simple dialogue but still participating and contributing in them will always be in your favour. It was observed that reels usually work better than normal posts, and carousel posts are more trendy right now than normal posts. Peak viewing time depends on creators' audience, location and niche. Special video techniques can be implemented are use of video transitions that are in trend like film burn transitions and paper cut introductions. The viewer's attention span is reducing with time, so it's important to use hooks and creative visuals that keep the viewers engaged. Nowadays memes are in a constant trend so it is advised to experiment with them and see that how can dissolve some of it in your feed . To go along the flow is the best thing to do, be it Year End reels or the trendy dance reels that skyrocketed in lockdown.

Patterns and Anomalies

Firstly, the engagement patterns can be taken into account, combining audio and visuals can be a great attraction for many people, so carrying this ideation reels are upfront the best type of content that can be produced for high levels of engagement. That too if being specific, Memes work well as they are relatable and connect people with like minds. One over one songs or words or taglines repeated can get into viewer's head and an undue advantage can be taken by incorporating them in your reels and posts. Algorithmic response, another factor that evaluates and responds to different types of content. Reels in vertical format tend to have better retention as they provide comfort while not breaking the flow of viewer. Instagram pushes and upbrings new and innovative posts that are creative and bring something new to the plate.

Conclusion:

In conclusion, the exploratory research undertaken in this study enlightens the intricate workings of the Instagram's algorithms. Key findings derived from engaging with influencers, observing social media trends, and analysing case studies have provided valuable insights. The integration of suitable data with theoretical frameworks and concepts has contributed to a better understanding of the algorithm's dynamics, revealing both points of convergence and areas of divergence. This research significantly contributes to the broader knowledge in the field, offering practical implications for influencers and brands seeking to navigate the Instagram algorithm effectively. The study acknowledges its limitations, opening avenues for future research, and concludes with a call to action, encouraging continuous exploration and adaptation in response to the evolving landscape of social media algorithms. Gratitude is extended to influencers, brands, and collaborators who participated in the research, fostering a collaborative approach to unravelling the hidden and unpredictable form of the Instagram algorithm.

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Cross-Cultural Analysis Of Work Ethos: A Comparative Study Of Eastern (Indian) And Western Management Perspectives

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Abstract:

The aim of this research papers to conduct a comparative study between Eastern (Indian) and Western management perspectives. This study explores the cultural factors responsible for influencing work ethics and their effect on work behavior, productivity, and decision-making. The outcome of this research paper is based on conducting a comprehensive literature review which involves articles written from Western as well as Indian perspectives. The research methodology involves a questionnaire-based survey that gathers information from participants involved in management representing both Indian and Western cultures. The findings of this study will help us to understand the extent of impact cultural factors have on work ethics and will provide valuable insights for managers and organizations operating in cross-cultural settings.

Introduction:

In today's globalized business environment, it has become crucial for organizations to understand cultural differences and effectively manage cross-cultural interactions. One significant aspect that impacts work behavior and organizational outcomes is work ethos- the values, attitudes, and beliefs individuals hold regarding their work. Work ethos varies across different cultures and understanding these differences is essential for successful cross-cultural management. This research paper aims to conduct a cross-cultural analysis of work ethos, specifically comparing Eastern (Indian) and Western management perspectives. In this study, we have tried to explore the cultural factors that shape work ethics and the influence they have on work behavior, productivity, and decision-making. This study helps to provide valuable insights to managers and organizations operating in cross-cultural settings by examining work etos in these two distinct cultures.

Objectives of the Study:

- To provide practical and functional suggestions for MNCs and organizations working in cross-cultural settings to effectively handle and strike a balance between different work ethos, fostering better understanding between different cultures and optimizing organizational performance.
- To understand the cultural factors that influence work ethics in both regions.
- To compare the attitudes and work behaviors between Indian and Western cultures.
- To assess the impact of cultural differences on work outcomes.
- To assess the impact of the COVID-19 Pandemic on work ethos.
- To provide recommendations for fostering cross-cultural understanding and collaboration.

Hypothesis:

There is no association in the work culture between Indian & Western managers.

I. Characteristics of Eastern (Indian) Culture, its reasons, and influence on Management Principles and Perspectives:

A. Characteristics of Eastern (Indian) Culture

1. **Collectivism:** Indian culture has always emphasized collective goals over individual ambitions. People tend to prioritize family, community, and work groups leading to a strong sense of interconnectedness and harmony within the workplace. (Collectivism: An Indian Perspective By Ritu Tripathi and Uday Vijayan June 02, 2020.)
2. **Hierarchy and Respect:** Hierarchical structure has always been an important part of Indian society supported by various evidence that shows reflecting respect for authority

figures and seniority. The same behavior can be observed in the workplace where individuals exhibit respect for their superiors. (IT PAYS TO BE AWARE OF THE HIERARCHY IN INDIA. Posted on 8th December 2017 in Communication Skills Training, Leadership Development)

3. **Spiritual Influence:** Spirituality and religion play a significant role in Indian culture concepts like Dharma (duty/righteousness) and Karma (the law of cause and effect) play a crucial role in shaping work ethics and encouraging a sense of duty and accountability at workplace. (The ‘Dharma’ and ‘Karma’ of CSR from the Bhagavad-Gita Balakrishnan Muniapan and Biswajit Satpathy, Volume 19, Issue 2)
4. **Long-Term Orientation:** In Indian culture, work is generally undertaken with a long-term perspective valuing tradition and perseverance. This is evident from their loyalty, patience, and commitment shown towards the organization and work-related goals.
5. **Relationship-Focused:** Building and maintaining relationships is highly valued in Indian culture. At the workplace, this translates into building strong professional networks and fostering employee loyalty.

B. Reasons for Eastern (Indian) Characteristics

These characteristics in Indian culture have been influenced by various historical, religious, and social factors:

1. **Ancient Philosophies and Traditions:** Indian culture has been shaped by ancient philosophies such as Hinduism, Buddhism, and Jainism, which emphasize collective welfare, duty, and moral responsibility.
2. **Caste System and Social Structure:** It is evident that in the Indian style of Management, there is a focus on the division of work and specialization within that work this almost represents a hierarchical structure or a system which can be traced back to the caste system. The caste system in India was historically developed to promote specialization and division of labor by assigning different roles and responsibilities to different castes. It ensured that specific occupations were concentrated within certain castes, fostering expertise and skill development.

3. **Spiritual Outlook:** The emphasis on spirituality and the belief in karma, dharma, and the cyclical nature of life have contributed to a focus on inner growth and self-awareness.
4. **Extended Family Systems:** The extended family system in India promotes interdependence and collective responsibility, which carry over into the workplace.

C. Influence on Management Principles and Perspectives

The characteristics of Eastern (Indian) culture have significantly influenced management principles and perspectives in the region:

1. **Emphasis on Hierarchy:** Indian management styles often involve a top-down decision-making style with centralized authority, reflecting the cultural respect for hierarchy.
2. **Employee Loyalty and Welfare:** Indian management prioritizes employee welfare and long-term job security, as a reflection of the relationship-focused culture
3. **Paternalistic Approach:** Historically, Indian leaders have adopted a paternalistic role, this style of management can be seen even today in some organizations where managers make decisions for their team while also considering their well-being. This approach often involves a mix of guidance, support, and control, aimed at fostering a sense of unity and protection within the group, considering the well-being of employees beyond their professional roles.
4. **Team Orientation:** The collectivist nature of Indian culture fosters a collaborative approach to problem-solving and decision-making, leading to teamwork-oriented management strategies.
5. **Emphasis on Ethical Practices:** The influence of spirituality and ancient philosophies encourages an ethical approach to business and management, with an emphasis on honesty, integrity, and social responsibility.

II. Characteristics of Western Culture, its Reasons and Influence on Management Principles and Perspectives:

A. Characteristics of Western Culture

1. **Individualism**: Western cultures, such as those in Europe and North America, emphasize individual achievements, personal goals, and independence, leading to a focus on self-reliance in the workplace.
2. **Egalitarianism:** Western societies tend to value equality and meritocracy, fostering an environment where individuals have the opportunity to advance based on their abilities and accomplishments.
3. **Rationality and Pragmatism:** Western culture places importance on rational decision-making and evidence-based approaches in the workplace.
4. **Short-Term Orientation:** Western cultures often focus on immediate results and outcomes, which can lead to a fast-paced and dynamic work environment.
5. **Task-Focused:** Western work cultures prioritize task accomplishment and efficiency, valuing individual contributions to achieving organizational goals.

B. Reasons for Western Characteristics

The characteristics of Western culture have been shaped by historical events and social developments:

1. **Individualistic Philosophies:** Western culture has been greatly influenced by individualistic philosophies such as the Enlightenment era, which promoted individual rights, freedom, and self-determination.
2. **Industrial Revolution:** The Industrial Revolution in the 18th and 19th centuries resulted in a capitalist system that promoted individual success and competition.
3. **Secularization:** Western societies have experienced a decline in religious influence, leading to a greater emphasis on rationality and pragmatic approaches in various aspects of life, including work.
4. **Immigration and Diversity:** Western countries have seen significant immigration, leading to diverse workforces which has made them adopt egalitarianism and merit-

based systems.

C. Influence on Management Principles and Perspectives

The characteristics of Western culture have significantly influenced management principles and perspectives in the region:

1. **Performance-Based Evaluation:** Western management often uses performance-based evaluation systems, rewarding individual achievements and contributions.
2. **Decentralized Decision-Making:** Western management may promote decentralized decision-making, empowering employees at various levels to contribute to the decision-making process.
3. **Results-Oriented Approach:** Western management tends to prioritize results and outcomes, aiming for efficiency and effectiveness in achieving organizational goals.
4. **Open Communication:** Western cultures encourage open and direct communication in the workplace, facilitating immediate feedback and constructive criticism.
5. **Innovation and Adaptability:** The emphasis on pragmatism and short-term orientation encourages Western management to embrace innovation and adapt to changing market conditions.

The Distinction between Eastern (Indian) and Western Management Perspectives:

Aspect	Eastern (Indian) Management Practices	Western Management Practices
1. Organizational Hierarchy	Hierarchical structures are prevalent, and authority is centralized. Respect for seniority and superiors is emphasized.	Emphasis on flatter organizational structures with decentralized decision-making. Hierarchies are often less rigid, and individuals are encouraged to participate in decision-making.
2. Leadership Style	Paternalistic approach, where managers are seen as mentors and guides for their subordinates.	Transformational leadership is common, with an emphasis on inspiring and motivating employees to achieve higher performance levels.

3. Team Dynamics	Prioritize unity and shared goals, influenced by the ancient Indian concept of "Vasudhaiva Kutumbakam" (the world is one family), fostering cooperation and interdependence	Ancient Western ideas gave importance to individual achievement and merit. Collaboration is valued but individual contributions within a team are also highlighted and recognized.
4. Employee Loyalty	It is highly valued and long-term job security is sought after. Ancient Indian concepts such as duty, commitment, and stability in work may have been responsible for this quality.	Individual career growth is given more importance influenced by Western ideas of personal progress and achievement. Employees change their jobs more often to seek opportunities for advancement.
5. Conflict Resolution	Conflicts are often avoided and efforts are made to resolve them harmoniously and maintain a sense of unity, the origin of this quality can be traced back to the ancient Indian principle of Ahimsa which talks about non-violence and peaceful coexistence.	Influenced by the concept of open debates in ancient Western environments, conflicts are addressed more directly and solutions are sought through open discussions focusing on resolving issues efficiently.
6. Decision-Making	Decision-making often involves consultation and consensus-building, reflecting the influence of ancient Indian traditions that value collective wisdom and harmony in decision processes.	Individual decision-making is emphasized, rooted in ancient Western notions of personal autonomy and individual responsibility.
7. Time Orientation	Ancient Indian philosophies viewed time as a continuum of cycles and perceived it as cyclical. This perspective can	Time is often viewed as linear and finite, reflecting ancient Western beliefs in progress and historical development. Planning and

	lead to a more patient and holistic approach to planning and decision-making.	punctuality are emphasized to achieve set goals.
8. Innovation and Risk-Taking	Innovation may be balanced with caution, considering the potential impact on tradition and stability. Experimentation is approached with care and respect for established norms.	Innovation is encouraged, and risk-taking is seen as an avenue for growth. Creativity, adaptability, and the willingness to challenge the status quo are valued.

Recent Change in Organizational Setup due to COVID-19 (Need of the Study)

Impact of the COVID-19 Pandemic on Cross-Cultural Settings

In an era characterized by rapid globalization and technological advancements, cross-cultural interactions have become an integral aspect of modern business and organizational dynamics. The collision of diverse perspectives, values, and work ethics occurs within cross-cultural settings that offer both opportunities and challenges. The COVID-19 pandemic, a global crisis of unprecedented proportions, has not only reshaped how organizations operate but also transformed the very fabric of cross-cultural working.

Cross-Cultural Settings Before COVID-19

Before the pandemic, cross-cultural collaborations were largely defined by physical interactions, face-to-face meetings, and intercultural exchanges. Organizations fostered diverse teams that shared physical workspaces, aiming to leverage the richness of cultural diversity to drive innovation and global expansion. While technologies enabled remote collaboration to some extent, the majority of cross-cultural interactions took place in person, allowing for direct communication and the formation of personal connections.

Cross-Cultural Settings After COVID-19

The COVID-19 pandemic dramatically changed the landscape of cross-cultural interactions. Lockdowns and social distancing forced organizations to swiftly adopt work-from-home models, challenging the conventional paradigms of cross-cultural collaboration. Online communication platforms became the lifeline of intercultural exchanges changing the dynamics of cross-cultural settings. While the basic principles of understanding and respecting diverse cultures remain unchanged the way of operating underwent a profound shift.

With the introduction of virtual communication and the absence of in-person interactions, communication was now conducted through screens bringing forth challenges in interpreting non-verbal signs, gestures, and cultural subtleties. Moreover, the lack of differentiation between work and personal space blurred the boundaries between cultural norms and practices leading to the emergence of new norms influenced by both Indian of Western perspectives.

A Dual-Edged Impact

After the COVID-19 pandemic the cross-cultural landscape has faced a dual-edged impact. On one hand, online communication has expanded the reach of cross-cultural collaboration, making it easier for organizations to connect across geographical boundaries. On the other hand, it has introduced new challenges and has a significant negative impact on the work-life balance. Cultural subtleties that were once evident in physical interaction now need to be comprehended through a digital medium.

As organizations try to adapt to the new cross-cultural collaborations after the pandemic, the important question emerges: Has the essence of work ethos and cross-cultural dynamics remained consistent, or have we entered a new era of intercultural interactions shaped by the demands of the pandemic?

(The Impact of Globalization on Cross-Cultural Communication WRITTEN BY, Lowell C. Matthews and Bharat Thakkar, Submitted: December 21st, 2011 Published: August 17th, 2012)

A. Benefits of Cross-Cultural Working:

1. Diverse Perspectives: Cross-cultural interaction provides a variety of viewpoints, allowing innovative problem-solving and creativity through diverse approaches.
2. Enhanced Adaptability: Exposure to different work cultures helps individuals to develop adaptability which is a crucial skill in an ever-changing global marketplace.
3. Cultural Sensitivity: Collaborating with people from various cultures enhances cultural awareness and sensitivity leading to improved communication and reduced misunderstandings.
4. Global Market Insights: Cross-cultural interaction helps to understand insights and nuances of different markets giving an edge in effective market entry and expansion strategies.

B. Limitations of Cross-Cultural Working:

1. Communication Barriers: Differences in language and communication styles can lead to misunderstandings and misinterpretations causing problems in effective teamwork.
2. Conflicting Work Ethos: Diverse work approaches, expectations, and values can cause friction and conflict within cross-cultural teams.
3. Time Zone Challenges: Working across different time zones can lead to scheduling difficulties and impact timely decision-making.
4. Cultural Norms: Conflicting cultural norms and practices may lead to challenges in decision-making, leadership styles, and conflict resolution.

Limitations of the Study:

- Time constraints.
- Sample size limitations.
- Language and translation challenges.
- Potential bias in self-reported data.

Literature Review:

- Overview of work ethos and its significance in organizational contexts.

- Comparison of Eastern and Western cultural values and their implications for work ethics.
- The role of individualism vs. collectivism in shaping work behavior.
- Influence of power distance and hierarchy on work ethos.
- Impact of communication styles and decision-making processes on work ethics.
- Cross-cultural management theories and frameworks relevant to work ethos.

Literature review sources:

- **The Blackfoot Confederacy, 1880-1920: A comparative study of Canadian and U.S. Indian Policy 1987**

This historical study spans four decades of the Blackfoot Confederacy's life, focusing on Canadian and US reservations. It evaluates policies and portrays Indian administration contextually, covering reservation administration, self-sufficiency, land, education, law, and welfare without ideological bias.

- **A comparative study of quality practices and results in India, China, and Mexico, 1997**

This study compares quality management practices in India, China, and Mexico. Data collected through a questionnaire survey is analyzed using MANOVA, revealing significant differences in quality practices among countries. Top management support and quality experience length impact various quality practices.

- **A comparative study of career practices for management staff in Britain and India 2006**

This study explores cross-national career management trends through large-scale surveys in India and Britain, analyzing organizational factors' impact on career practices. Similarities and differences in career management systems are identified, offering implications for careers and international HRM.

- **Management in Emerging versus Developed Countries: A Comparative Study from an Indian Perspective, 2011**

This study addresses HRM practices in India's unique management culture, shaped by colonial history. It investigates practices like power delegation and compensation, shedding light on Indian multinationals' strategies and performance in developed countries. The methodology employs Likert scales and self-report measures, contributing insights to academia and practitioners in emerging markets.

- **Affective organizational commitment and job satisfaction: A cross-national comparative study 2017**

Amid financial constraints and inter-sectoral competition, public managers face the challenge of retaining quality staff. This study compares the US and India, finding that job satisfaction significantly boosts organizational commitment. Indian public managers exhibit notably higher organizational commitment levels compared to certain US states.

- **Leadership in Indian Organizations from a Comparative Perspective 2018**

This study explores leadership practices in hybrid Indian firms, showing higher CEO ratings on challenging, modeling, inspiring, and enabling dimensions compared to Western counterparts. The cultural context in India may lead to CEO idealization, affecting feedback and leadership development.

- **Cross-Cultural Communication: With a focus on Indian and USA work culture, 2020**

This paper aims to aid American and Indian employees in comprehending the causes of miscommunication, promoting proactive adjustments in communication. It discusses workplace diversity and cultural variations, highlighting impacts on management styles, practices, and strategies. By acknowledging and bridging cross-cultural disparities, this study enhances organizational performance and fosters mutual understanding.

- **Comparison of Business Management in India and America, 2021**

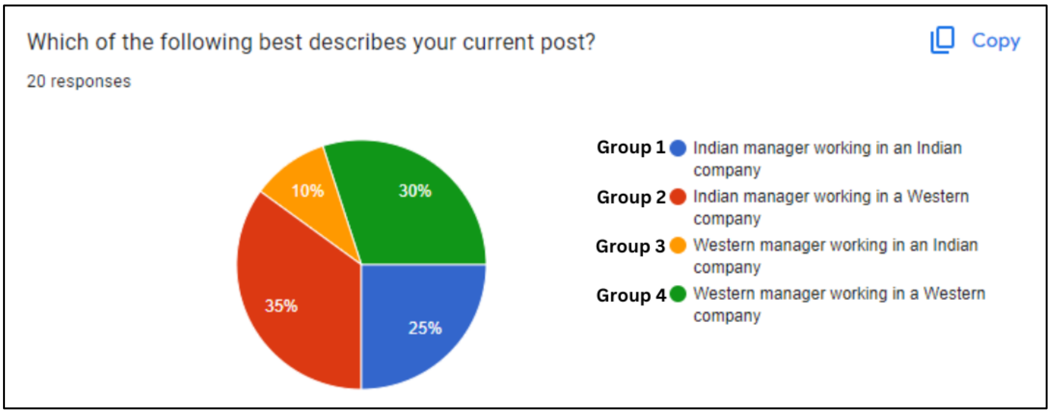
Management styles are influenced by organizational culture, size, and ownership. In India, autocratic styles are common, while the US favors democratic and participative approaches. Globalization has significantly impacted Indian management, prompting shifts in styles, policies, and leadership. Emerging changes are observed in Indian management on both micro and macro levels.

Research Methodology:

- Selection and recruitment of participants.
- Questionnaire design and validation.
- Data collection procedures.
- Statistical analysis techniques.

Research and Discussion:

- Presentation of survey findings.
- Comparative analysis of work ethos between Eastern and Western cultures.
- Examination of cultural factors influencing work ethics and behavior.
- Discussion of the impact of work ethos on productivity and organizational outcomes.



Flexible approaches to hierarchy enable fostering a collaborative and innovative work environment.

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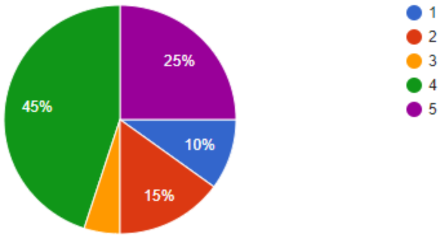

Transformational leadership that inspires innovation is the most effective way to guide and motivate a team and should be preferred.

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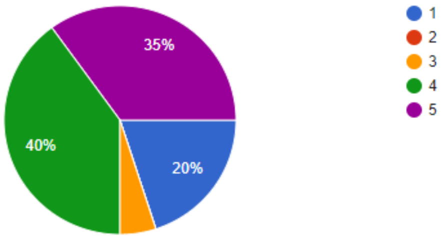

Paternalistic leadership is better aligned with certain cultures valuing hierarchy and respect and should be preferred.

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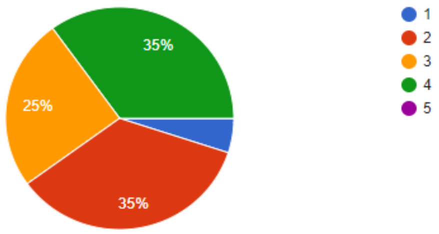

Direct communication ensures clarity and minimizes misunderstandings in conveying ideas and expectations and is more effective than Indirect communication

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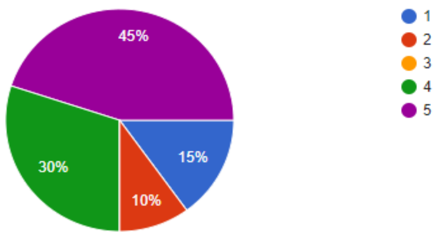

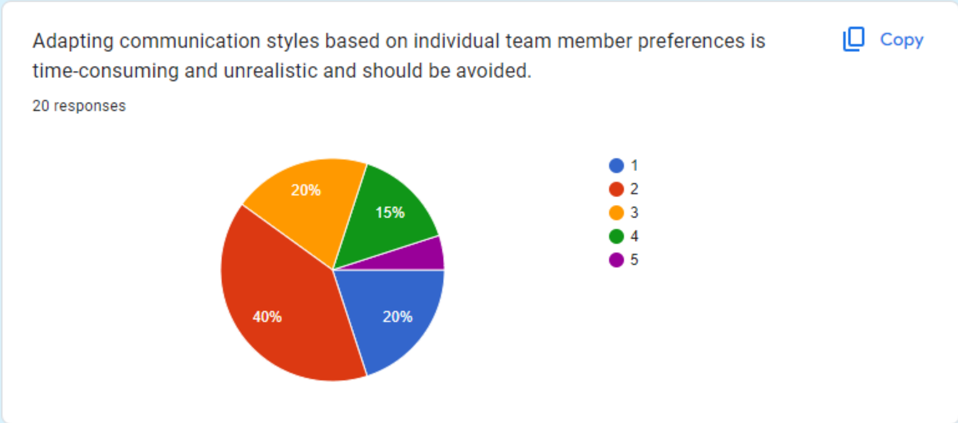
Adapting communication styles based on individual team member preferences is time-consuming and unrealistic and should be avoided.
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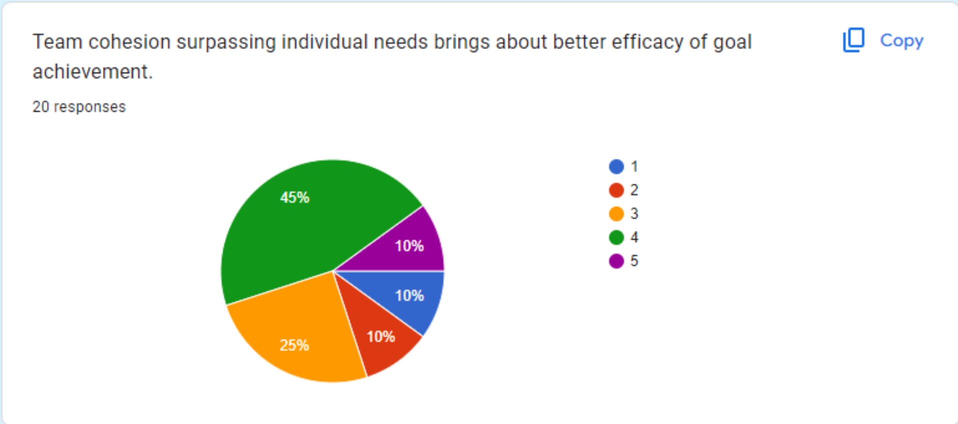
Team cohesion surpassing individual needs brings about better efficacy of goal achievement.
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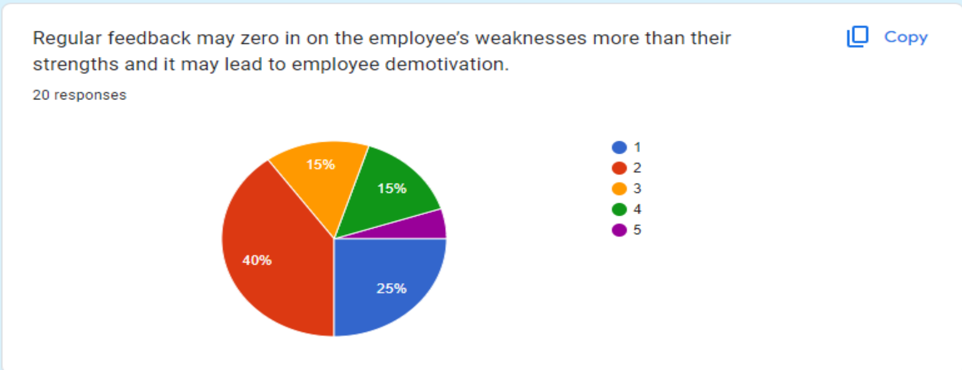
Regular feedback may zero in on the employee's weaknesses more than their strengths and it may lead to employee demotivation.
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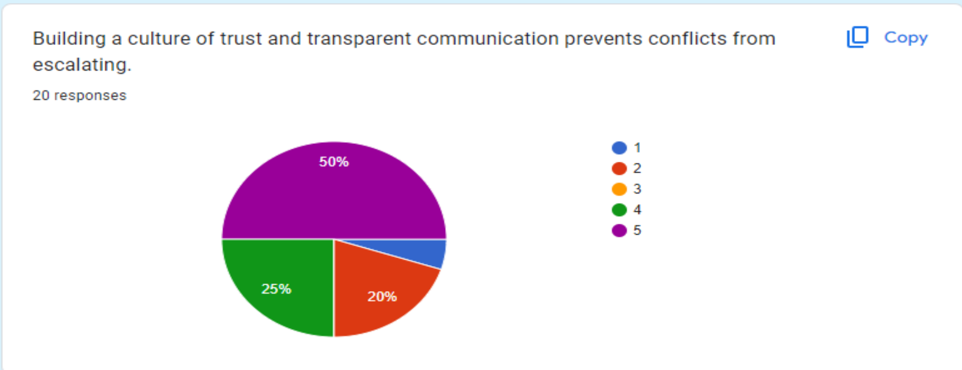
Building a culture of trust and transparent communication prevents conflicts from escalating.
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How would you adapt your management style if working with a team that consists of both Western and Indian members?

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In your experience, do you believe that cultural factors play a significant role in management practices within a cross-cultural setting?

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Emphasizing securing optimum work-life balance may jeopardize the timely achievement of objectives.

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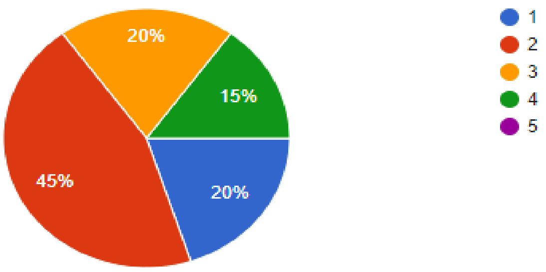

Striving to find a balance that respects cultural differences while fostering team productivity is something that all managers should practice.

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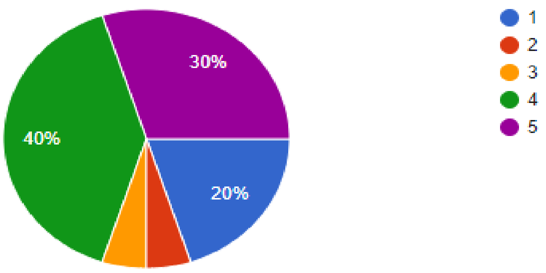

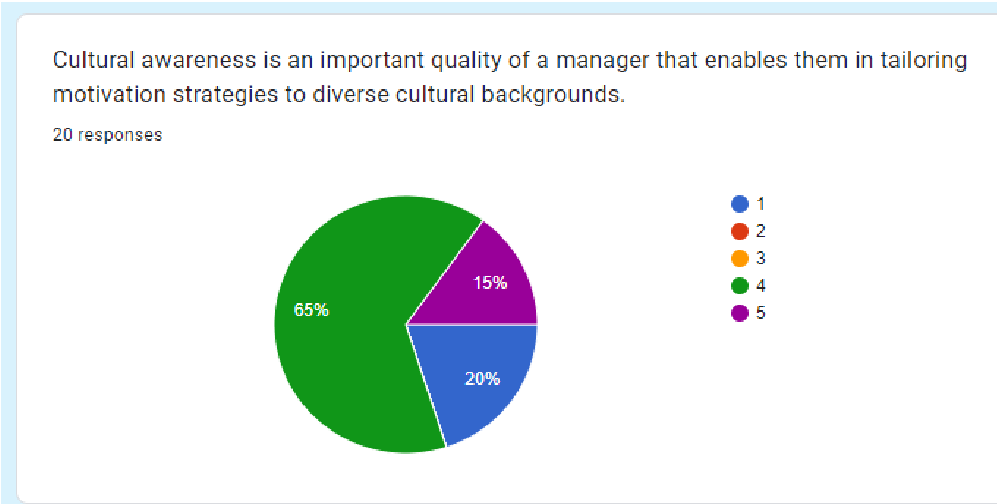
Cultural awareness is an important quality of a manager that enables them in tailoring motivation strategies to diverse cultural backgrounds.
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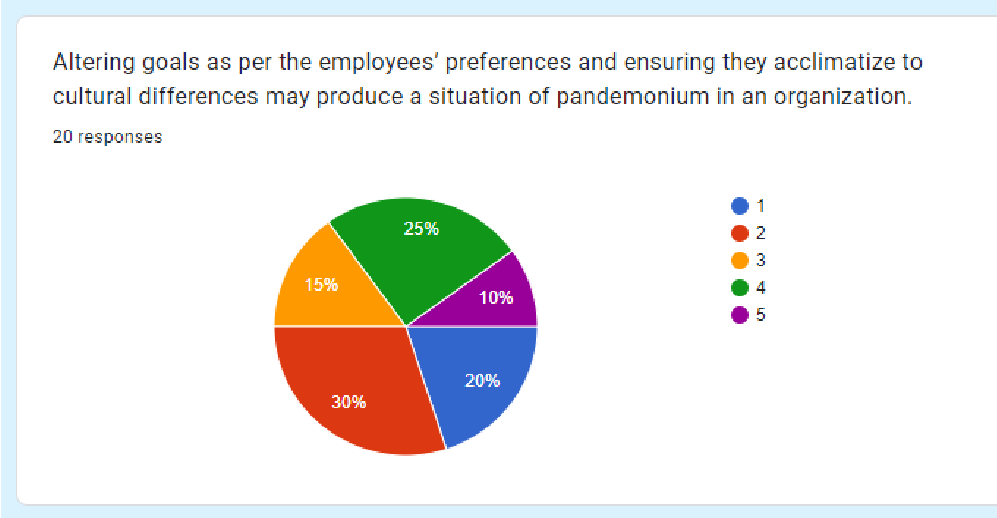
Altering goals as per the employees' preferences and ensuring they acclimatize to cultural differences may produce a situation of pandemonium in an organization.
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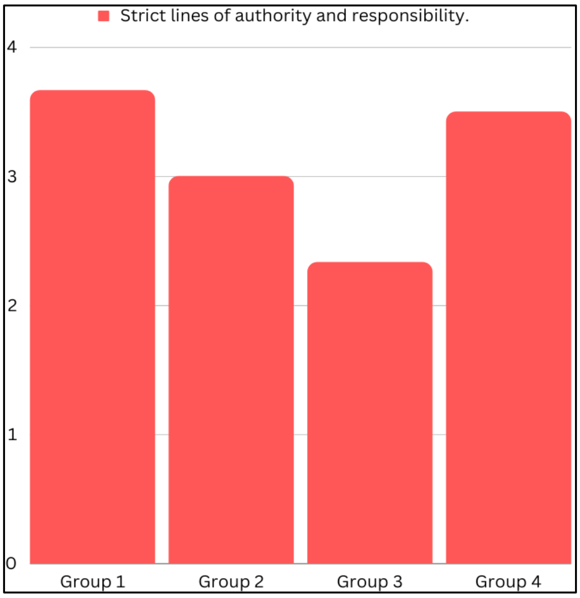
Strict lines of authority and responsibility.
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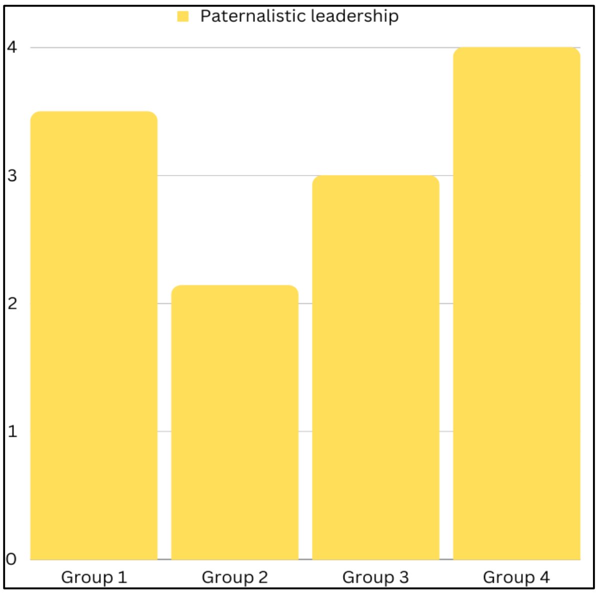
Paternalistic leadership
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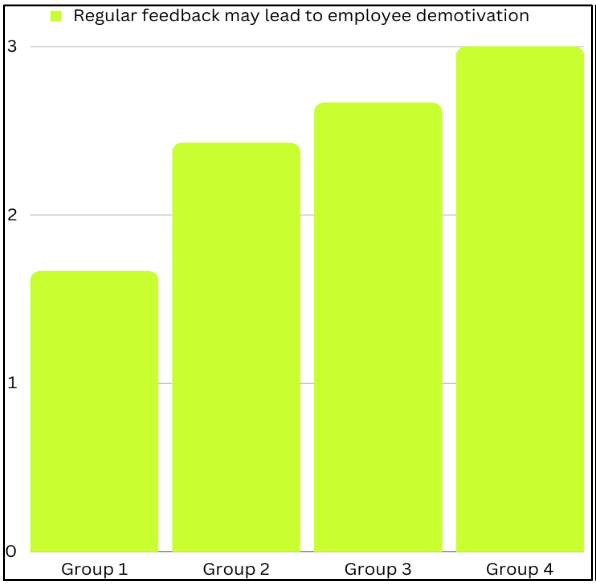
Regular feedback may lead to employee demotivation
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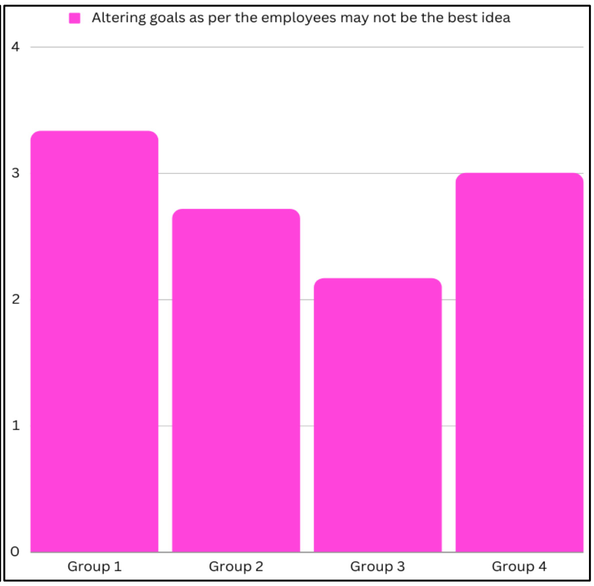
Altering goals as per the employees may not be the best idea
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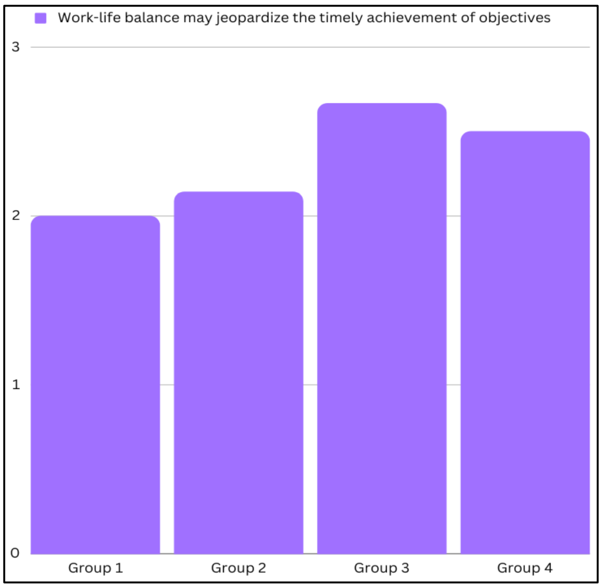
Work-life balance may jeopardize the timely achievement of objectives
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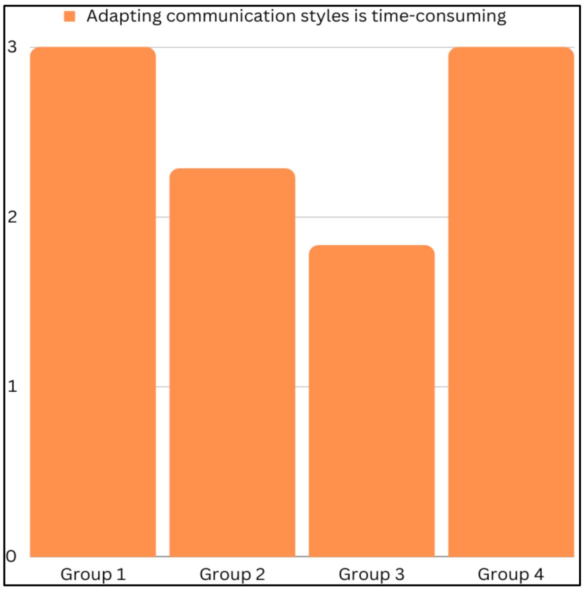
Adapting communication styles is time-consuming
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Transformational leadership
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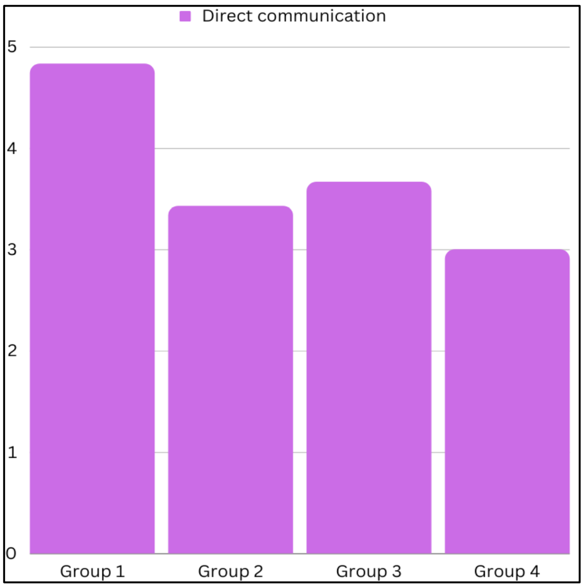
Direct communication
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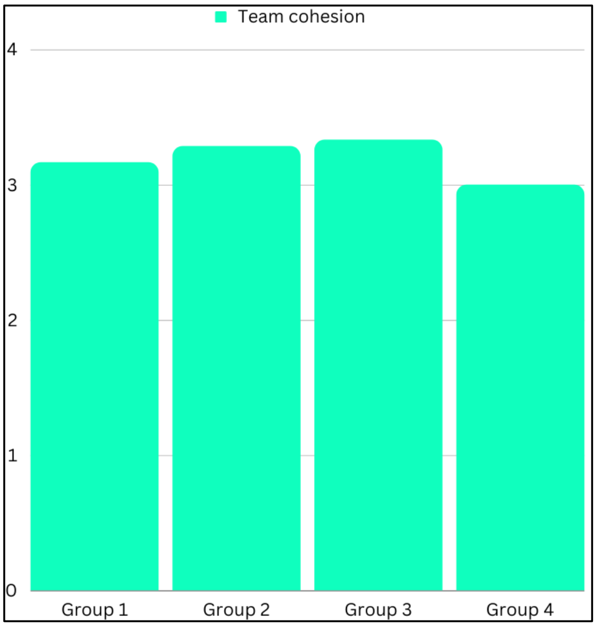
Team cohesion
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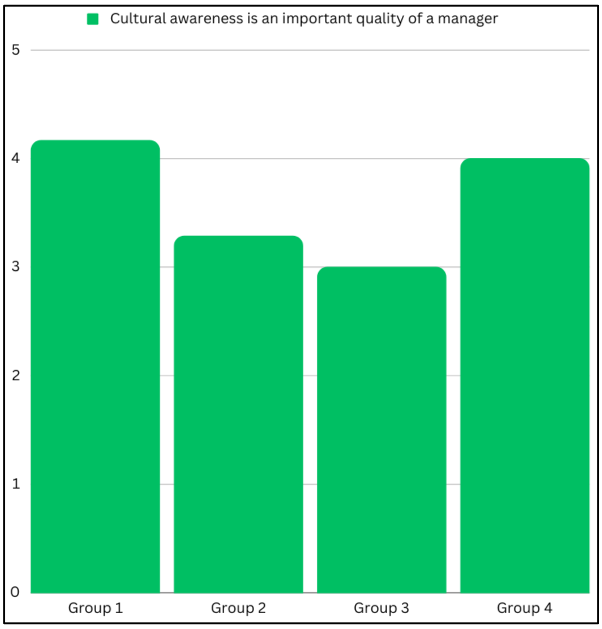
Cultural awareness is an important quality of a manager
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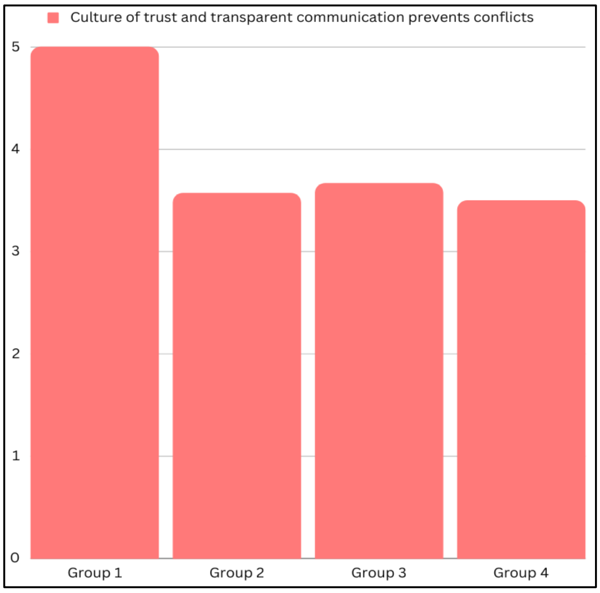
Culture of trust and transparent communication prevents conflicts
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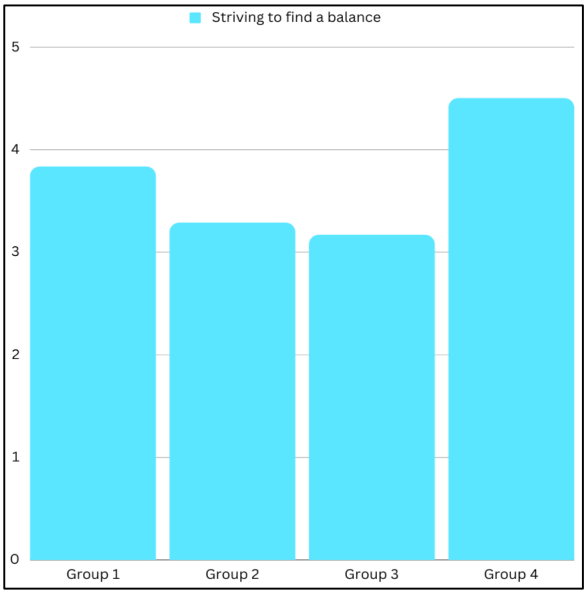
Striving to find a balance
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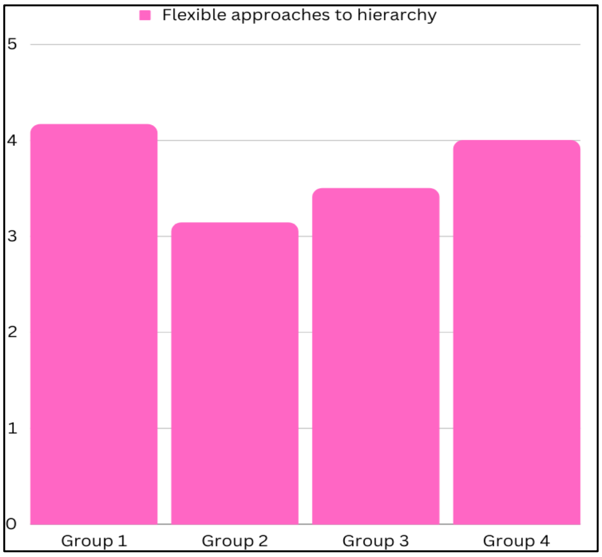
Flexible approaches to hierarchy
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Group 1
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Group 4

The questionnaire can be divided into two parts. The first six statements lean more towards a strict style of management which is usually associated with the Western culture. In this data, we can notice that Group 1 and Group 4 managers have quite a standard view on each of the statements whereas, Group 2 and Group 3 have a typical response to these statements. We can see that Groups 1 and 4 have a neutral stance on these statements if not slightly agreeing with them, whereas Groups 3 and 4 disagree with these statements, or at best they have a neutral stance on them. The only statements where we see these trends break are, one stating that feedback might result in employee demotivation, where we can see Indians disagree with the statement, Western managers have a more neutral stance and the next statement that says work-life balance may jeopardize the timely achievement of objectives was not very well received by the managers and every group seems to disagree with the statement.

The second part of the questionnaire focuses on a more lenient style of management and even here we can see the trend continue in some statements where Group 1 and Group 4 managers have a similar response and Group 3 and 4 have a similar response. Even here Groups 3 and 4 have a neutral stance on most of the statements whereas Groups 1 and 2 slightly agree with these statements. The statement that all managers are unsure about is the one which states team cohesion surpassing individual needs brings about better efficacy of goal achievement so we can conclude that all managers feel that team cohesion is necessary but it should not undermine the individual needs of the employees and the statement which states a culture of trust and transparency should be maintained is highly agreed on by Group 1 and direct communication is also something that is highly supported by Group 1 followed by Group 3 and 2.

Interpretation and Suggestions:

Group 1: Indian Managers in Indian Companies (Preference for Paternalistic Leadership and Traditional Approaches)

- These managers tend to prefer a leadership style that includes elements of paternalistic leadership, valuing hierarchy and authority.
- They believe that strict lines of authority and responsibility enhance effective communication and decision-making within an organizational hierarchy.

- Their communication style may be more inclined towards indirect and context-dependent methods.
- They put more importance on hierarchy and authority often trying to get everyone to agree before executing the idea, valuing tradition and respect

Group 2: Indian Managers in Western Companies (Balanced Approaches and Cultural Awareness)

- Managers in this group demonstrate a balanced approach often adopting a style which is the mix of Western and Indian Management styles
- The demonstrate a flexible approach to hierarchy and value fostering a collaborative and innovative work environment
- The understand the importance of cultural awareness and cross-cultural training for smooth functioning of teams with diverse workforce
- Communication is seen as a mix of directness and respect adapting to the expectations of both Indian and western colleagues.

Group 3: Western Managers in Western Companies (Preference for Open Communication and Flexibility)

- These types of managers generally follow more open communication, and flexible hierarchy and foster a democratic and innovative work environment.
- They give more importance to direct communication to ensure clarity and minimize misunderstandings
- Team Cohesion and open communication are important aspects of their managerial approach. They value individual contributions as well as collaboration.
- While dealing with cultural factors they may prioritize efficient communication and adaptability instead of strictly following traditional practices

Group 4: Western Managers in Indian Companies (Adaptation to Cultural Differences)

- Managers in this group try to find a balance between Western management practices with the cultural aspects of Indian companies

- They implement transformational leadership that inspires innovations and alignes with the western management principles.
- These managers do recognize the impact of cultural differences on management, but their focus is more on adapting to these differences rather than strictly adhering to them.
- They may encourage cross-cultural training to enhance understanding and collaboration among the workforce

Comparing the Groups:

- Group 1 and Group 4 tend to value traditional and hierarchical leadership, while Group 2 and Group 3 emphasize adaptability and flexibility.
- All groups agree on the importance of open dialogue, trust, and transparent communication in conflict prevention.
- Group 2 and Group 4 highlight the significance of cultural awareness and cross-cultural training for effective management of diverse teams.
- The preference for direct communication is more pronounced in Group 3, while Group 1 might lean towards more indirect communication methods.
- There is a spectrum of opinions on topics such as feedback, work-life balance, and altering goals based on cultural differences.

Insights from the Data:

- Diversity of Perspectives: The survey shows that there is a difference of opinion among managers when it comes to management practices and they are not University agreed upon and can be influenced by individual backgrounds and experiences
- Cultural Influence: The majority of managers, irrespective of their background, believe that cultural factors have some level of impact on management practices in a cross-cultural setting.
- Openness to Cross-Cultural Training: Most of the managers express their willingness to encourage cross-cultural training to enhance understanding and collaboration this shows that they recognize the impact of cross-cultural aspects when it comes to managing a diverse workforce

- Preference for Open Communication: Almost all the managers agree on direct communication and transparent dialogue which shows that they understand the importance of effective communication while managing teams

Suggestions based on the Data:

- Encourage Cross-Cultural Training: Managers should consider implementing a cross cultural training program to enhance the understanding among team members from different backgrounds and to promote a more inclusive and harmonious work environment
- Foster Open Dialogue: Managers should focus more on the implementation of open communication and dialogue as all of the managers believe in the effectiveness of open communication for conflict prevention and decision making
- Balance Leadership Styles: Understand the diversity of leadership styles and preferences and consider adopting a style that aligns with the needs of the team and the organisational context
- Cultural Sensitivity: Managers should emphasize on the value of cultural awareness and sensitivity while managing especially in diverse teams
- Goal Setting and Adaptation: Encourage managers to find a balanced approach to goal setting, taking into account cultural differences and individual preferences while ensuring timely achievement of objectives.
- Feedback and Performance Evaluation: Manager should be provided guidelines for giving constructive feedback that focuses on both strengths and weaknesses to avoid potentially demotivating employees
- Promote Team Cohesion: Managers should highlight the importance of team cohesion and collaboration since this is an aspect where many managers agree, indicating a shade belief in the power of collective efforts

Objectives Assessment:

Objective 1: To provide practical and functional suggestions for MNCs and organizations working in cross-cultural settings to effectively handle and strike a balance between

different work ethos, fostering better understanding between different cultures and optimizing organizational performance.

Through the interpretation of the serve data and the suggestions given, this research paper has addressed the objective. The suggested strategies, such as cross-cultural training, fostering open dialogue, and promoting team cohesion, offer practical insights for organizations to navigate the complexities of cross-cultural management. Finding a balance between diverse work ethos and enhancing cross-cultural understanding is essential for optimizing organizational performance in a globalized environment.

Objective 2: To understand the cultural factors that influence work ethics in both regions.

This research paper examines this objective by conducting a comparative analysis of survey responses and discussing cultural factors influencing work ethics. The research showcased how cultural factors, such as communication styles, leadership preferences, and conflict resolution approaches, shape work ethics in both Eastern and Western contexts. It was evident that cultural aspects have a great impact on management practices and behavior within an organization.

Objective 3: To compare the attitudes and work behaviors between Indian and Western cultures.

This research paper effectively compared work behaviors and attitudes between Indian and Western cultures by presenting and analyzing the survey data responses. The interpretations provided insights into the differing views on leadership, team cohesion, feedback, work-life balance, and other aspects of work ethos. These comparisons shed light on the differences and similarities that arise from the cultural diversity of the surveyed managers.

Objective 4: To assess the impact of cultural differences on work outcomes.

The research assessed the impact of cultural differences on work outcomes by analyzing how varying work ethos influences team dynamics, communication effectiveness, and organizational performance. The results indicated that cultural differences can both enhance and challenge work outcomes. While cross-cultural collaborations can foster innovation and diverse perspectives, misalignments in communication styles and leadership preferences might also impact productivity.

Objective 5: To assess the impact of the COVID-19 Pandemic on work ethos.

This research paper covers the post-COVID situation in the segment 'need of the study' where it talks about how online communication tools boost global collaboration but they pose challenges in understanding cultural aspects. Flexible working hours blur the boundaries between work and life causing potential conflict.

Objective 6: To provide recommendations for fostering cross-cultural understanding and collaboration.

The conclusion is based upon the interpretations of the survey data to provide some recommendations. These recommendations talk about the importance of cross-cultural training, open communication, balanced leadership styles, and the value of cultural sensitivity while managing a diverse workforce. They also provide suggestions regarding the challenges that were identified in the survey and advise some strategies for managers and organisations to promote effective cross-cultural understanding and collaboration

Conclusion:

In conclusion, this research paper gives an in-depth insight into the landscape of cross-cultural management, with a specific focus on work ethos differences between Indian and Western management perspective. The primary objective was to explore, compare, and understand the cultural factors influencing work ethics, behaviors, and attitudes within diverse organizational settings.

Through an extensive literature review, theoretical analysis, and survey interpretation, this study provided valuable insights into the distinctive characteristics of work ethos in both Indian and Western cultures. The research shows us how communication styles, leadership preferences, feedback mechanisms, and approaches to work-life balance are influenced by cultural aspects, thus impacting the way teams function and organizations perform.

The survey data collected from a diverse group of managers confirmed the significance of cultural factors influencing managerial practices and employee interactions. While opinions varied on some aspects, a shared understanding emerged regarding the importance of open dialogue, transparent communication, and team cohesion as important components of effective management across cultures.

One of the key findings was that organizations need to strike a balance between the different work ethos of different cultures while ensuring that they align with the ultimate goal of the organization. The research highlights that acknowledging and leveraging cultural diversity can contribute to enhanced creativity, innovation, and problem-solving within teams. The research paper also provided actionable suggestions for organizations and managers to navigate cross-cultural environments. These suggestions emphasized the value of cross-cultural training, adaptive leadership styles, and fostering an inclusive atmosphere that appreciates and respects various cultural backgrounds. However, it is important to note that there is no single approach that fits all the situations as cultural dynamics keep evolving and are intricate.

In a globalized environment where collaboration across cultures is increasing daily, it is important to understand the different work ethos and cultural dimensions. As organizations expand their international footprint, the knowledge gleaned from this research can serve as a compass, guiding them toward effective cross-cultural management strategies that harness the power of diversity while driving toward shared objectives.

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Questionnaire:

Please answer the following questions on a scale of 1-5 where

1-Strongly Disagree
2-Disagree
3-Neutral
4-Agree
5-Strongly Agree

Except the last 2 which require descriptive answers.

1. Strict lines of authority and responsibility within an organizational hierarchy greatly enhance effective communication and decision-making.

2. Flexible approaches to hierarchy enable fostering of a collaborative and innovative work environment.

3. Transformational leadership that inspires innovation is the most effective way to guide and motivate a team and should be preferred.

4. Paternalistic leadership is better aligned with certain cultures valuing hierarchy and respect and should be preferred.

5. Direct communication ensures clarity and minimizes misunderstandings in conveying ideas and expectations and is more effective than Indirect communication.

6. Adapting communication styles based on individual team member preferences is time-consuming and unrealistic and should be avoided.

7. Team cohesion surpassing individual needs brings about better efficacy of goal achievement.

8. Regular feedback may zero in on the employee’s weaknesses more than their strengths and it may lead to employee demotivation.

9. Building a culture of trust and transparent communication prevents conflicts from escalating.

10. Emphasizing securing optimum work-life balance may jeopardize the timely achievement of objectives.

11. Striving to find a balance that respects cultural differences while fostering team productivity is something that all managers should practice.

12. Cultural awareness is an important quality of a manager that enables them in tailoring motivation strategies to diverse cultural backgrounds.

13. Altering goals as per the employees’ preferences and ensuring they acclimatize to cultural differences may produce a situation of pandemonium in an organization.

14. How would you adapt your management style if working with a team that consists of both Western and Indian members?
    A) Prioritize clear individual goals and performance metrics.
    B) Foster an environment of open dialogue and collective decision-making.
    C) Rotate leadership roles to accommodate different management preferences.
    D) Encourage cross-cultural training to enhance understanding and collaboration.

15. In your experience, do you believe that cultural factors play a significant role in management practices within a cross-cultural setting?
    A) Yes, cultural factors strongly influence management practices.
    B) To some extent, cultural factors impact management practices.
    C) Cultural factors have minimal impact on management practices.
    D) No, cultural factors are not relevant in management practices.

Chronbach Alpha test to check the validity and reliability of the questionnaire.

Cronbach Alpha and Related Statistics

Items	Cronbach Alpha	Std. Alpha	G6(smc)	Average R
All items	0.7396	0.8172	1	0.2714
V1 excluded	0.6693	0.7719	1	0.2353
V2 excluded	0.7108	0.7949	1	0.2605
V3 excluded	0.7173	0.7848	1	0.249
V4 excluded	0.7442	0.833	1	0.312
V5 excluded	0.7255	0.8047	1	0.2725
V6 excluded	0.7287	0.8109	1	0.2805
V7 excluded	0.7763	0.8451	1	0.3316
V8 excluded	0.7021	0.8	1	0.2667
V9 excluded	0.717	0.7994	1	0.2659
V10 excluded	0.7083	0.7984	1	0.2648
V11 excluded	0.6939	0.76	1	0.2235
V12 excluded	0.7591	0.821	1	0.2943
V13 excluded	NA	NA	NA	NA

Future Military Weapons- Geopolitical Implications and Ethical Considerations

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Abstract:

Military weapons have been continuously changing as a result of technological developments, altering geopolitical dynamics, and difficult ethical issues. This research paper delves into the diverse world of future military weapons, with the dual objective of providing a thorough understanding of the elements influencing their development and can India emerge as World's strongest Nation in time span of 5-10 years. This study also explores the prospective trajectories of weapon systems in the coming decades using a multidisciplinary approach that includes analysis of weapons of past, present and future, geopolitical assessment, and ethical evaluation.

The main objective of this paper is to fill the research gap of exploring probable capabilities and applications of futuristic weaponry of next 5-10 years by analysing historical trends and finding breakthroughs. Furthermore, the study also takes into account the role of geopolitical issues, assessing how global military strategies, regional conflicts, and National policies influence the priorities and orientations of weapon development, which also aids in the overall development of the Armed Forces. It also assesses the ethical implications of sophisticated weaponry, focusing on issues such as autonomous systems, civilian casualties, and the risks and advantages provided by new types of weapons. The study examines the various economic and environmental aspects of weapon development such as R&D expenses, resource consumption, and environmental sustainability.

This research contributes to a holistic understanding of the complexity surrounding future military weapons by combining insights from multiple sectors. It also emphasises the *importance of proactive ethical debates, responsible policymaking, and international cooperation in navigating the issues posed by emerging technologies.*

Keywords: Future weapons, weapon Development, technology, Government

Introduction:

In these changing geopolitical times, every country is making its best efforts to modernize their Army and to become better than other enemy countries. The need for any country is to become competent enough to save their borders from any possible danger/threats and for that every country is investing in every form to make their armed forces stronger than before. Even India is witnessing a tremendous change in the capabilities of their armed forces, be it procurements of the weapons, increasing share of defence sector in GDP or changing pattern of countering their enemies. The Global Firepower Index is an index to rate the military forces round the world complied by www.globalfirepower.com which is an annually updated statistics based independent source which tracks defence related information of over 145 nations. This index takes into consideration a total of 50 parameters to give the 'Power Index-score,' some of which includes weapon numbers, weapon diversity, natural resources, including available industries to the workforce, financial stability, logistical capability, and geography etc. As per this index, India has the fourth strongest army in the world with index of (0.1025) after United States of America, Russia and China.

The concept of "future weapons" conjures images of cutting-edge, high-tech armaments driven by advancements in fields like artificial intelligence and cyber warfare. These innovations are reshaping the nature of military power, offering both unprecedented capabilities and complex challenges. Exploring the realm of future weapons involves venturing into uncharted territory, where change is the only constant. This exploration delves into technological advancements, geopolitical strategies, India's contributions to weapon development, ethical and economic considerations, societal impacts, the evolving role of the defence sector in the economy, and the potential for India to become a dominant force shaping the future of warfare and, in turn, the world.

Research Methodology:

This research article discusses the future military weapons of India after taking into consideration the significant factors which affect weapon development. The objective of the research is to discuss the new technology in weapons development along with chance of India emerging a superpower. My sources of data include secondary sources such as defence annual reports and other publications by the defence ministry and related websites.

Evolution of Modern Weapons:

A brief Overview of Evolution of Modern Weapons is explained as under. It is important to know this because we should know from what we started and where are we now.

1. Colonial Rule- British established arms manufactories in India. The Sepoy Mutiny of 1857 stressed the part of Indian Soldiers in the British army.

2. Post-Independence- After gaining independence in 1947, India began developing its military capabilities. It snappily moved towards acquiring ultramodern artillery and establishing a defence artificial base.

3. Indo-Pak Wars -The wars with Pakistan in 1947-48, 1965, and 1971 urged India to further upgrade its military technology, including tanks, aircraft, and ordnance.

4. Nuclear Deterrence- India conducted its first successful nuclear tests in 1998, getting a nuclear-fortified state. This marked a significant development in India's military capabilities.

5. Modernization -India has since concentrated on contemporizing its service, with an emphasis on indigenous product. systems like the Arjun tank, Tejas aircraft, and the Agni and BrahMos bullet systems showcase this effort.

6. Counterterrorism and Counterinsurgency -India has developed technical outfit and tactics for counterterrorism and counterinsurgency operations, including the use of drones, surveillance technology, and non-lethal munitions.

7. Space and Cyber- the Indian service has decreasingly embraced space and cyber capabilities, using satellites for communication and surveillance and developing cybersecurity measures.

8. International Collaboration- India has engaged in strategic hookups with countries like the United States, Israel, and Russia, leading to technology transfers and common development of military outfit.

Emerging Technologies Shaping Future Weapons:

"Technological advancements are transforming the military worldwide as the future battlefield will be characterised by the integration of advanced technologies such as AI, quantum computing, and unmanned systems. The Indian Armed Forces have recognised the need to constantly modernise and have begun to incorporate AI and machine learning into their operations, with a focus on enhancing situational awareness, speed, and accuracy." - says Shivaraman Ramaswamy.

Some of the technologies which are effectively changing the nature of modern weapons and their uses are discussed in the subsequent paragraphs:

Al Platform Automation:

- **Deepcatch Edge Al Platform:** Used for monitoring machines with alerts and remote diagnostics. It enhances accuracy, efficiency, and effectiveness while reducing human intervention. It can be used for Drone Detection, Intrusion Detection. It is also capable of providing live camera feed.
- **Merlin MLOps:** Simplifies deep learning development, training, and deployment, making it easy to create, edit, and deploy ML models. It manages the deep learning development lifecycle. It can be extensively used for training and deployment for all confidential military and defence applications.
- **iSentinel:** A deep learning-based threat detection and tracking system with real-time monitoring, people counting, and anomaly tracking features. It is a very effective solution for safety and security of confidential and high value assets both in defence and civilian in areas where terrorists threat exists.

Unmanned Robotics Systems:

- **O Sapper Scout:** A mine detection unmanned ground vehicle (UGV) capable of detecting mines and IEDs.
- **Al Capability in Swarm Drones:** Employs drone swarms for various applications, including defence and non-conventional operations.
- **Project Drone Feed Analysis:** An Al-based system to identify military objects from drone feeds for applications like surveillance and border security. It can be used in

Military Intelligence Surveillance Target Acquisition and Reconnaissance missions, Monitoring counter terrorism operations and Border Surveillance.

- **Autonomous Fast Intercept Boat (AFIB)**: Developed for autonomous operations such as search and rescue and special forces support.
- **Cognitive Radar-** Utilizes deep neural networks and reinforcement learning for target detection and tracking.
- **Al-Powered Unmanned Ground Vehicle (ECARS UGV):** A multipurpose, multi-terrain modular platform for various applications.

Blockchain-Based Automation:

- **Permissive Blockchain Mechanism:** Creates a trusted communication platform using blockchain for transparency, security, and auditability in data sharing among different organizations.

Command, Control, Communications, Computer and Intelligence, Surveillance, and Reconnaissance Systems (C4ISR):

- **Al-Based Motion Detection & Target Identification System (PRISM):** Provides real-time audio/visual alerts for surveillance and threat detection. Generating real time audio/visual alerts on detecting enemy movements.
- **Continuously Observing Ubiquitously Available Al:** A portable surveillance system for early intrusion warnings and real-time enemy movement data.
- **Al-Enabled Airborne Electro-Optic Infrared System:** Used for maritime and border surveillance.
- **Target Tracking for Complex Naval Scenarios:** Useful for tracking naval targets.
- **Enemy Aircraft Activity Recognition & Classification:** Identifies enemy aircraft activities.
- **Al-Based Passive TWS (Track While Scan) System:** Monitors objects of interest using a camera mounted on a Pan-Tilt Platform.
- **Machine Algorithms for Maritime Anomaly Detection (Deep Darshak)**: Uses Al to analyse AIS data for identifying vessels of interest and suspicious activity.

Cybersecurity.

- **Android Malware Detection Solution:** Analyzes Android applications for vulnerabilities and malware.

Intelligent Monitoring Systems:

- **Project Seeker:** A facial recognition system for population monitoring. surveillance, and security.
- **Segmentation of Satellite Panchromatic Videos:** Automatically classifies land cover from satellite imagery.
- **HUMS Ground Station:** A system for health and usage monitoring of helicopters.
- **Deepsight Canopy Inspection for Fighter Jets:** Uses Al-based machine vision to inspect aircraft canopies.

Lethal Autonomous and Weapon Systems:

- **Smart - Counter Measure Dispensing System (CMDS):** Protects aircraft/helicopters against missile threats by dispensing flares and chaffs.
- **Adaptive Intelligent Front Towing Solution for Artillery Gun:** Provides synchronized movement for artillery guns.

Maintenance and Manufacturing:

- **Condition Monitoring System for Shipboard Equipment (Main Engine):** Identifies anomalies and predicts failure for marine engines, enabling predictive maintenance.

Elements Impacting India's Weapons Development:

A number of elements affect the development of weapons in any country. In the context of Indian nation, some of these are discussed below:

1. **Perceptions of Geopolitical Threats:** India's appraisal of external threats and security challenges, particularly those posed by surrounding countries, has a considerable impact on weapon development. Border issues with China and Pakistan have a significant impact on India's military capabilities.

2. **Nuclear Disarmament:** India's commitment to a credible minimum deterrent posture with a nuclear strategy based on no-first-use (NFU) influences the development of its nuclear weapons and delivery systems.
3. **Strategic Partnerships:** Through technology transfers, collaborations, and defence procurement agreements, strategic alliances with countries such as the United States, Russia, Israel, and other friendly nations impact India's access to modern military technologies.
4. **Budget Constraints:** The availability of adequate financial resources for defence expenditure on R&D and procurement costs is critical in deciding the pace and magnitude of India's weapon development programmes.
5. **Domestic Defence Industry:** India's attempts to foster domestic military manufacturing, indigenization, and self-sufficiency in defence production are critical drivers for the development of indigenous weapon systems.
6. **Technological Progress:** Advances in military technology around the world, such as rapid breakthroughs in artificial intelligence, missile technology, cyber warfare, and electronic warfare, push India to modernize and keep up with global trends.
7. **Modernization of the Military:** It is continuously required that we replace outdated equipment and modernize the armed forces is a continuous driver for weapon development.
8. **Export Possibilities: I**ndia's expanding defence sector is looking for export options for its weapon systems, which can help offset development costs and boost the country's standing as an arms exporter.
9. **Political Leadership:** Political leadership and strategic vision can also influence weapon development and defence policy. In consultation with the Chiefs of AirForce, Army and Navy, the government understands their requirements and accordingly allocate funds for upgradation and Acquistion of weapons with the objective making the defence stronger to withstand any challenge from neighbouring countries.

Future Weapons:

A number of future weapons can be developed based on the Emerging technologies which have been discussed earlier in the paper. Some of the weapons are:

- **Sapper Scout-** It can potentially be used for Mine detection, minefield marking and long-range surveillance.

- **Swarm Drones-** Beyond Visual Line of Sight attack capabilities, detect enemy ground activities and target enemy ground forces make it a potent weapon for operations.
- **Autonomous Fast Intercept Boat-** Autonomous operations for search and rescue, Special Forces, Training and surveillance.
- **Cognitive Radar**- It has the capability to be used as filter for ballistic missiles.
- **AirBorne Electro-Optic Infrared System**- Multimode maritime surveillance for ships, cruisers, boats and border surveillance.
- **Project Seeker-** It is a facial recognition system which can be used for Counter terrorism, Securing places of strategic importance and intelligence analysis.
- **Chimera 22- Smart Camera-** Drone and intrusion Detection, Security and surveillance.
- **Lynx-U2-** It is Gun fire control system which helps in anticipating system's health condition much prior to avoid severe damage or any malfunction. It helps in proper planning and replacement of spares.
- **Hypersonic glide** vehicles (HGV) can travel up to Mach 5, or 1 mile per second. Hypersonic Glide Vehicles (HGVs) manoeuvre swiftly, flying at low altitudes, evading radar detection, and changing course efficiently. Despite being slower than ballistic counterparts, they excel in avoiding interception.
- **Directed Energy Weapons-** High energy laser and high powered microwave weapons. High-Energy Lasers (HELs) come in various forms, serving roles such as short-range air defence (SHORAD), countering unmanned aircraft systems (C-UAS), and protecting against rocket, artillery, and mortar threats (C-RAM).
- **Quantum technology'**s military applications may not be immediate, but its impact on sensing, encryption, and communication is promising. Quantum sensors offer potential in GPS-denied environments, detecting submarines, underground structures, and nuclear materials. Quantum computing could enhance AI, machine learning, pattern recognition, and precision in LAWS.

Besides from these technologies other weapons are:

- **Third Generation Helicopter Launch Anti-Tank Guided Missile (Helina/Dhruv Astra):** A helicopter-launched anti-tank guided missile with lock-on-before-launch capability.

- **Akash New Generation (NG):** A surface-to-air missile designed to intercept high manoeuvring, low radar cross-section aerial threats.
- **BrahMos-II Hypersonic Missile:** A hypersonic cruise missile with a range of up to 1500 km.
- **Light Bulletproof Jacket by IIT Delhi:** Bulletproof vests made with advanced materials for protection and lightweight design.
- **Indian Army's PARA SF Test Jetpack Suit:** A jetpack suit for rapid travel across challenging terrains.

Some Drones & Anti-Drone Systems:

- **ALFA-S:** A disruptive technology solution for air-launching swarming UAVS from fighter aircraft. These fixed-wing multi-role UAVS enable network-centric missions.
- **TRINETRA:** An autonomous electrical loitering munition system with a 15 km range and 60 minutes of endurance. It can be hand-launched or canister- launched, and it functions as a kamikaze autonomous attack drone with parachute recovery and reusability.
- **Electro Optical Drone Payload:** It's a customized advanced CMOS imaging system for high-resolution and high-altitude imaging on drones.
- **Anti-Drone Defence System:** This system utilizes cutting-edge Al and computer vision for illegal drone detection and disabling. It can detect up to 15 drones with a detection distance of up to 20 km within a semi-spherical radius. It also recognizes drone flight patterns.
- **DRONAAM Counter Drone Series:** These advanced jammers are available in rifled, manpack, and mounted configurations to protect against hostile unmanned aerial systems (UAS). They offer various ranges and directional coverage, ensuring fast interception and upgradability with custom frequency options.
- **DRISHTI 10:** Developed for challenging surveillance and reconnaissance missions, DRISHTI 10 is an indigenized platform with a wide range of capabilities across structures, payloads, avionics, and ground systems. Notably, it's the only military unmanned platform certified to fly in civilian airspace, holding STANAG 4671 certification.

These technologies enhance India's capabilities in UAV operations and countermeasures, enabling a wide range of applications, from surveillance and reconnaissance to counter-drone defence.

Policy Initiatives By The Government To Encourage R&D And Production:

In the recent times the Government of India has taken various initiatives to encourage R&D in defence production. Some of the initiatives have been discussed below:

- **Defence Production Capability**: India has made significant progress in designing and developing a wide range of defence and aerospace equipment, including artillery guns, tanks, heavy vehicles, mine-protected vehicles, small arms, armoured materials, ammunition, and more.
- **FDI and Streamlined Licensing:** The government increased the Foreign Direct Investment (FDI) limit in defence from 49% to 74% and up to 100% through the government route, facilitating access to modern technology.
- **Make in India Initiatives:** Initiatives like the Make-I and Make-II procedures encourage indigenous development and manufacture of defence equipment. Funding support and relaxed eligibility criteria are provided to the Indian industry.
- **Innovations for Defence Excellence (IDEX):** iDEX focuses on fostering innovation and technology in defence production by engaging various stakeholders, including MSMEs, startups, and R&D institutes.
- **Mission Raksha Gyan Shakti (MRGS):** An Intellectual Property Rights Facilitation Cell has been established to support innovation and technology development in defence production.
- **Green Channel Certification:** The Green Channel Policy aims to promote ease of doing business and encourage 'Make in India' by simplifying procurement of defence stores and spares.
- **Testing Facilities:** Government testing facilities are made available to the private sector to facilitate testing of defence equipment and components.
- **Modernization Efforts**: India is modernizing its armed forces through initiatives like Integrated Theatre Commands (ITCs), Integrated Battle Groups (IBGs), and the Integrated Capability Development System (ICADS). Focus areas include mechanized forces, infantry, artillery, army air defence, and army aviation.

- **Alignment with 'Make in India':** The Indian Army's capability development plans are aligned with the 'Make in India' initiative to promote self-reliance in defence equipment.
- **Army Design Bureau**: The Army Design Bureau supports and develops the Indian defence industry to achieve self-reliance by publishing Problem Definition Statements.
- **Ammunition Improvement:** Efforts to enhance ammunition stocks include Ammunition Roll on Plan and Ammunition Road Map. There's a focus on building indigenous capacity for ammunition production.
- **Al-Based Capabilities:** A high-level Defence Al Council (DAIC) has been established to assess the strategic applications of Artificial Intelligence (AI) in national security and defence. A Defence AI Project Agency (DAIPA) will focus on AI-based systems and processes.
- **Indigenization Policy**: The Indigenization Policy aims to create an ecosystem for the indigenization of defence components and spares, fostering the development of the defence manufacturing industry.
- **Defence Investor Cell (DIC):** DIC facilitates investment in the defence production sector and interacts with potential investors regarding policy and projects.
- **DPIT Division:** The Defence Production Information Technology Division is responsible for implementing IT-related initiatives in the defence production sector.
- **Strengthening of Defence PSUs and OFB:** Various steps have been taken to strengthen and expand the activities of Defence Public Sector Undertakings (DPSUs) and Ordnance Factory Board (OFB).

These initiatives collectively demonstrate India's commitment to developing a self-reliant and technologically advanced defence manufacturing ecosystem. They also aim to streamline the procurement process, encourage innovation. and promote 'Make in India' in defence production.

Ethical and economic concerns/national policies needed to be kept in mind while seeking progress in the field of military and weapons development:

Ethical concerns:

The development of weapons carries significant implications for human rights, peace, and justice, and it's pivotal to consider the potential violations of these principles. Scientists involved in military work have a responsibility to uphold professional ethics and social responsibility. They need to be apprehensive of the ethical concerns related to autonomous weapons systems, like drones and robots, that can operate without human intervention.
Effective oversight and regulation of weapons development are the responsibilities of the state and society. Transparency, accountability, and ethical review are essential aspects of controlling this development. Cybersecurity is an emerging risk, as cyberattacks and hacking can compromise the integrity and security of weapons systems, posing risks to users, targets, and third parties.

Balancing national security with global stability is challenging, as weapons development, while aimed at safeguarding national interests, can lead to rivalries, conflicts, and arms races with other nations, threatening global peace.

Dual-use technologies, which have both civilian and military applications, add complexity to the issue. Ensuring that these technologies are used for peaceful and beneficial purposes rather than harmful ones is essential, and India should carefully manage its dual-use technologies to prevent misuse.

Economic Concerns:

Economic concerns in military and weapons development in India revolve around various key issues:

- **Cost and Affordability:** Developing weapons requires significant resources, including funding, personnel, materials, and infrastructure. These endeavours can be costly, and India's defence budget is around 2.1% of its GDP. Delays and uncertainties can further increase costs.
- **Efficiency and Effectiveness:** Weapons development should focus on enhancing the capabilities and responsiveness of the armed forces to evolving security threats.

Compatibility with existing systems and platforms is vital for seamless integration across different military domains.

- **Self-Reliance and Indigenization:** India aims to achieve self-reliance by developing and producing weapons domestically. This approach enhances autonomy, security, and competitiveness while fostering economic growth, employment opportunities, and innovation. India has initiated programs like Make in India, but it remains a significant arms importer.
- **Resource Allocation:** Weapons development requires making decisions about resource allocation. India must carefully evaluate the costs, benefits, trade-offs, and opportunity costs involved in pursuing its military objectives.
- **Innovation and Competitiveness**: Keeping pace with evolving technologies and global security threats requires a culture of innovation and competitiveness in weapons development. India faces challenges in fostering this culture, including a lack of incentives, funding, infrastructure, skills, collaboration, and intellectual property rights.
- **Sustainability and Security:** Long-term viability and safety of weapons systems and technologies are essential. It's crucial to consider environmental, social, and ethical impacts. However, India faces challenges in ensuring the sustainability and security of weapons development due to factors like a lack of awareness, regulation, enforcement, and accountability.

What is the current role of defence sector in strengthening the Indian Economy and what is the future role?

The defence industry in India is of strategic significance and has witnessed substantial growth and reforms in recent years.

- **Size and Budget:** India is one of the world's largest military forces, with over 1.44 million active personnel. The budget allocated for the Indian military for the fiscal year 2021 was roughly ₹4.78 lakh crore, whereas in 2023 an amount of 5.6 lakh crore has been allocated.
- **Increased Budget Allocation for Domestic Industry:** In FY 2023-24, a record 75 percent of the defence capital procurement budget has been earmarked for the domestic industry, which is up from 68 percent as compared to previous year.

- **Total Budget and Modernization**: The Ministry of Defence (MoD) has been allocated a total budget of ₹5.94 lakh crore for FY 2023-24, with primary aim to modernize and develop infrastructure, which also includes a capital outlay of ₹1.63 lakh crore.
- **Government’s Role in Supporting FDI In defence sector:** The government has enforced measures with the aim of simplifying the procurement procedure for defence products, provide funding support to over 70 percent of development costs, and increased the foreign direct investment (FDI) limit to 74 percent through the automatic route to boost investments in the sector.
- **Export Growth:** The Indian defence industry has shown significant growth in exports, with defence exports growing tenfold to ₹15,921 crore in 2022-2023.
- **FDI Reforms:** The Indian defence sector has undergone significant FDI reforms, allowing up to 100% FDI through the government route wherever it can result in access to modern technology.
- **Government's Role:** The government has played an active role in supporting FDI in the defence sector. Reforms and initiatives such as "Make in India," establishment of defence corridors, and policy changes have encouraged partnerships between foreign and local manufacturers and increased FDI inflows. The two defence corridors in Tamil Nadu and Uttar Pradesh are expected to attract significant investments by 2024-25.

These developments demonstrate India's commitment to strengthening its defence capabilities, fostering a self-reliant defence industry, and encouraging foreign investment and technology transfer to support the defence manufacturing sector.

Future Role:

India is seeking to achieve a target of Rs 35,000 crore in defence exports by 2025. The focus is shifting from import negotiation and rear-engineering to technology development. To become a global leader, the defence industry aims to develop major platforms and systems, factors, and sub-systems with a distinctly Indian identity, from design to conservation. This approach is anticipated to produce jobs, enhance tone- reliance for the Armed Forces, and boost exports. While defence spending as a chance of GDP has declined, India's nominal defence budget nearly doubled between 2009 and 2016, with continued growth anticipated.

India has ambitious plans to spend USD 250 billion on defence procurement over the coming years by 15 times to contemporize its magazine in response to changing geopolitical scripts. The focus is on indigenization, with a thing to reduce defence outfit significances to 30 by 2027.

Strategic hookups with long-term investment in product, exploration and development, seller base expansion, pool development, and commitment to indigenization are considered pivotal for India's defence industry.

What are the actual chances of India becoming the strongest nation (from defence point of view)?

India's fortified forces, comprising the core service of India and the Indian Paramilitary Forces, form a redoubtable defence association. The service of India, with the largest active-duty force encyclopaedically, and the Indian Paramilitary Forces, a million strong, make India's total fortified forces the world's third largest, boasting a combined strength of labour force. The Indian Army stands as the world's largest by the sheer number of fortified labour force. The Indian Air Force ranks fourth encyclopaedically and is laboriously working on developing advanced combat aircraft, including fifth-generation covert aircraft. The Indian Navy, the world's fifth largest, possesses blue- water capabilities, including bullet-able warships, aircraft carriers, advanced submarines, and slice-edge technology. India has also successfully conducted nuclear tests and has the means to deliver nuclear munitions over long distances specially, India isn't a signatory to the Nuclear Non-Proliferation Treaty due to security reasons. India's military modernization is facing a critical juncture, and addressing various external and internal challenges requires a strategic overhaul rather than merely providing resources.

Key points include:

- **Transformational Overhaul Needed:** India must undergo a transformational overhaul of its institutions and procedures to fulfil its global aspirations and expand beyond its subcontinental focus.
- **Defence Acquisition Reform:** India's complex defence acquisition process, which mandates foreign defence firms to source over 30% of their products from India, hampers the acquisition of advanced equipment and requires reform.

- **Ministry of Defence Competence:** The Ministry of Defence needs to improve its competence to combat corruption and bureaucratic inefficiencies, particularly ascertain sectors of the armed forces urgently require new equipment.
- **Expeditionary Capability**: To become a great military power and a net security provider in the Indian Ocean and beyond, India must develop expeditionary capabilities, transcending its continental limitations and embracing a truly oceanic role.

In summary, India's military modernization requires comprehensive changes, including reforming defence acquisition, enhancing competence in the Ministry of Defence, and reshaping the composition of the armed forces to adapt to evolving strategic challenges and regional dynamics.

By 2050, India is anticipated to have increased the size of its fortified forces to at least four million. As well as boosting the size of its service, India may seek to enhance the complication of its specialized capabilities, sourcing slice-edge technology from transnational mates similar as the US and Israel, potentially through co-development enterprise with Indian enterprises. India may also conduct common military exercises in the region with countries similar as Australia, Singapore, Japan, the US and Indonesia. As well as boosting its own capabilities, similar exercises could be used as a strategic messaging tool towards China.

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Health Decision-Making In Post-Pandemic Times: Study Of Urban Slum Dwellers Of Western Suburban Mumbai

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Abstract:

This study delves into the health decision-making processes among urban slum dwellers in Western Suburban Mumbai, with a specific focus on the post-COVID-19 pandemic landscape. Utilizing in-person interviews and a descriptive survey design, the research identifies key factors influencing health decisions, encompassing access to formal healthcare, socioeconomic considerations, and environmental challenges. Significant findings indicate an increasing preference for private healthcare linked to higher income levels, highlighting the intricate relationship between economic status and healthcare choices. Furthermore, a substantial proportion of respondents express a preference for non-traditional therapies, emphasizing diverse health management approaches within slum communities. The study underscores the significance of digital media, particularly social platforms, as primary sources of health-related information.

In addressing literature gaps, the research advocates for adaptable and culturally sensitive interventions, drawing inspiration from successful global healthcare programs. Recommendations include influencer engagement, gamification of health services, and AI-driven feedback loops. The study provides valuable insights for policymakers, scholars, and healthcare practitioners to enhance the health outcomes of marginalized urban populations, with a focus on inclusive policymaking. The report suggests future expansion to encompass additional Mumbai slums, offering a foundation for evidence-based policies and targeted interventions across diverse urban settings.

Keywords: *Health decision making, Urban slum dwellers, COVID-19*

Introduction:

The Western Suburban Mumbai urban slums are a dynamic and multifaceted environment characterised by issues that have a significant impact on the residents' decision-making regarding their health. Understanding how residents make healthcare decisions in the wake of the COVID-19 epidemic is crucial because of the distinct socioeconomic and environmental elements influencing their experiences. This study explores the complexities of health decision-making in the slums of Mumbai, providing insights that help guide focused interventions and illuminating the effects of the pandemic.

Finding important variables impacting the health-related decisions made by slum residents in Western Suburban Mumbai is the main goal of this study. The goal of the study is to provide light on the complex relationship of socioeconomic factors, environmental factors, and formal healthcare access while making decisions about one's health in an urban context. The COVID-19 epidemic provides a crucial context, further complicating the already difficult health situation in the slums.

Urbanisation trends and the increase of non-communicable diseases present serious concerns as the world's population soars above 8.1 billion by 2025, especially in highly populated urban regions like Mumbai's slums. This study expands on prior research that demonstrates the complex interrelationships among environmental challenges, poverty, and the scarcity of formal healthcare infrastructure. It underlines the urgent need for specialised initiatives to address the specific health challenges of slum inhabitants, aligned with the Sustainable Development Goal 3.

In order to capture the complex dynamics of health decision-making, this study's methodology combines in-person interviews performed in a variety of slum sites with a descriptive survey design. The goal of the research is to provide a thorough understanding of the various approaches to health management inside the slum communities by investigating the preferences for private healthcare, alternative remedies, and the influence of digital media.

The assessment of the literature highlights the gaps in the body of knowledge, most notably the dearth of studies on health-related decision-making conducted after the epidemic and the underappreciation of behavioural economics in these efforts. The study fills up these gaps by providing insightful information about the intricate interactions between variables influencing health choices in urban slums after a pandemic.

This study, which takes inspiration from effective international healthcare initiatives, promotes flexible and culturally aware solutions through a thorough examination of the data. The suggestions made, which include gamification of health services, influencer involvement, and AI-driven feedback loops, are meant to offer creative and focused ways to enhance health outcomes in these marginalised populations.

To sum up, this study provides vital insight into the health decision-making processes of urban slum inhabitants in Western Suburban Mumbai following the COVID-19 pandemic. The research contributes to the overall objective of sustainable development by developing resilient urban communities, providing a road map for inclusive policymaking, and dissecting the complexity and providing evidence-based insights.

Aim of the Study:

- Identify the key factors that influence the health decision-making of slum dwellers in Western Suburban Mumbai.
- Understand the impact of the COVID-19 pandemic on the health decision-making of slum dwellers.
- Develop and evaluate effective interventions to promote health decision-making among slum dwellers in Western Suburban Mumbai.
- Use tools of behavioural economics to develop interventions to promote better healthcare Statement of Problem / Relevance.

Review of Literature:

Naydenova, E., Raghu, A., Ernst, J., Sahariah, S. A., Gandhi, M., & Murphy, G. (2018) This study focuses on the major healthcare issues in the urban slums of Mumbai, India. It considers the worldwide population increase and rising urbanization patterns, which are expected to result in a world population of 8.1 billion by 2025. This study analyses the significant healthcare concerns within urban slums in Mumbai, India, against the backdrop of global population increase and growing urbanization, with a predicted world population of 8.1 billion by 2025. The study highlights the intricate nature of factors that influence health in slums, specifically the accumulation of harmful consequences resulting from poverty, environmental difficulties, and restricted availability of formal infrastructure and services. It underscores the pressing requirement for India to prioritize slum populations in order to accomplish Sustainable Development Goal 3. Beyond infectious diseases and maternal health, the rising burden of non-communicable diseases (NCDs) is addressed, with specific concerns concerning malnutrition and gestational abnormalities in pregnant women. The literature underlines the scarcity of comprehensive, population-based data on slum health, urging for improved data collecting and spatial identification of slums in national censuses. The study's methodology focuses on parents of young children in 13 slum regions to gain insights about healthcare choices and problems. Ethical issues were prioritized, with strong participant response rates and preliminary results generating useful information on the socio-economic profile and lifestyle characteristics of the study group. In summary, this research enhances our comprehension of the complex health situation in the urban slums of Mumbai and provides valuable knowledge for developing efficient healthcare policies and treatments.

Pandey, S., et al. (2020) In this detailed analysis of the role of slum leaders during the COVID-19 pandemic, the research explores the multiple obligations and constraints encountered by these informal community authorities. The study gives light on the preeminence of political networks in establishing the information landscape within slum settlements, emphasizing the relevance of social media, party workers, and senior politicians. Notably, the leaders' effectiveness in communicating critical information about government aid programs is evaluated, suggesting significant variability in their awareness. The inquiry goes into the leaders' interactions with legislators, underlining the essential importance of education and partisan embeddedness. While schooling positively coincides with scheme awareness and political responsiveness, slum leaders anchored in local party organizations demonstrate more efficacy. Importantly, the report stresses the gendered dimension of slum leadership and suggests for greater research on women's networks throughout the epidemic. The conclusion underscores the lasting significance of slum leaders, albeit with differences in their capacities, and emphasizes the requirement of inclusive participatory procedures that account for these variations and challenges within slum communities.

Gap Analysis:

- The current literature generally focuses on generic education and awareness activities, sidelining the specific requirements of those dwelling in slums.
- There is a notable scarcity of research on health-related decision-making in the aftermath of the pandemic, with a particular lack of inquiry into the function of COVID in shaping these decisions.
- Despite its potential, there is a noticeable underutilization of behavioral economics in solving health-related decision-making difficulties, hampering the development of targeted and effective solutions.

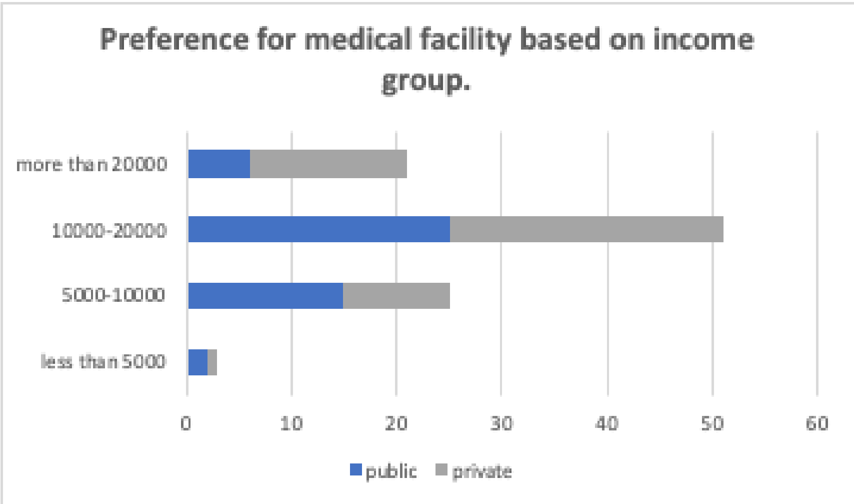
Methodology:

The methodology followed includes descriptive survey design method as it helps to identify the influencing characteristics in the target population. Primary data has been collected by the method of physical interviews in the localities of western suburb of Andheri, Vile parle, Goregaon, Juhu, Khar, Santacruz and Bandra in the month of September 2023. A sample size of 100 was randomly selected based on subject's availability with each interview lasting an average of 8 - 12 minutes. The interviewers were also trained to translate or recites the questions in the language such as Hindi and Marathi for better understanding of the subjects in order to curb projection bias.

Sample size: 100
Average interview duration: 8-12 mins
Interviews conducted: Month of September 2023
Slum localities covered: Andheri, Vile parle, Goregaon, Juhu, Khar, Santacruz and Bandra

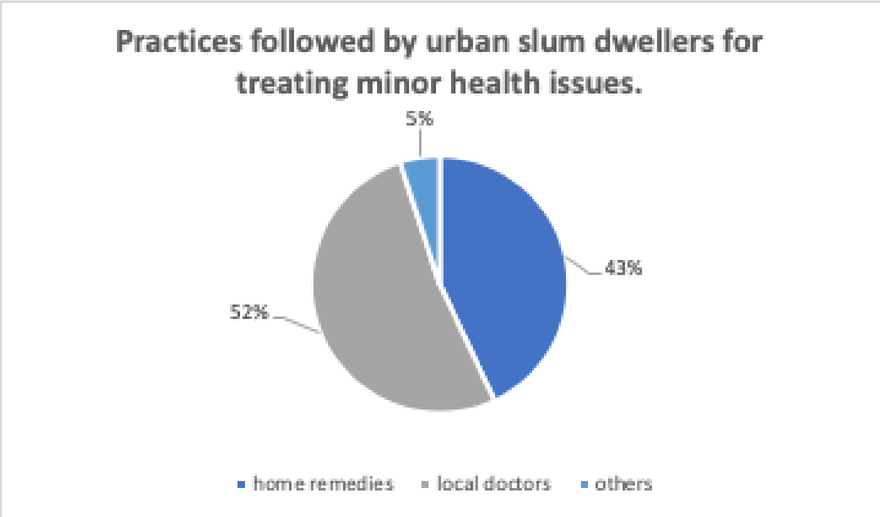
Observation & Analysis /Findings:

The research indicates a striking pattern demonstrating an increasingly strong preference for private healthcare services as income levels climb. This observed shift emphasises a considerable association between greater financial status and an increased desire for private medical services. As individuals see an improvement in their economic position, there appears to be a matching increasing trajectory in their choice of healthcare providers, choosing private institutions over public ones. This preference may be due to perceived quality, tailored treatment, and speedier access to medical resources. The findings shed light on the delicate interplay between economic affluence and healthcare decisions, delivering useful insights into the dynamics of healthcare preferences within different income categories.

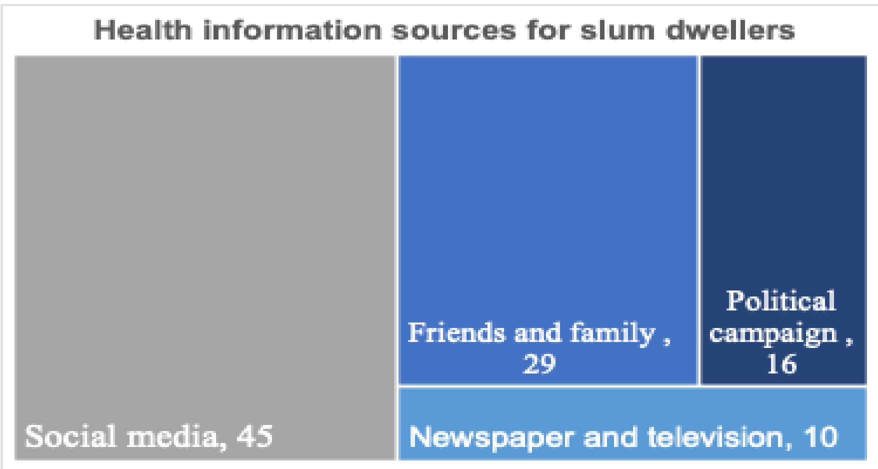


52% that is the majority of the slum residents chose to visit doctors for minor health issues, demonstrating a dependence on professional medical advice. However, a sizable 43% of the tested population still favors alternative cures and home solutions, indicating a notable variance in healthcare preferences. This shows a varied approach to health management among slum communities, with a large portion seeking non-conventional techniques. The findings underline the need of recognising diverse healthcare practices and integrating culturally sensitive techniques to serve the varying health requirements of slum people.

Expanding the sample size to include persons from the 5000-10000 and less than 5000 demographic may suggest a heightened tendency towards alternative and home cures over local doctors. This idea derives from the anticipation that a larger and more diversified participant pool will better capture complex preferences. By adding broader socioeconomic categories, the study attempts to find trends showing an increased possibility of individuals opting for unorthodox healthcare options. This strategic expansion strives to strengthen the robustness of findings, offering information on developing healthcare preferences within diverse population segments.



In urban slum communities, digital forms of media, particularly social media platforms, have emerged as the primary source of information on health and several other topics. The broad accessibility of smartphones has improved the rapid dissemination of information, enabling residents to keep informed about health-related issues, preventive actions, and community resources. This digital connectivity has bridged information gaps and empowered individuals with useful insights. Following digital media, friends and family play a significant role as trusted sources, boosting interpersonal interactions and support networks. While political campaigns dominate attention, newspapers and printed materials maintain a somewhat lower priority, illustrating the developing dynamics of information consumption in urban slum areas.



Recommendations:

Many countries have incorporated various healthcare interventions to improve the health scenario like Singapore's HealthPoints System where individuals earn points for engaging in healthy behaviors, points can be redeemed for discounts on healthcare services, groceries, or other essential items. Rwanda has a text message system in place which sends personalized health reminders via text messages. Taking inspiration from these models some of the recommendations which can be implemented include:

- Dynamic Social Networks: Influencer Engagement Strategy -
  To effectively harness influencers within the community, it is necessary to first identify key individuals with considerable influence in the social network. Utilize social network analysis tools to discover these influencers based on characteristics such as follower count, engagement levels, and content reach. Once identified, engage with these influencers to disseminate health information. Create alliances or collaborative opportunities that correspond with their interests and values. This collaborative approach promotes the legitimacy and authenticity of health information transmission. Regularly analyse and alter the influencer strategy to respond to shifting social dynamics.
- Dynamic Pricing for Health Services: Gamification and Loyalty Programs -
  Enhance the dynamic pricing model by introducing gamification aspects and loyalty programs. Introduce health-related challenges or activities during off-peak hours, providing consumers with additional discounts or rewards for participation. This not only stimulates the consumption of healthcare services during less crowded periods but also promotes a healthy lifestyle. Implement a loyalty program where consistent users earn tiered rewards or discounts, building a feeling of community and motivating continuous participation with health services. Regularly analyze user behavior and alter gamification features to maintain effectiveness.
- Dynamic Community Feedback Loops: AI-Driven Service Enhancements -
  Strengthen the mobile surveys and community forums by incorporating artificial intelligence (AI) algorithms for sentiment analysis and trend identification. Implement automated systems that analyze real-time feedback data, discovering patterns and opportunities for improvement. Utilize this information to build quick and responsive enhancements to health services. Additionally, develop a transparent feedback loop by

reporting the modifications made based on community input. Encourage continuing engagement through incentives or acknowledgment for valuable input. Continuously refine the feedback tools to respond to the shifting needs and preferences of the community.

Future Scope:

This study's scope can grow to incorporate other slums and regions in Mumbai, acting as a key foundation for inclusive policy formulation. Its findings can inform comprehensive health decision-making research, offering a valuable platform to address different urban concerns. By broadening the study's coverage, policymakers can design targeted interventions and initiatives to enhance the health outcomes of underrepresented communities. This larger applicability strengthens the study's value, promoting a sustainable framework for evidence-based policies that emphasise the well-being of disadvantaged groups in varied urban situations.

Conclusion:

To sum up, our research started with a thorough examination of the dynamics of health decision-making among Mumbai's Western Suburban slum dwellers, with a particular emphasis on the COVID-19 pandemic's effects. The goal of the research is to identify key factors influencing health decisions, examine pandemic-related variables, and use behavioural economics to create successful interventions. The literature review emphasised the need to give slum dwellers priority in the face of global urbanisation trends and population growth, highlighting the complex interactions between poverty, environmental challenges, and inadequate infrastructure.

The study used a descriptive survey design and conducted in-person interviews in a number of different slum areas. The results showed a noteworthy relationship between increasing income levels and a desire for private healthcare services, illuminating the intricate relationship between healthcare preferences and financial status. Furthermore, the survey revealed a variety of approaches to health management among slum populations, with a significant proportion endorsing home remedies and complementary therapies.

The study's sample size was increased in order to include a wider range of socioeconomic backgrounds and to improve our understanding of how healthcare preferences change across different population segments. In urban slums, digital media, especially social media platforms, have become the primary providers of health information, filling in knowledge gaps and enabling communities.

The recommendations, which offered strategies including gamification of health services, AI-driven feedback loops, and dynamic influencer involvement, were inspired by internationally successful healthcare initiatives. These suggestions aimed to improve community health outcomes by using innovative and focused methods.

As it projects its future reach, the report suggests that it be extended to additional Mumbai slums, highlighting its potential as a cornerstone forum for inclusive policymaking. By expanding its scope, the study aims to provide valuable insights for focused interventions and evidence-based policies that prioritise the well-being of disadvantaged populations in a variety of urban situations.

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A Study On How The Concept Of AYUSH And Our Traditions Helps In Managing Stress

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Abstract:

The stress level and the social outlook of majority of population have changed after and during the covid-19 Pandemics, people have faced many undesirable and difficulties (like isolation, financial problems, etc) due in which different people emerged in different way and with different outlook which is having a great impact on people stress level, how they perceive things or mental outlook, their personality, etc. As many people lost their jobs, their loved ones, etc it has led a deep and lasting scar and has shown a trend of increase in the stress level and anxiety of the world population. According to a report by CAITLIN TILLEY, HEALTH REPORTER FOR DAILYMAIL.COM in USA children as young as six year old are getting influenced and are talking about suicides; number of mental patient suffering from fever stress, anxiety or other similar aliment have increased in large numbers.

So there a need for a holistic and well tested method of stress management in our life. this study revolves around some of those ancient Indian method namely AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy) and our Indian way of living or our life style like public gathering, festival, social events etc. And their implication, concept, the public acceptance through sample survey and some second-hand research related to the issues and concept. Further the fact that it focuses mainly on youth rather than middle age, elderly or people from corporate world (as they are more prone to stress) and have mainly focused on stress level data from during and after Covid-19 Pandemic which distinguish this study from other.

Introduction:

Stress is a physiological and psychological reaction that happens when someone feels threatened or confronted with a difficulty. It is the body's normal response to demands and stresses, which may be internal (like fears about the future) or external (like a worldwide epidemic). Although stress is a natural part of life, persistent or severe stress can have a negative impact on one's mental and physical health.

The body engages the "fight or fight" reaction in response to a stressor, which causes the production of stress hormones including cortisol and adrenaline. This reaction sets the body up to meet the issue head-on or to run away from it. This reaction can be helpful in emergency situations, but persistent stress response activation can have harmful effects, including:

i. *Mental Health:* Chronic stress has been related to a variety of mental health conditions such as anxiety disorders, depression, and post-traumatic stress disorder (PTSD). Many people's problems have been compounded by the isolation and uncertainty caused by the COVID-19 epidemic.
ii. *Physical Health*: Physical signs of chronic stress include headaches, muscular tension, digestive difficulties, and sleep disruptions. Prolonged stress has also been linked to an increased risk of cardiovascular disease, impaired immunological responses, and worsening of pre-existing disorders.
iii. *Cognitive Function:* Stress can affect cognitive processes such as memory, focus, and decision-making. The "brain fog" that several people experienced during the epidemic is a sign of this cognitive influence.

The COVID-19 pandemic created enormous problems, altering the world in fundamental ways. As we recover from the crisis, it is becoming clear that the pandemic's repercussions go beyond physical health issues. Mental health, particularly stress, has arisen as a major problem in the post-COVID-19 age. The combination of uncertainty, isolation, economic turbulence, and health concerns has left an unmistakable impression on people all across the world.

According to a *World Health Organisation (WHO)* scientific brief, the global prevalence of anxiety and depression increased by 25% in the first year of the COVID-19 pandemic. COVID-19 is the pandemic's new face. COVID-19 has spread all over the world since its discovery in *December 2019 in Wuhan, China*, and the numbers are growing by the day. This illness can affect anybody, but children, elderly persons, pregnant women, and those with comorbidities are particularly vulnerable. The spread of coronavirus led in the closure of schools, companies, and public places globally, as well as the imposition of stay-at-home orders in many areas, bringing stress to people of all ages, genders, and socioeconomic backgrounds. The abrupt and unexpected changes brought about by the coronavirus pandemic are overwhelming for both adults and children, creating stress and provoking negative feelings such as fear, anxiety, and depression in many groups. Three prominent medical associations in the United States are pleading for more help and resources as children and teenagers with mental health difficulties crowd emergency rooms around the country. Children as young as six are being seen by doctors, often referencing suicide.

According to a collaborative publication from the American Academy of Paediatrics (AAP), American College of Emergency Physicians (ACEP), and Emergency Nurses Association (ENA), almost half a million children visit the emergency room each year with a mental health crisis.

Stress has developed as a global problem, particularly in the aftermath of the COVID-19 epidemic. Integrating traditional systems such as *Ayurveda, Yoga, Unani, Siddha, and Homoeopathy (collectively known as AYUSH)* can provide valuable tools for stress prevention and management, while embracing Indian culture, participating in public gatherings, and celebrating festivals can collectively foster holistic well-being and effectively prevent and manage stress as it celebrates togetherness, spirituality, and community. Public gatherings and festivals may and do play an important role in developing social relationships and offering a platform for stress reduction and management.

Stress is produced by an imbalance in the three doshas *(vata, pitta, and kapha)* and may be handled with a good diet, lifestyle, and herbal medicines, according to *Ayurveda*. *Yoga and Naturopathy* include numerous breathing, relaxation, and meditation practises to help calm the mind and body. To cope with stress, *Unani and Siddha* suggest herbal treatments and dietary changes. *Sowa Rigpa* is a Tibetan medical method that utilises natural materials to bring the body and mind back into equilibrium. *Homoeopathy* treats stress as a whole and employs individualised therapies to address the root cause.

A holistic approach to stress reduction incorporates AYUSH practises, Indian cultural values, public gatherings, and festive festivities. This comprehensive approach to stress management promotes physical health, emotional well-being, and communal relationships. As society navigates the post-pandemic landscape, these integrated solutions can result in a more resilient and harmonious existence, encouraging a higher quality of life for everybody.

Literature Review:

- **Ayurveda: -**

Ayurveda is a holistic system of medicine that originated in India over 5000 years ago. It is based on the principle of balance and harmony between body, mind and spirit. Ayurveda has many ways to help manage stress before and after COVID-19, for example: Follow an Ayurvedic diet that suits your body *(dosha)* and season. Ayurveda recommends eating fresh, healthy, natural foods that are easy to digest and nourish your body and mind. Some foods that help reduce stress include almonds, walnuts, dates, figs, bananas, milk, clarified butter, honey, saffron, cardamom, ginger, turmeric, and ashwagandha. Practice Ayurvedic self-care techniques *(din Acharya)* that promote health and well-being. Some of these practices are getting up early, brushing your teeth and tongue, drinking warm water, doing Yoga and *pranayama (breathing exercises)*, massaging your body with oil *(abhyanga)*, taking a hot bath, meditating and going to bed early. Use Ayurvedic herbs and spices with calming, rejuvenating and anti-inflammatory properties. Some of these herbs and spices include *Brahmi, shankhpushpi, jatamansi, Tulsi, licoricey, fennel, cumin, coriander, cinnamon, cloves, and nutmeg*. Ojas is the purest form of kapha dosha that nourishes your tissues and body. You can increase your energy by consuming energy-boosting foods such as milk, plain oil, almonds, dates, rice pudding, sesame, coconut, avocado. You can also increase your values by avoiding stress, anger, fear, stress, overwork, overeating, smoking, alcohol, drugs and negative emotions. Ayurveda can also help you recover from COVID-19 by reorganizing fire (digestion), eliminating ama (toxins), balancing energy (bi-energetic), and regenerating your body and heart.

***Gap: -** What effect do meditation and pranayama have on Ojas and cortisol levels in stressed people?*

***Solution:** - In Ayurveda, meditation and pranayama are considered as powerful tools for increasing Ojas and decreasing stress. They help in relaxing the nervous system, balance emotions, and balance the energy flow in the body. They also enhance self-regulation and raise awareness of one's inner state. Regular meditation and pranayama practise can strengthen the body-mind system's resilience and adaptation, as well as prevent or reverse the harmful effects of stress on health and well-being.*

- **Yoga:**

Yoga is an ancient practice that includes physical, mental and spiritual training. By improving your body's health and immunity. Yoga can help strengthen your muscles, bones, joints and body. It also improves your circulation, digestion, breathing and metabolism. Yoga can also strengthen the immune system by reducing inflammation and oxidative stress. Yoga can help you transcend yourself and connect with your true self. It also helps you improve memory, awareness and focus. Yoga can also help you reach higher states of awareness and well-being. Some Yoga techniques that can help you manage stress include: *Asanas* - These are physical poses that stretch and relax the body. They also improve your posture, balance, flexibility and coordination. Some examples of asanas include Tad asana (Mountain Pose), Bal asana (Child Pose), Vriksh asana (Tree Pose), Bhujang asana (Cobra Pose), Shavasana (Corpse Pose), etc. takes place. *Pranayama (breathing)*- These are techniques for controlling breath and energy. They also calm your nerves, lower your blood pressure and increase your oxygen consumption. Some examples of Pranayama are Anuloma Villoma (reversal of the nostril), Kapalbhati (shining skull), Bhastrika (bellows breathing), Ujjayi (breath of victory), etc. *Experience Meditation*-This is the practice of concentrating on an object. sound, mantra or thought. It can also help you calm down, reduce stress, and increase awareness. Some examples of meditation include Vipassana, Transcendental Meditation, Mindfulness-Based Stress Reduction (MBSR), etc. takes place.

***Gap:** - How does Yoga affect stress-related diseases and modify the ANS?*

***Solution:** - The autonomic nervous system (ANS) regulates the body's involuntary activities such as heart rate, blood pressure, digestion, breathing, and so on. It has two branches: the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS). Yoga is a mind-body practise that consists of physical postures (asanas), breathing exercises* *(pranayama), and meditation. Yoga has the ability to modify the ANS by activating both the SNS and the PNS in a balanced manner. Some asanas, for example, can boost SNS function by raising blood flow, oxygen intake, and metabolic rate.*

- **Unani and Naturopathy:**

Unani medicine is based on the four humors (blood, phlegm, yellow bile and black bile) and the four temperaments (holy, cool, nervous, nervous). Unani Medicine can help manage stress through diet, lifestyle, herbs, massage, cupping, leeches and more. According to Unani medicine, stress can lead to a lack of humour and emotion, leading to a variety of physical and mental ailments. To achieve balance, Unani medicine recommends eating lawful food (mizaj), avoiding unhealthy or incompatible foods (mukhaddirat), and following good health (hifzane sehat), including good sleep, exercise, hygiene and rest. Nani medicine also uses sedative, rejuvenating and anti-inflammatory herbs and spices. Some of these herbs and spices include Brahmi, shankhpushpi, jatamansi, Tulsi, licoricey, fennel, cumin, coriander, cinnamon, cloves, and nutmeg. Unani Medicine also recommends seeking consultation and treatment from a qualified Unani practitioner when symptoms or complications of COVID-19 occur.

Naturopathic therapy is a form of natural therapy that uses the power of nature to prevent and treat diseases. Herbs can help manage stress through nutrition, hydrotherapy, aromatherapy, Yoga, meditation, acupuncture, and many other methods. According to naturopaths, stress can inhibit the body's ability to heal itself and lead to many chronic and serious diseases. To enhance the body's ability to heal itself, naturopaths recommend a diet rich in fruits, vegetables, grains, nuts, seeds and protein. Naturopaths also recommend avoiding processed foods, refined sugars, caffeine, alcohol, smoking, and medications that can interfere with the body's immune system. Naturopaths also use natural remedies to help reduce stress and improve health. Some of these treatments include hydrotherapy (using different water and temperature), aromatherapy (using essential oils for inhalation or massage), Yoga (body movement and breathing), meditation (the practice of focusing on one object), or contemplation., acupuncture (a method in which thin needles are inserted into specific points on the body), and others. Naturopathic also recommends seeking consultation and treatment from a licensed naturopathic doctor if you have symptoms or issues with COVID-19.

Gap: *- How do Unani and Naturopathy compare and compliment each other in terms of stress management?*

Solution: *- Unani and naturopathy are both holistic systems of medicine that use natural remedies to help the body heal itself. They both understand the importance of mental and emotional health and use a variety of techniques to reduce stress and improve well-being. However, they also have some differences in their origins, philosophies, terminologies, and practices. By comparing and integrating Unani and naturopathy for stress management, one can obtain a better knowledge of each system's strengths and limits and potentially improve the quality and effectiveness of care for patients suffering from stress-related disorders.*

- **Siddha:**

Siddha is a traditional medicine system in the Indian state of Tamil Nadu. It is based on the concept of balance and harmony between the five elements (earth, water, fire, air and ether) and the three humors (vat a, pitta and kapha). Siddha recommends eating fresh, natural and easily digestible foods. Some foods that can help reduce stress are milk, clarified butter, honey, almonds, dates, figs, bananas, saffron, cardamom, ginger, turmeric, etc. Follow a healthy lifestyle that includes sleep, exercise, hygiene and rest. Siddha recommends avoiding bad health habits such as smoking, drinking alcohol, using drugs, working too much, eating too much. Use of herbs with healing, regenerative and anti-inflammatory properties. Some of these treatments include Brahmi (Bacopa monnieri), shankhpushpi (Convolvulus pluricaulis), jatamansi (Nardostachys jatamansi), Tulsi (Ocimum sainttum), licoricey (Glycyrrhiza glabra), fennel (Foeniculum vulgare), cumin (Cooniculum vulgare.), cinnamon (Cinnamomum verum), clove (Syzygium aromaticum), nutmeg (Myristicafragrans) and others. various Siddha herbs that can help manage stress are: *Amuk kara (WI Thania somnifera):* This herb is also known as Ashwagandha or Ashwagandha. It is a powerful adaptogen that helps your body cope with stress, boosting your energy and immunity. Can improve your mood, memory and cognition. *Nelli (Emblica):* This herb is also known as Amla or Indian Gooseberry. It is rich in vitamin C and antioxidants that protect your brain from oxidative stress and inflammation. It also strengthens your immunity and digestion. *Thumbai (Leucas aspera):* This plant is also known as doddapatre or Indian borage. It is a soothing herb that can help relieve stress-related headaches and migraines. It can also reduce fever and cough. *Vembu (Azadirachta indica):* This herb is also known as neem or Indian clove. It is an antibacterial and antiviral medicine that can help prevent and treat infections caused by COVID-19. It also cleans your blood and skin. *Senthil (Tinospora cordifolia):* This herb is also known as guduchi or amrita. It is a rejuvenating herb that boosts your immunity and growth. It also balances your fluids and detoxifies your body.

Gap: - *How does siddha choornam compare with other Unani and naturopathy interventions in terms of efficacy and safety for stress headache?*

Solution: - *Siddha choornam may be beneficial for stress headaches since it contains natural herbs with analgesic, anti-inflammatory, anti-stress, and neuroprotective qualities. However, scientific proof for its efficacy and safety is limited and must be verified via thorough investigation. By comparing it with other Unani and naturopathic approaches, one may acquire a better knowledge of each system's strengths and limits and potentially improve the quality and effectiveness of care for patients suffering from stress headache.*

- **Homeopathy:**

Homeopathy is an alternative medicine method based on the principle of "like heals". This means that a substance that causes symptoms in healthy people, when taken in very small doses, can treat similar symptoms in patients. Homeopathy can help manage stress before and after COVID-19, using a variety of treatments to help one's body and mind. Use the homeopathic remedy that suits you and your symptoms. Homeopathy has many solutions that can help you deal with different types of stress. For example, if you feel anxious, uncomfortable, scared, take aconite; arsenic if you are anxious, weak or anxious; if you are angry, if you are sad, if you are sad; You can take medication and take it often. Homeopathy uses medicines of different strengths (strength) denoted by numbers and letters, such as 6C, 30C, 200C. The higher the effect, the deeper and longer the effect. How long you take your medicine depends on the severity and duration of your symptoms. For anxiety, you can take a weak medicine (6C or 12C) every 15 minutes to 2 hours until you feel better. For chronic stress, you can take stronger medications (30C or 200C) once or twice a day for weeks or months. A homeopathic doctor can take your medical history in detail and recommend the right treatment for you based on your individual needs. A homeopath can monitor your progress and adjust your medications accordingly. Some homeopathic remedies Medicines that can help manage anxiety include: *Coffee:* Made from coffee beans, this remedy is effective for people with extreme stress and sleep problems. It can help calm the mind and promote sleep. *Ignatia:* St. Ignatia beans, this remedy is beneficial for those experiencing sadness, loss or disappointment. It can help relieve pain and restore balance. *Goo kiss:* This remedy is made from yellow jasmine and is beneficial for people who are nervous or nervous before an important event. It can help reduce fear and anxiety and increase confidence. *Chamomile:* This medicine made from chamomile flowers is beneficial for people who are nervous, impatient or impatient due to stress. It can help relieve restlessness and calm the nervous system.

Gap:* - *How effective are homeopathic remedies for PTSD compared to conventional treatments?

Solution: *- Homoeopathy may also address the individual's unique response to trauma and personalise the therapy to their own symptoms and personality. Homoeopathy may also offer fewer adverse effects and interactions than traditional therapies. However, the scientific evidence for its usefulness and safety in the treatment of PTSD is minimal and has to be verified via comprehensive study. By comparing it against other PTSD therapies, one may acquire a better knowledge of the strengths and limits of each strategy, potentially improving the quality and efficacy of care for PTSD patients.*

- **Collective Gatherings, Festivals And Traditions:**

Meetings, celebrations and traditions are essential elements of human culture and tradition. They can help manage stress associated with COVID-19, providing a range of benefits, including: *Creating a sense of belonging and community:* Meetings, festivals, and traditions can help people connect with others who share their values, interests, and identities. They can promote relationships, unity and cooperation among participants. These can help reduce the loneliness, isolation and conflict that leads to further epidemics. *Improves mood and health*: Meetings, celebrations, and traditions can help people experience joy, happiness, excitement, gratitude, fear, and wonder. They also stimulate the release of endorphins, dopamine, serotonin, and oxytocin in the brain, which are neurotransmitters that regulate mood, motivation, reward, and connection. These can help counteract the negative effects of stress, anxiety, depression, and fear that the virus can cause. *Promote diversity and creativity:* Meetings, festivals, and traditions help people celebrate and appreciate their own and others' heritage, expression, and innovation. They can also inspire people to learn new skills, explore new ideas, and create new and fun visuals. These can contribute to people's cultural capital, identity and self-confidence. *Build strength and stability:* Meetings, celebrations, and traditions can help people cope with depression and uncertainty by providing meaning, purpose, and hope. They can also promote practices and behaviours that benefit the environment and people. These helps foster a culture of care, responsibility and solidarity.

Gap: *- How do collective gatherings, festivals, and traditions foster cultural resilience and social capital in times of crisis?*

Solution:*Meetings, celebrations, and rituals are cultural patterns that can help people mana ge stress by providing them with a sense of identity, identity, language of meaning, and purpo se. They can also help people change by preserving and disseminating cultural values, knowl edge and skills. They can also help people collaborate and innovate by creating and strength ening relationships, relationships, and bridges. In doing so, they increase the culture and rel ationships between people and communities that are important for preventing depression and seizing new opportunities.*

- **Community and Social Support**

Community support and relationships are important to help manage stress before and after COVID-19. Here are some tips and advice*: Stay in touch with your family, friends, colleagues and neighbours* via phone, text, video chat or social media. Share your thoughts, concerns, and hopes with them. Give and get help when needed. *Join or create an online group or community that shares your interests, hobbies, values or goals.* Join an online event or activity that makes you happy, inspired or motivated. *Celebrate your own and others' cultural heritage, expression and innovation.* Learn about culture and traditions. Appreciate human diversity and creativity. *Seek help if you are anxious or show signs of anxiety or depression.* Contact your local health department or mental health services for information and support.

Students' conversation experiences before and during the COVID-19 quarantine in Germany also changed. Some specific concerns about COVID-19, social isolation, lack of interaction and emotional support, and physical isolation are associated with poor mental health. Some of the implications are: *Closure reduces the size and variety of student relationships.* Students rarely communicate with friends, classmates, teachers and acquaintances. In addition, face-to-face communication is less and online communication is more. *Being expelled from school causes students to feel stressed, anxious, depressed, lonely and bored.* These relate to specific concerns of COVID-19 (e.g., health risks, economic impact, social distancing measures), positive social isolation (such as lack of motivation, feedback, physical feelings) and physical isolation (such as lack of physical contact). sports, exposure to sunlight*). The need for social support and intervention for students was emphasized in the enrolment.* Students who received higher levels of social support reported experiencing stress, anxiety, depression, loneliness, and boredom. Students who had access to online counselling or therapy reported better mental health outcomes.

Gap:*How can online platforms and digital technologies support and enhance community and community support for stress management during the COVID-19 pandemic?*

Solution:*Online platforms and digital technologies; are tools that help people cope with stres s by providing information, resources, services, and collaboration. They also help people co mmunicate, discuss, collaborate and interact with others who share similar interests, values, goals or experiences. They also help people express themselves, create content, collaborate a nd contribute to causes. In this way, they can increase the level of community and support for individuals and groups important to mental health and well-being.*

- **Spiritual and Philosophical Insights:**

Spiritual understanding and reflection are the way to understand the meaning and purpose of life, especially in times of crisis and uncertainty. They can help manage stress before and after COVID-19, providing many benefits such as: *Provides hope and optimism:* Spiritual and emotional understanding can help people prevent the spread of fear and anxiety by providing perspective and vision for the future. They also encourage people to find joy and gratitude in the present moment, to appreciate the beauty and wonder of life. *Provide guidance and expertise:* Spiritual and emotional understanding can help people understand the difficult and stressful situations they face during a global pandemic by providing a framework and perspective to navigate challenges and opportunities. They can also help people learn from experiences and grow after challenges. *Reinforcing morals and behaviour:* Spiritual and emotional understanding can help people develop and maintain honesty, responsibility, and compassion during a pandemic by providing context and benefits that voluntarily guide their actions and decisions. They can also help people respect and care for themselves, others, nature and God. *Promote relationships and support:* Spirituality and empathy can help people connect and engage with others who share their beliefs, interests, and goals during a pandemic by creating a sense of community. They can also help people develop emotionally, mentally, physically and spiritually.

Gap:*How do different spiritual and emotional perspectives on the meaning and purpose of lif e compare and complement each other in times of crisis?*

Solution:*People have different ways of understanding and coping with life's problems, especi ally in times of crisis. Some people rely on their spiritual beliefs and practices, such as faith, prayer, meditation, or rituals. Others trust their thoughts, feelings, morals, or dialogue. Thes e different perspectives can provide insight and diversity, helping people cope with stress and find meaning and purpose in life. However, these views may differ or conflict on some import ant issues such as the nature of God, truth, human life or morality.*

These differences or conflicts can create some difficulties or problems for people during the c risis. Thus, people can reach different spiritual and emotional perspectives by learning from each other's experiences and thoughts and making comparisons. They can challenge and sup port each other through discussions, opinions and criticism. By doing this, they can cope with stress and find meaning and purpose in life.

Objectives:

1. To ascertain the stress level and its implication on people life after or during COVID-19 Pandemic.
2. To find out the how the concept of AYUSH (i.e., Ayurveda, Yoga, and Naturopathy, Unani, Siddha and Homoeopathy) helps in managing stress.
3. To find out how the Indian life style (i.e., tradition, various festival, gathering etc) impact in managing stress.
4. To find out what all Indian traditional aspects can we introduce in a management to reduce stress.

❖ Data and Methodology:

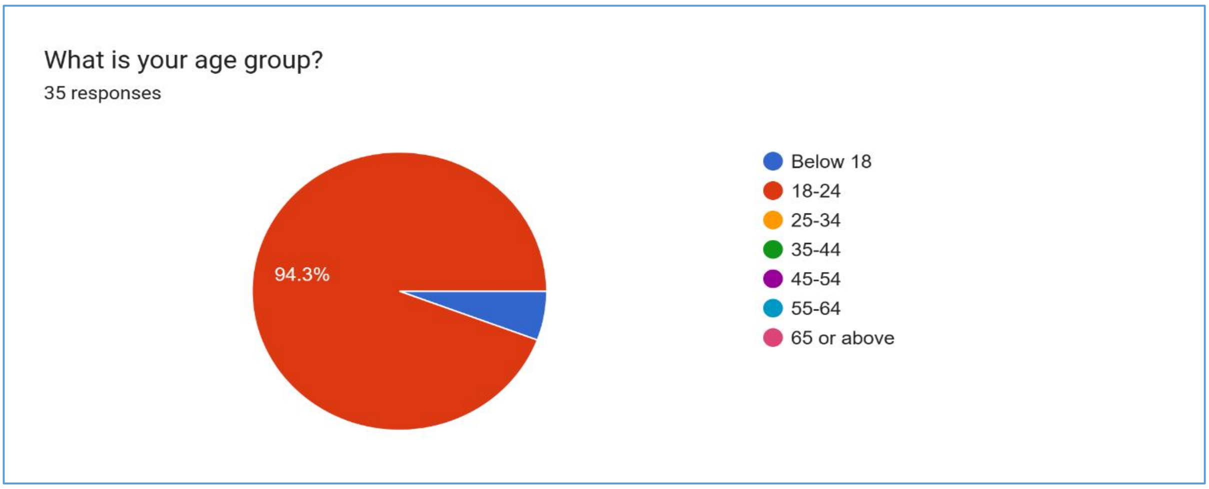
▪ Data Collection:

The Data for the research have been taken from both primary and secondary sources. *For the primary data* we have made a sample serve on Google Form mainly focuses on people stress level, its implication, and if they have tried any Indian ethos method mainly AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) or the impact of social gathering, festival, and our Indian culture life style in reliving or effect on the stress level.

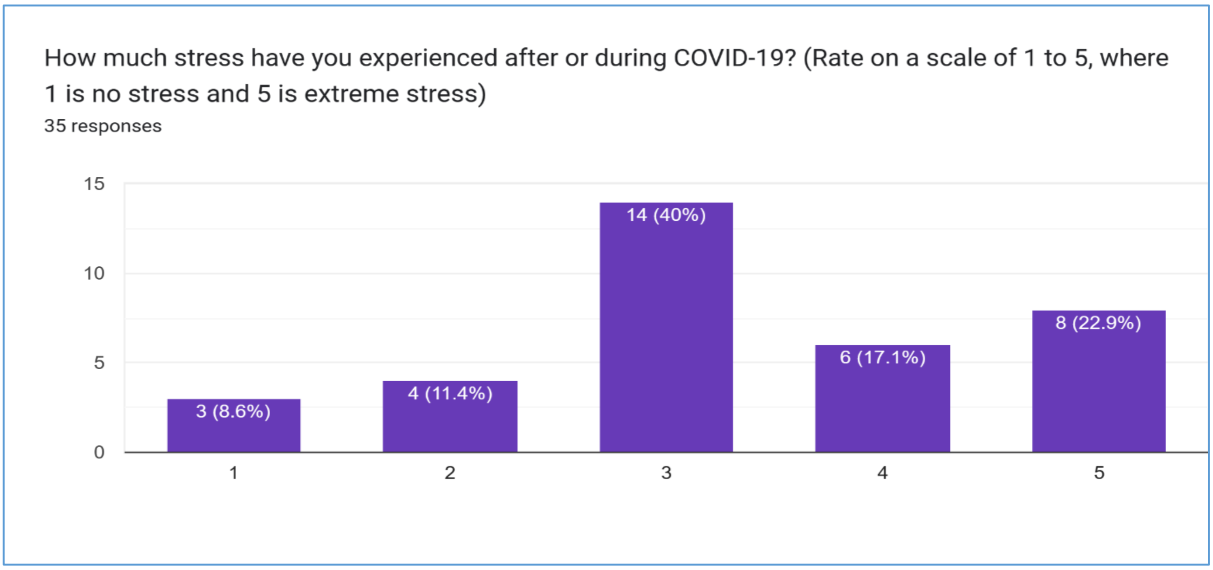
For the Secondary source, we have referred or read many books, website, Article on the concept of stress and the impact or changes world have witness after or during COVID-19 Pandemics; About AYUSH (i.e., Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy), its implication, effect, concept, and multiple ways of reliving or preventing stress and achieve holistic health; and how the multiple festival and public and social gathering helped in relieving stress by providing change of pace or recreation for the people, etc.

▪ Result and Discussion:

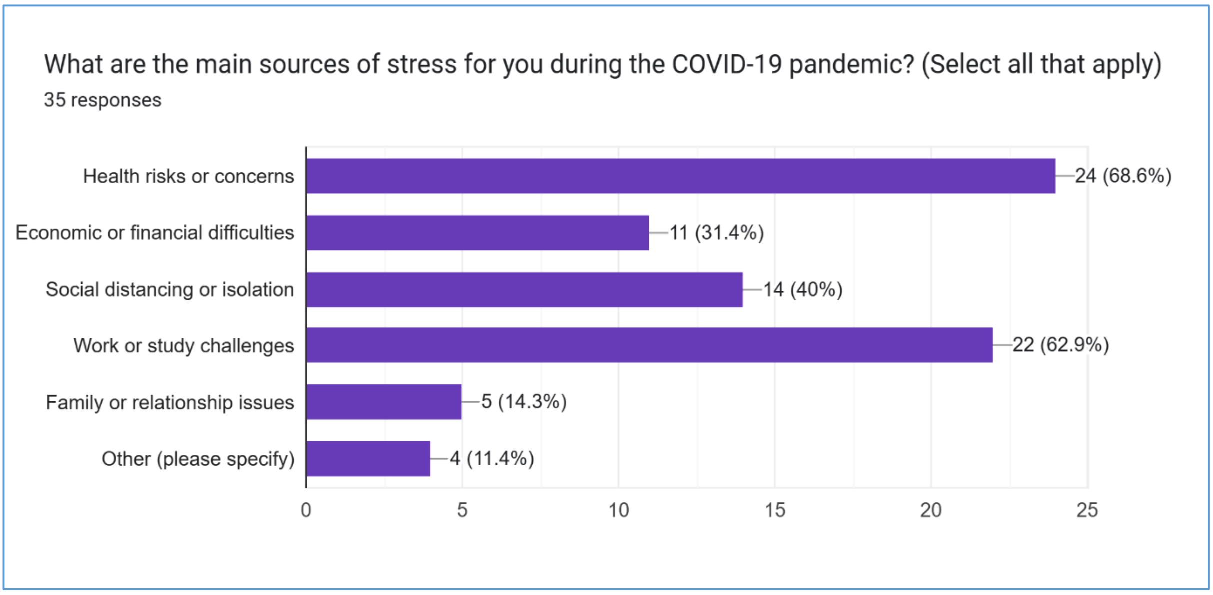
Stress has become a part of life or a way of life for many around the world. Stress, anxiety, depression in todays has become natural or a trend for say and the presence or history of covid-19 in recent year has add on to that trend by lockdown, isolation, financial problems or instability, lack of social support or public gathering, etc. So, a sample serve was conducted on the youth to understand how the covid-19 impacted them in terms of stress and if they have tried any Indian way or method mainly AYUSH ((ayurveda, Yoga and naturopathy, Unani, siddha, sowa rigpa, and homeopathy) or how social gathering, festival etc helped in managing or reliving stress. And the responses are:



The respondents are ranging below the age of 24 with the majority with 18 to 24, as it is mainly focused on youth or student who were going through multiple major changes or decision relating to career, entrance exam etc. and as this stage is very much responsible in drafting or developimg a career of an individual and other major decision or breakthrough.



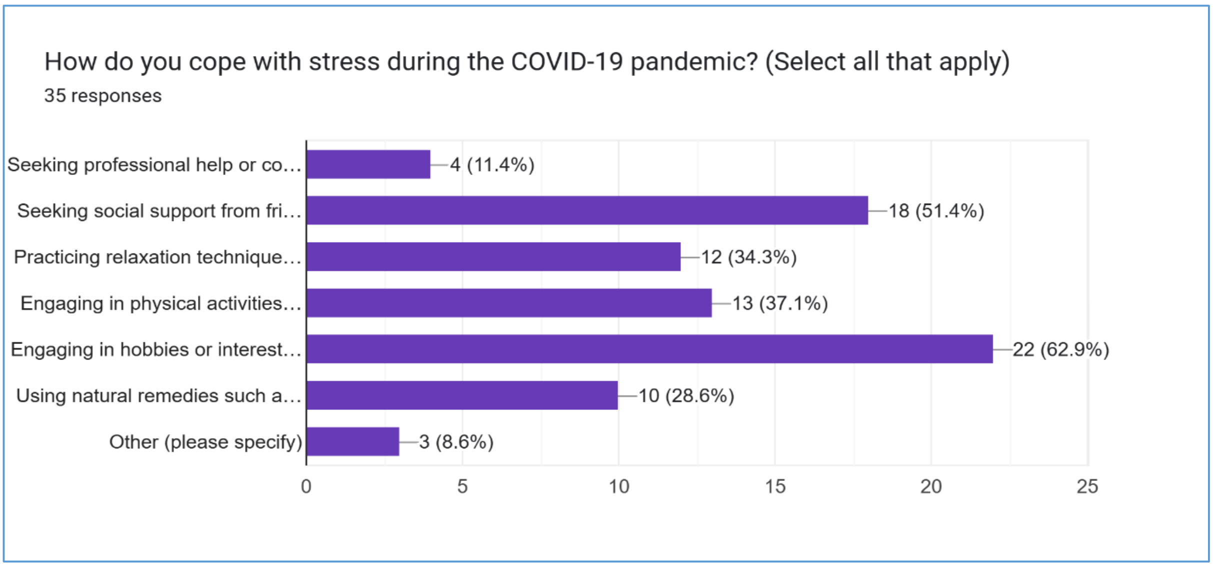
The stress level in youth ranges from 8.6% to 22.9% with people having no stress to people having extremely stress respectively, with the people with moderate stress level are the most common i.e., 40%. And comparatively there are more stressed than unstressed youth population.



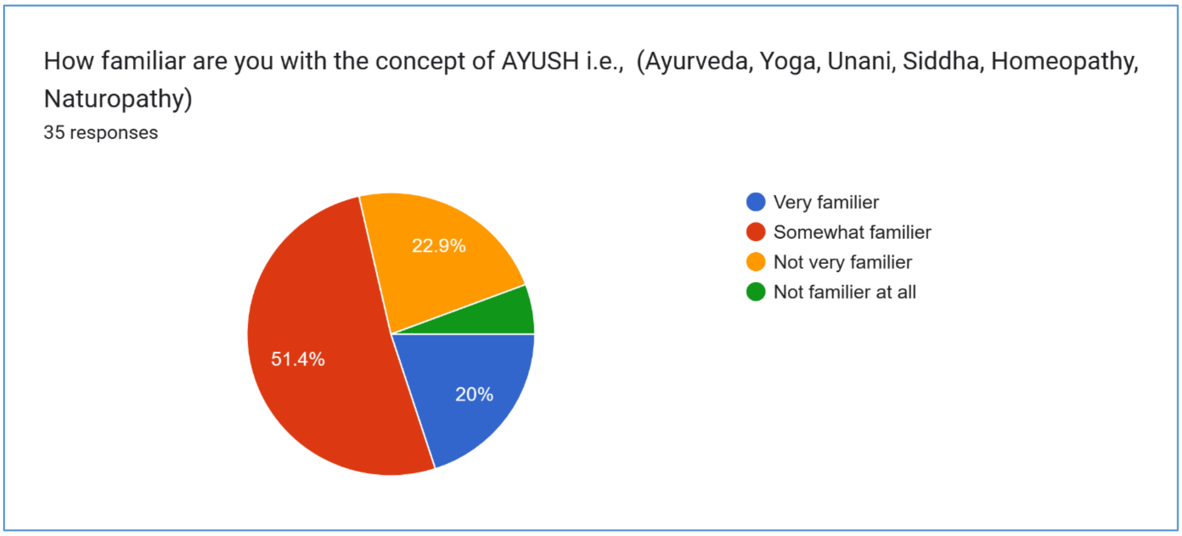
Here most of the respondents are mainly worrying about health risks or concerns (with 68.8%) as most of them are stuck due to a pandemic so they are being showered with news of death all around and many even witness deaths of their own loved ones and as they stuck in home with no access to sports or any physical activity some are obviously worried as youth gets easily concerned over there fitness or appearance;

31.4% of respondents were stressed due to economic or financial difficulties as during youth most of them have just started helping their parents and got permission to get actively involved in financial matter by their parents they are not yet adept or get used to handle this sort of problems so they get easily stressed and there are many cases of family were the main breadwinner of the family got infected or have already left for the afterlife so that can create a major and long-lasting stress on a youth life;

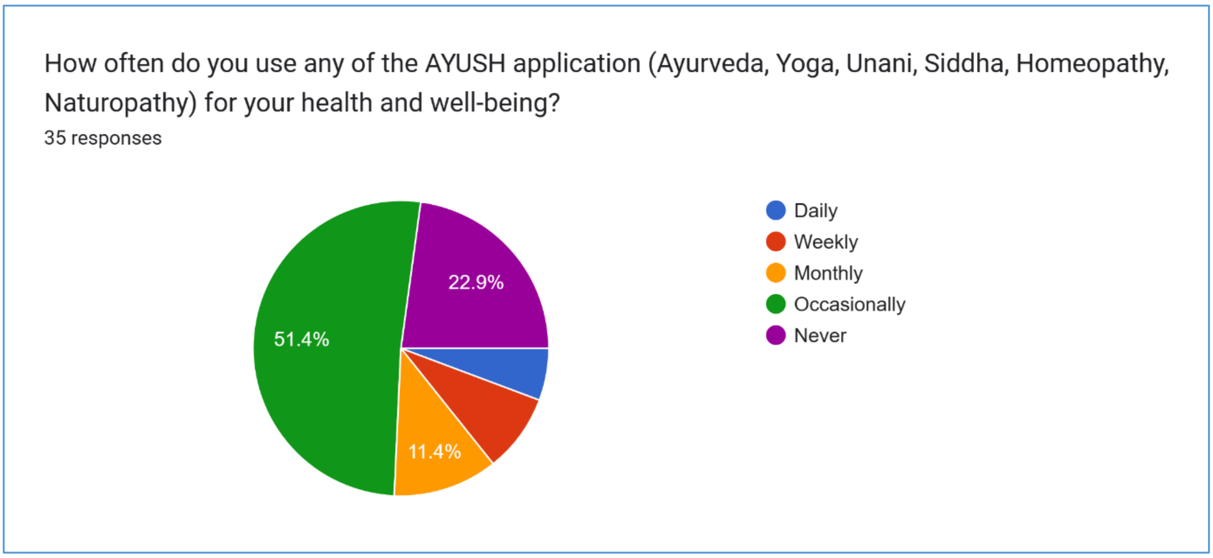
40% were stressed due to isolation or social distancing, mostly extroverts as they need friendship or social support as there mental or emotional support; 62.9% people were stress since they were not able to understand or adapt to the online form of studies or work; 14.3% were having problem with relationship or family issues as many people got stuck away from their home and are unable to return home due to lockdown and other normal family issues; 11.4% were for some other reason.



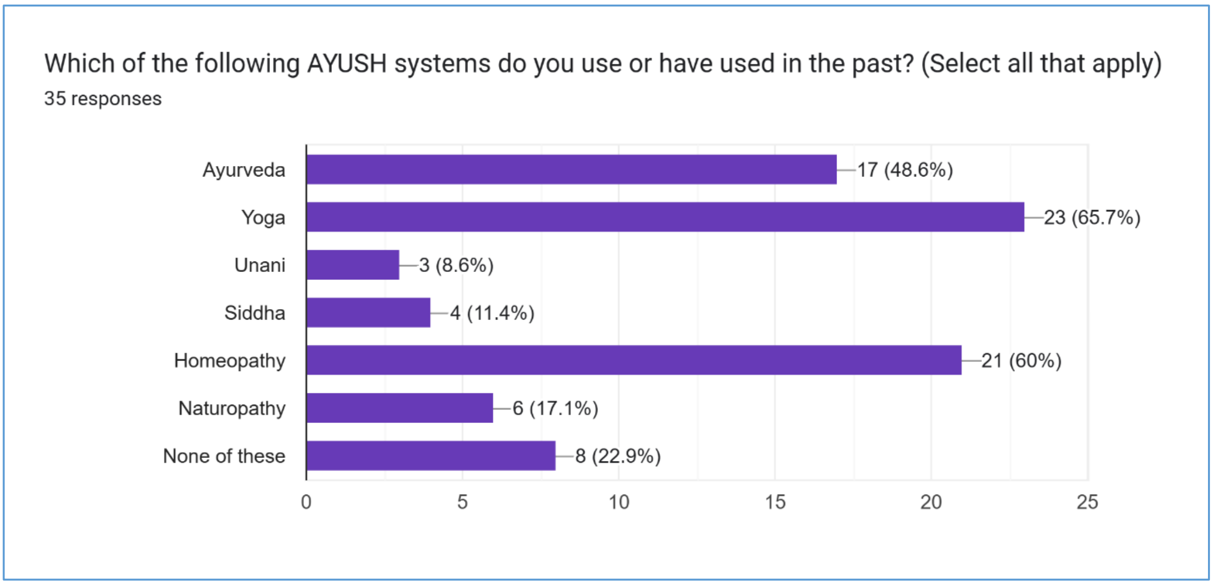
Most of the people are engaging in hobbies or interests such as reading, music, or art etc (i.e.,62.9%) to deviate their mind or to use the extra time for pleasure seeking or for entertainment; while some seeking social support from friends or family (i.e.,51.4%) to have more quality or bonding time with their family which they lack during normal times; some practicing relaxation techniques such as breathing, meditation, or massage as to calm the mind and to cherish themselves; some got engaged in physical activities such as exercise, sports, or Yoga as to deviate their mind from the dark side of that time; some used or got forced to using natural remedies such as herbs, supplements, or aromatherapy by their family so to remain healthy and have a good immune system; and with the lowest(11.4%) i.e., seeking professional help or counselling as on online media most people doesn't feel satisfied with their treatment and most people are with the mindset of saving so many got discouraged to approach professional or counsellor.



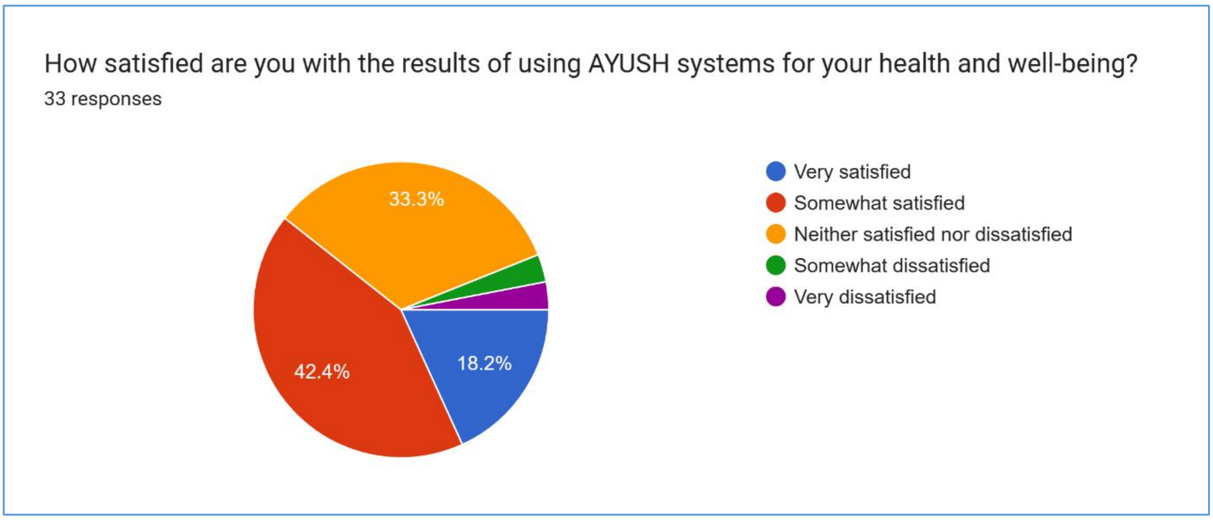
Most are the people are somewhat aware of the concept of AYUSH even if not aware of its implication with 51.4% while 20% where very familiar with the topic; 22.9% were not very familiar and only the rest of 5.7% were unfamiliar with the concept of AYUSH.



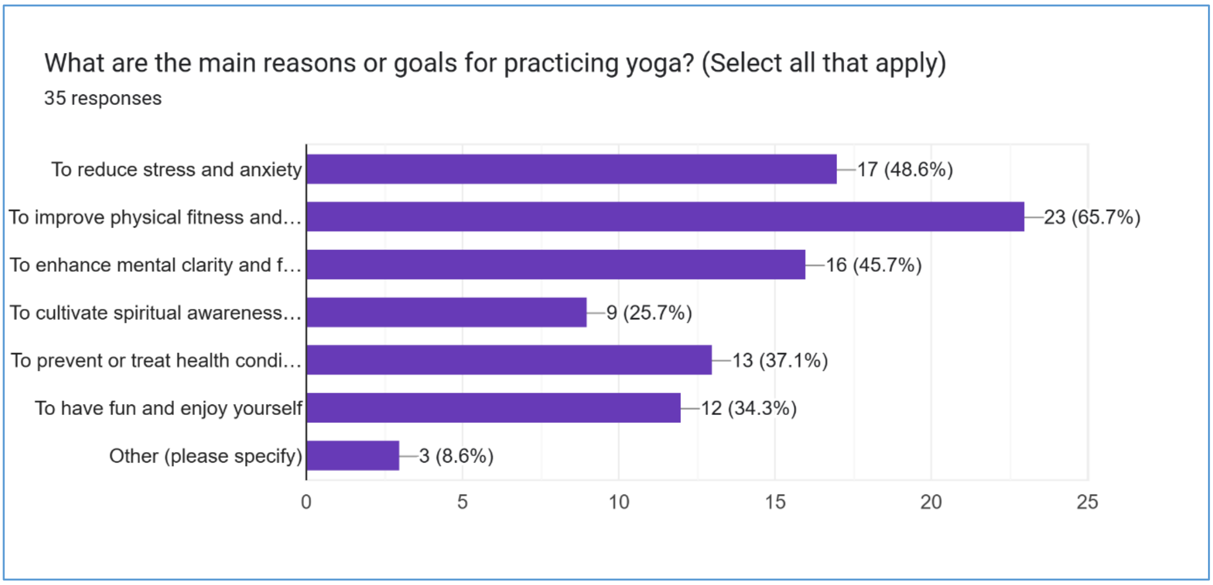
Most of the population are occasional or rare practitioner (with 51.4%) means they have tried it but wasn't been able to maintain consistency in its application; while consistent practitioner goes in downward trend of 11.4%, 8.6%, and 5.7% in monthly, weekly, and daily respectively; while 22.9% with no experience in AYUSH at all in most youth.



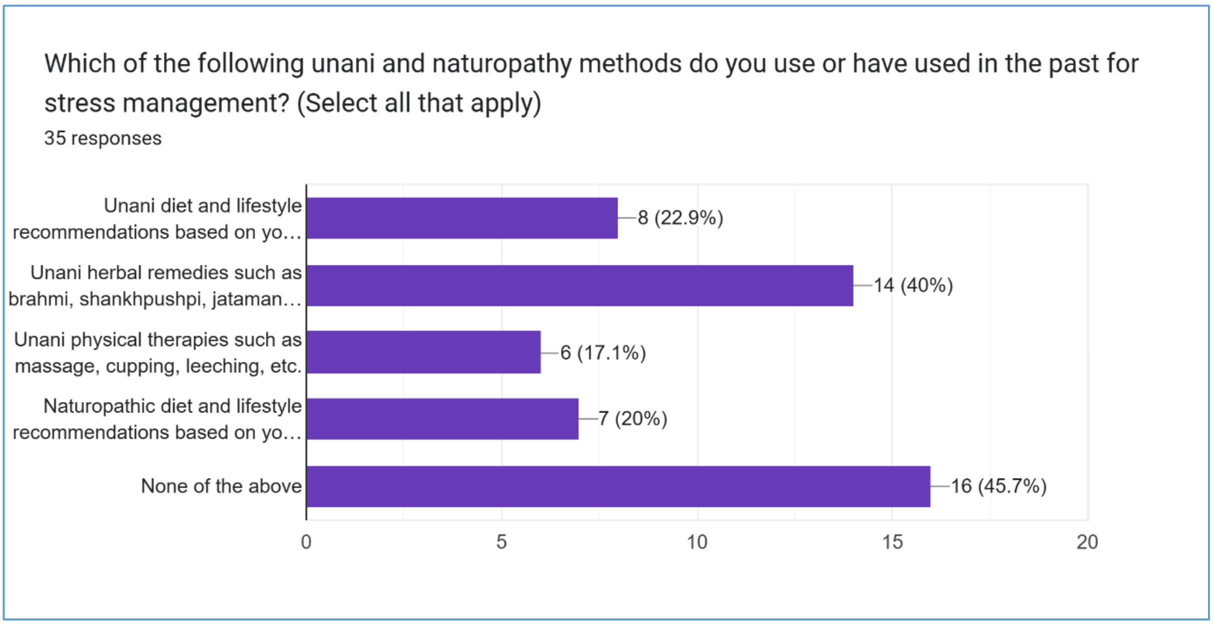
With the Yoga being the most popular or used i.e., 65.7% while Unani, siddha and naturopathy being the least i.e., 8.6%, 11.4% and 17.1% respectively; and with ayurveda and homeopathy being 48.6% and 60% respectively as both are somewhat famous producer of side effect free medicine with slower but effective medicine.



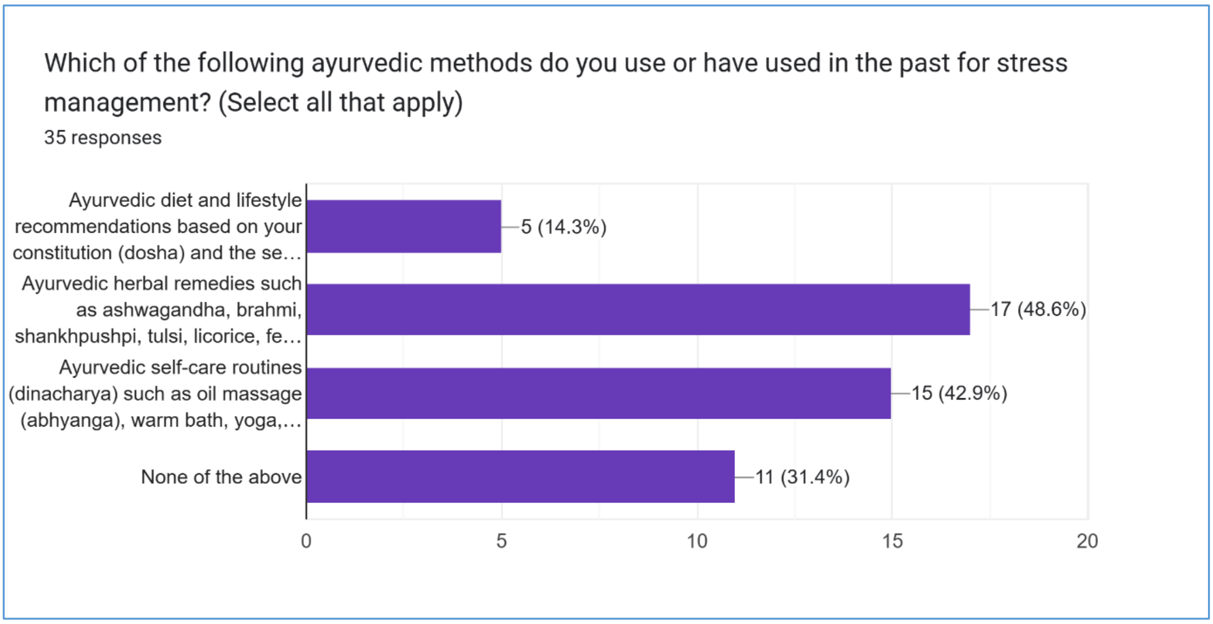
Most of the respondent have responded somewhat satisfied (i.e., 42.4%) as have been mentioned this method are effective but are slow so it somewhat difficult for to notice any major changes in a short while; while 18.2% were very satisfied; 33.3% doesn't have any opinion or doesn't feel any changes what so ever; while the minor or major dissatisfaction is the least with 3% each.



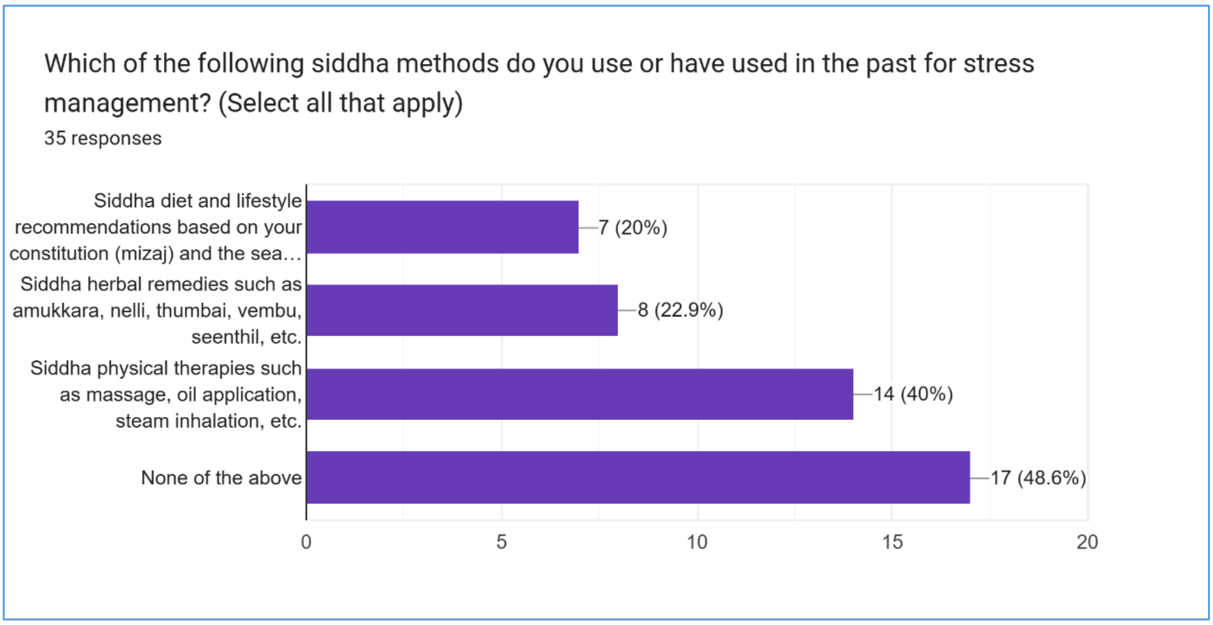
Most of the respondents practice Yoga to improve physical fitness and flexibility with 65.7%; followed by for stress and anxiety reduction and to enhance mental clarity and focus with 48.6% and 45.7% respectively; while the least 25.7% of sample are practising to cultivate spiritual awareness and connection; and the remain practice to have fun and enjoy yourself and to prevent or treat health conditions or injuries with 34.3% and 37.1% respectively.



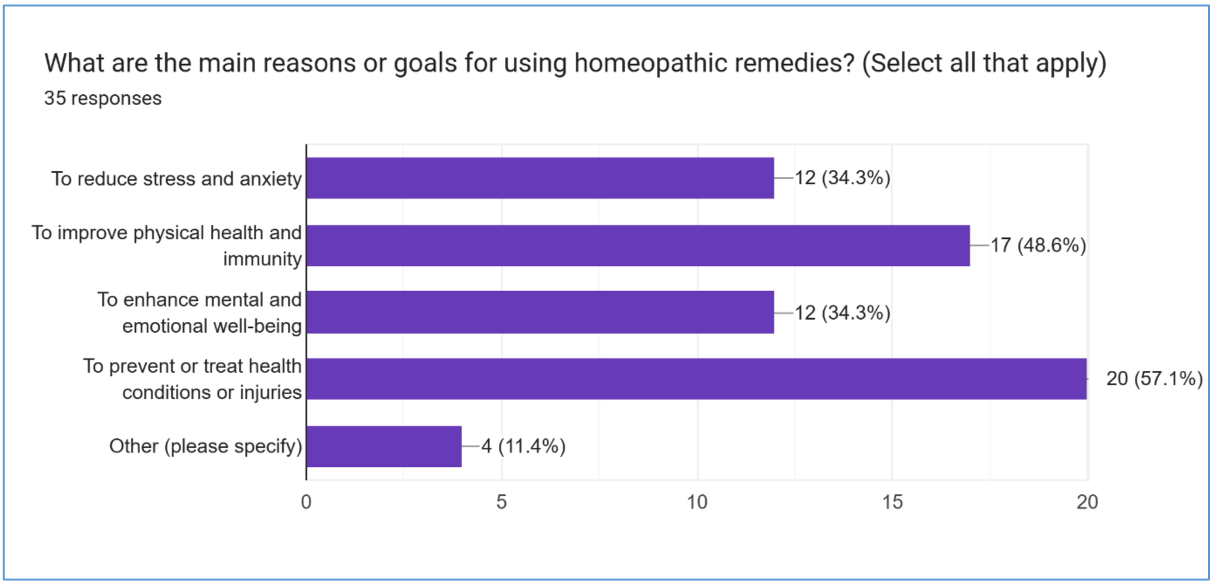
Most of the respondent aren't aware or have used Unani and naturopathy application (i.e., 45.7%); some while being aware or unaware of the fact have used Unani herbs are 40%; while the remaining Unani diet and lifestyle, Unani physical therapies, and naturopathic diet and lifestyle with 22.9%, 17.1%, 20% respectively.



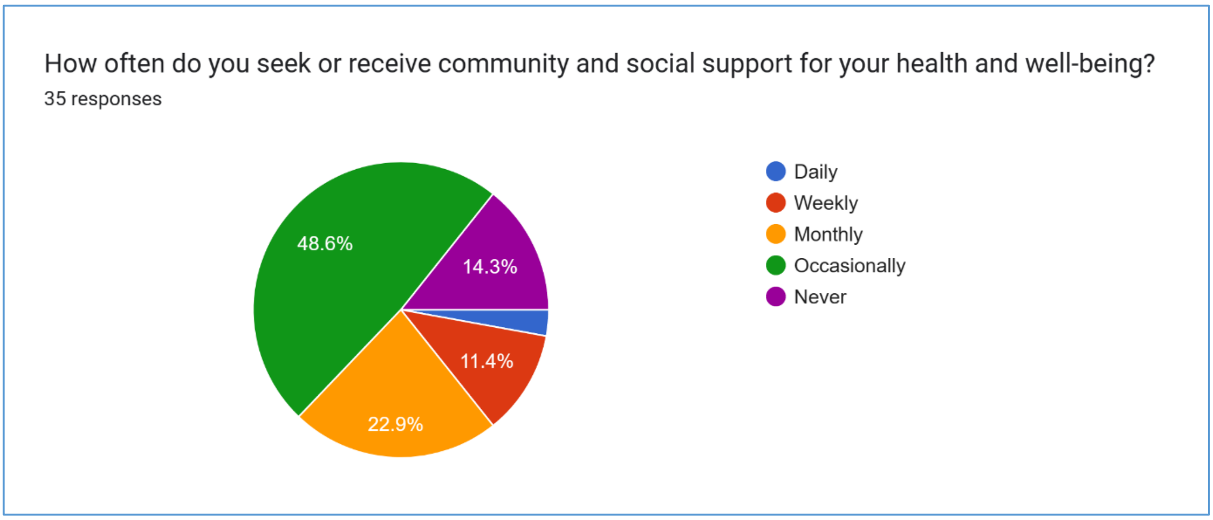
Most of the people have practised or used ayurvedic herbal remedies and ayurvedic self-care routine with 48.6% and 42.9% respectively; while only 14.3% of have tried or are following ayurvedic diet or lifestyle and the 31.4% were aren't aware or have practised any of the ayurvedic application.



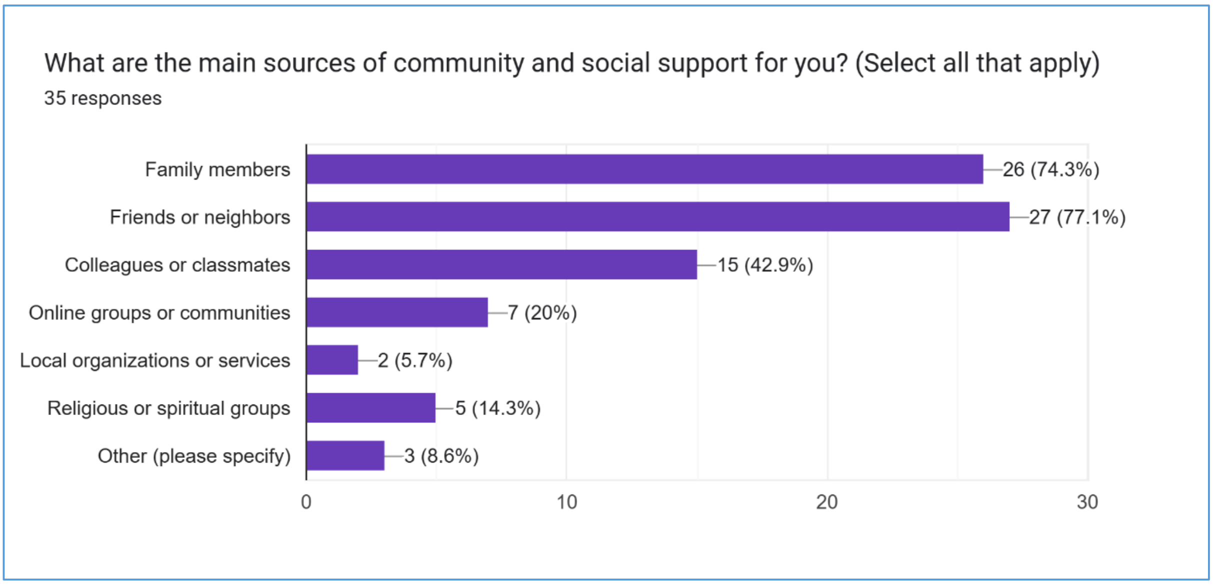
Most of the respondents are not aware or practising siddha method i.e., 18.6%; while 40% of respondents have knowingly or unknowingly practising siddha physical therapies; and only the remaining 20% and 22.9% people are following siddha lifestyle or siddha herbal remedies respectively.



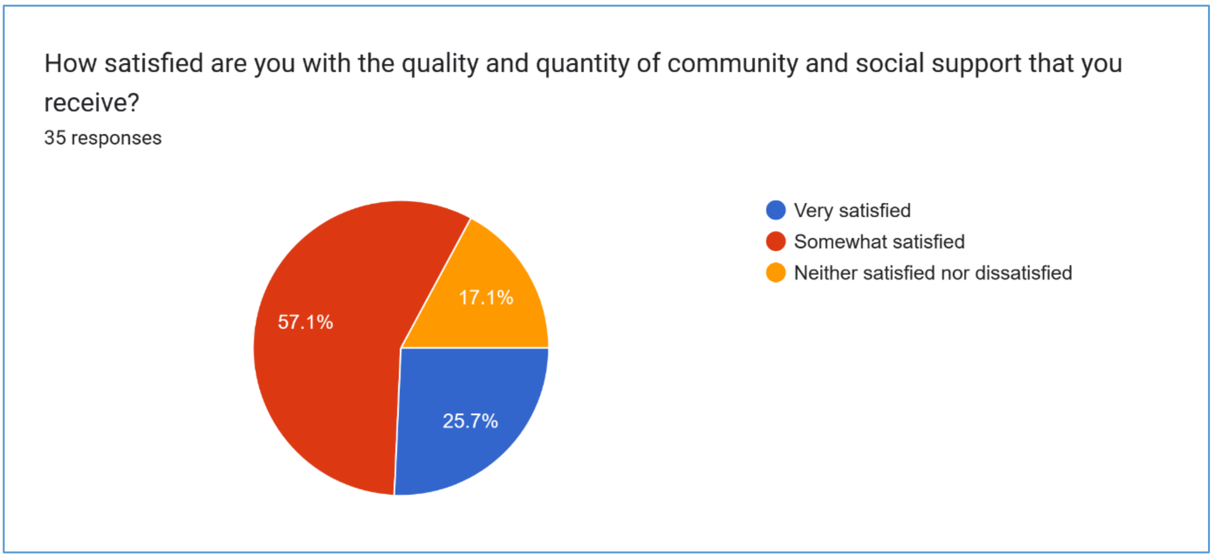
Most of the respondents are practicing homeopathic remedies to prevent or treat health conditions or injuries (i.e.,57.1%) followed by for improving physical health and immunity (i.e., 48.6%) and the remaining is to reduce stress and anxiety and to enhance mental and emotional well-being with 34.3% each.



Most of the people are occasionally receive or seek community or social support with 48.6%; and 14.3% doesn't seek or receive community or social support; while the consistent seeker follows a downward trend of 22.9%, 11.4% and 2.9% for monthly, weekly and daily respectively.



With most of the people main sources of community or social support are friends or neighbours with 77.1% followed by family members as 74.3% and colleagues or classmate as 42.9%; the remaining are satisfied with online group, local organisation and religious or spiritual groups in 20%, 5.7% and 14.3% respectively. You can really tell that the youth are easily influence by friends or neighbour followed by family member.



Most of the respondents are somewhat satisfied or are satisfied to some extend with 57.1%; while 25.7% are very satisfied with the quality and quantity of community and social support and the remaining 17.1% are indifferent or doesn't feel satisfied or dissatisfied either.

Interpretation:

From the study we found:

1. Most of the people or youth are suffering from stress especially after Covid-19 as they have gone through many changes and have gone through multiple issues and incident in recent times such as death of loved ones, financial issues, health concern etc. and the youth or people have become more prudent and concerned towards topic like health in other words has become more health conscious.
2. Which has helped in popularising or has shown a new trend of people turning towards AYUSH practices especially Yoga; homeopathy and Ayurveda being the most popular after yoga but as medical practice or a remedies for some cause not very popular as a way of life; as for the other elements of AYUSH such as Naturopathy, Unani, Siddha, Sowa Rigpa showing a particular slow trend but have multiple users who are using application or some knowledge of this practices without knowing that this are a part of Naturopathy, Unani, Siddha and Sowa Rigpa.
3. People have realise the importance of or have really missed the social support from friends, relative, neighbour, public gathering, festival, etc in days of Covid-19 pandemic though most of the youth think of themselves as occasional seekers but as most of them have a tendency of seeking major or most of the support from friends followed by or

before family so they have shown a major sign of increase in stress during Covid-19 due to isolation or lockdown, etc.

Conclusion:

This study provides an empirical analysis on the stress on a Youth (i.e., from age 15 to 24) after Covid-19 pandemic; about AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy), its implication; about the growing trend of adoption of AYUSH after Covid-19 pandemic as people have become more concern of their health and holistic wellbeing; and how the social support through friends, public gathering, festival and our Indian lifestyle have helped in reliving or preventing stress through an sample survey and some secondary data analysis based on the sample survey.

In this study, we found that the stress of Youths has also been affected and had risen after covid-19 pandemic due to rising health concern as they see or hear about their loved one's death; lack of social support from through public gathering, festival celebration, friend contact, etc; multiple changes in their lifestyle and habits; financial problems; etc. but it has also resulted in increase in awareness about AYUSH and its implication especially yoga as a way of life; and Ayurveda and Homeopathy as a medical practices or remedies for a causes, etc. And people have become more aware of importance of social support through friends, family, social gathering, festival celebration, religious association, etc.

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Additional Information:

- QUESTIONAREE:-
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A Comparative Analysis of Female Empowerment: Women from Ancient Scriptures and Modern Women Entrepreneurs in the Context of Management

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1. Abstract

Indian scriptures like the Mahabharat, Ramayan, and Bhagavad Gita played an important role not only in developing the culture and values of India but also in the managerial areas. Though the roles played by women in these scriptures are valuable, they are unnoticed. In the present era, many women entrepreneurs are emerging. In this paper, the researchers have tried to bring out the similarities of problems faced by women from ancient scriptures and predominantly women entrepreneurs. In addition to this, we have also tried to display the similarities of managerial qualities exhibited by them throughout their life journey.

2. Keywords: Ancient Scriptures, Women Entrepreneurs

3. Introduction:

Ancient Indian scriptures highlight courageous women who challenged societal norms, emerging as epic heroines despite complex challenges. These historical figures offer valuable leadership and management lessons applicable to modern Indian management practices. Noteworthy individuals include **Sita, Draupadi, Kunti, and Gandhari** from The Ramayan and The Mahabharat, exhibiting qualities like strength, resilience, and wisdom. **Sage Gargi**

Vachaknavi, a female philosopher from Vedic literature, also exemplifies intellectual brilliance and independence.

In contemporary times, women strive to enhance their social, economic, and political roles. However, this journey is far from easy, given societal constraints and traditional expectations. Despite these obstacles, exceptional women from India have triumphed against adversity, crafting their own unique stories. This paper mainly focuses on women entrepreneurs who contribute to shaping modern society. Their approaches to overcoming challenges can serve as inspiration for the future.

Entrepreneurs like **Falguni Nayar, Vandana Luthra, Kiran Mazumdar Shaw, Radhika Ghai Aggarwal, and Richa Kar** showcase resilience, innovation, determination, and visionary leadership. Their stories resonate with the struggles and successes of historical heroines, emphasizing the enduring spirit of women across time.

4. Objectives

This study mainly aims to conduct a comparative analysis between women depicted in ancient scriptures and women entrepreneurs in contemporary society and intends to explore the lives of both to investigate if any similarities are observed.

The specific objectives include:

a) To compare and analyze the challenges confronted by women characters in ancient scriptures, including Sita from Ramayan, Draupadi, Gandhari, and Kunti from Mahabharat, with the contemporary experiences of women entrepreneurs such as Falguni Nayar of Nykaa, Kiran Mazumdar Shaw of Biocon Biologics Ltd., Vandana Luthra of VLCC, Radhika Ghai Aggarwal of Shopclues.com and Richa Kar of Zivame.

b) To explore the strategies employed by modern women entrepreneurs to overcome challenges and achieve success in the field of management and entrepreneurship.

c) To raise awareness about the historical contributions of women in ancient societies and challenge existing gender stereotypes that may hinder women's progress in modern-day management and entrepreneurship.

5. Literature Review:

- *'Jaya, An Illustrated Retelling of The Mahabharat' by Devdutt Pattanaik ISBN No. 9788184751697*

  This book narrates the ancient Indian epic, the Mahabharat, through his engaging narrative and perceptive interpretations, The author delves into the rich tradition, complex characters, and profound philosophical themes of the Mahabharat. It competently explores generalities like dharma (duty/ righteousness), air (action and consequence), family connections, power dynamics, and the complexity of mortal feelings. The illustrations, created by the author himself, add a visual environment to the narrative, making the characters and events come alive.

- *'Sita, An Illustrated Retelling of Ramayan' by Devdutt Pattanaik ISBN No. 9789351183259*

  This book is a magical narrative that delves into the life and character of Sita, the righteous and revered consort of Lord Rama. It provides a fresh perspective on the timeless epic, the Ramayan, through engaging interpretations. This literature review aims to explore the event and impact of "Sita" on collections and scholars, examining the book's strengths, and reviews to understand the story of Sita. The book spans the crucial events in Sita's life, from her birth to her final return from the earth. Illustrations bring the characters and events to life.

- *'Draupadi: The Sati Series III' by Koral Dasgupta ISBN No. 9789390742622*

  This book is the third installation in Koral Dasgupta's mind-stirring Sati series, where the author delves deep into the character of Draupadi from the grand Mahabharat. It offers a fresh and reflective perspective on Draupadi's trip, exploring her complications, challenges, and strength in a patriarchal society. The book opens with Draupadi's birth from the sacrificial fire, marking her divine origin and fortune. Throughout the narrative, the author delves into Draupadi's emotional and complex connections with her husband, the Pandavas. The book explores her individuality, determination, and the challenges she faces, particularly the disgraceful occasion of the public disrobing in the Kuru court.

- *‘Kunti: The Sati Series II’ by Koral Dasgupta ISBN No. 9789390742189*

  This book is the second installation in Koral Dasgupta's study-provoking Sati series, which delves into the lives of prominent woman characters from the Indian epic, the Mahabharat. The author explores the interesting character of Kunti, the mother of the Pandavas. The book provides compilations with a fresh perspective on Kunti's life, her connections, and the complications of her choices in the epic's grand narrative. The novel also explores Kunti's moral dilemmas, her sense of duty, and her part as a mother during the tumultuous events of the Kurukshetra war. One prominent theme is the complexity of motherhood and the offerings made by women in patriarchal societies.

- *‘Leader: 50 insights from Mythology’ by Devdutt Pattanaik ISBN No. 9789352644957*

  "Leader: 50 Insights from Mythology" by Devdutt Pattanaik is a book that offers valuable leadership insights through the lens of mythology. Pattanaik presents 50 thought-provoking concepts derived from various mythological stories, connecting them to modern leadership challenges. Each insight is designed to provide readers with a unique perspective on leadership styles, decision-making, and team dynamics. The book's blend of ancient wisdom and contemporary relevance makes it engage.

- *‘How to take decisions (Management Sutras)’ by Devdutt Pattanaik ASIN No.: B01MSOUWC3*

  "How to Take Decisions (Management Sutras)" by Devdutt Pattanaik is a concise guide that explores decision-making processes using insights from Indian mythology and philosophy. In this book, Pattanaik draws parallels between ancient Indian stories and modern-day decision-making challenges. He presents various approaches to decision-making, highlighting the importance of context, ethics, and self-awareness. The book offers a fresh perspective on how cultural narratives and symbols can guide in navigating complex choices. Pattanaik's knack for storytelling makes the concepts relatable and engaging for readers interested in both management principles and Indian wisdom.

- *The Leadership Sutra: An Indian Approach to Power by Devdutt Pattanaik ISBN No.: 9384067466*

  This is a thought-provoking book that explores leadership principles through the lens of

Indian philosophy and mythology. Pattanaik delves into ancient texts and stories to uncover lessons about leadership, authority, and influence. The book offers a unique perspective on different leadership styles, decision-making processes, and the balance between power and responsibility. Pattanaik's ability to connect ancient wisdom with modern leadership challenges is evident in his storytelling approach. Readers interested in exploring unconventional approaches to leadership will likely find this book engaging and enlightening.

- *Business Sutra: A Very Indian Approach to Management by Devdutt Pattanaik ISBN No.: 9384067547*

  "Business Sutra: A Very Indian Approach to Management" by Devdutt Pattanaik is a unique book that explores the intersection of Indian mythology, philosophy, and modern business management. Pattanaik draws insights from ancient Indian texts and stories to offer a fresh perspective on various business concepts, leadership styles, and organizational structures. The book delves into the symbolism, rituals, and narratives of Indian culture, highlighting their relevance in the corporate world. Readers can draw comparisons between conventional thinking and current business problems because of Pattanaik's storytelling style.

6. Hypothesis:

H0: There is **a significant difference** between contemporary Women Entrepreneurs' lives and struggles in India when compared with Women Protagonists' lives and struggles from The Indian Scriptures.

H1: There is **no significant difference** between contemporary Women Entrepreneurs' lives and struggles in India when compared with Women Protagonists' lives and struggles from The Indian Scriptures.

7. Research Methodology – Case Study Method

The case study method is the method that involves a **comprehensive analysis** of an event, or phenomenon aiming to draw a **deep understanding** of the context and complexities of the subject under study. Case studies are often used in various fields as they provide researchers with the opportunity to explore real-life situations and gather rich qualitative data. Some **advantages and disadvantages** are In-Depth Understanding, Flexibility, and Real-Life Application, and Subjectivity, Resource Constraints, and Time Consuming respectively.

8. Research Limitations

The methodology used for this purpose is **hermeneutics, which is the study, understanding, and interpretation of ancient text.** It is one of the **qualitative research methodologies used in social science**. Available sources from **secondary streams** are used for the comparative analysis, those include literature of ancient Indian history, philosophy of India, political economy, Sanskrit texts, interpretation works of oriental literature, writings, and other commentaries deemed pertinent to the period and setting. **The researchers have limited knowledge of Sanskrit and thus have relied on Mythologist Dr. Devdutt Pattanaik's versions of the epics.**

9. Case Study 1: Falguni Nayar, Founder and CEO of Nykaa and Ancient Women Characters – Sita, Draupadi, Kunti, and Sage Gargi Vachaknavi

Introduction:

Falguni Nayar, born on February 19, 1963, grew up in a Gujarati family in Mumbai, Maharashtra. She earned her commerce bachelor's degree from Sydenham College of Commerce and Economics and her post-graduation from the esteemed Indian Institute of Management, Ahmedabad. Initially, she joined as a consultant at A. F. Ferguson & Co., and she later led the Mergers and Acquisitions Department at Kotak Mahindra Group. Her career took her to London and New York, and in 2005. Later, she became the Managing Director of Kotak Mahindra Capital, the investment banking unit. Despite a successful career, Falguni had a **unique business idea in the beauty industry**, but numerous **challenges** awaited her.

Challenges:

Firstly, she faced the **age barrier**, nearing 50, a point where society often expects retirement. Although not directly criticized some hushed talks had started about a woman nearing 50 starting a business. Secondly, as a woman venturing into the business world without a male counterpart, she encountered **gender discrimination**. It was a novel to see a woman follow her passion and start her own business. **Balancing her household responsibilities and business pursuits** posed the third challenge. It becomes difficult to balance both the arenas of life. A woman is a manager of both these aspects of her life. Finally, the **financial gender gap** in India posed financial hurdles, a common issue for women across sectors in general and beauty in specific. An incident that Falguni herself recalls in an interview is when the Indian Financial market was skeptical about the viability of the beauty sector of India. Not naming any of the institutions, she was denied all finances. She had to invest her finances to start her ventures. (*LinkedIn, From investment banker to beauty mogul story*)

Life of Ancient Women:

Sita had a pioneering spirit when she underwent **AgniPariksha (Trial by Fire)**. After the couple returned to Ayodhya after 14 years of exile, the kingdom doubted her purity as she had spent an entire year in Ravan's Lanka. **She walked into the blazing fire**, the idea being if she was pure the fire would return her unarmed. The **fire did return her unwounded**. She successfully proved her purity. This was **the greatest challenge** faced by Sita, way bigger than her exile. She had been doubted by society which made her husband make her go through the test of fire. Yet she displayed **unmatchable strength, courage, and determination** to walk through the fire. Against all odds, she emerges as true and pure. (*Uttar Kanda, The Ramayan*)

Draupadi, during exile, faced a resource crisis when **hosting Sage Durvasa**. When the Pandavas and Draupadi were sent for 14 years of exile after the infamous dice game, Sage Durvasa turns up for dinner. She sought Lord Krishna's guidance who told her to give Him the grain of rice to eat. Draupadi, though unconvinced does as told. On eating the grain Lord Krishna senses fulfilment and so does the Sage on the other end. Sage Durvasa, impressed by this blessed Draupadi. This simple incident when analyzed critically, showcases that she had the ability as a hostess. She was excellent at managing resources from the forest. She had **resource management skills and problem-solving ability**, emphasizing her multifaceted role as a hostess. (*Van Parva, Chapter 27 – 30*)

Kunti's life emphasized continuous learning. Kunti had made many mistakes in her life and had experienced many new things along the way. Yet she accepted them all with a smile and took an opportunity to upgrade herself. She was sad seeing the destruction of the war. Lord Krishna's post-war insights highlighted the impermanence of victories and losses, teaching her equanimity. He teaches her that victory and loss are a part of the eternal cycle of karma and the universe and the importance of the impermanence of material gains and losses. She absorbed spiritual teachings even in her later years, showcasing a **thirst for knowledge**. (*Udyog Parva, Chapter 89*)

There is an incident in the life of **Sage Gargi Vachaknavi** wherein she engages in a **philosophical debate** with Sage Yajnavalkya, in the court of King Janak of Videh. The argument that she made in this debate with Sage Yajnavalkya, a renowned philosopher, shows that she had **broken all gender barriers** present at that time and had developed such a **level of intelligence and intellect** that made her able to put forth the arguments with the latter. She is renowned for the questions and other logical concepts that were unique. (*Brihadaranyak Upanishad, Chapter 3*)

Observation:

Falguni Nayar's life mirrors these qualities. Entering the business world alone with a **pioneering spirit**, she fearlessly pursued her dreams. She **managed resources optimally**, transforming Nykaa into a reality. Her **continuous learning mindset defied age barriers**. She embraced challenges, viewing age as the greatest teacher – Experience. She was eager to gain new experiences, fall even, and learn new things to upgrade herself. She develops skills and all the necessary tools required for her to enter the beauty industry with her venture. Falguni in her own words describes that though the journey had many ups and downs, not accepting facts kept her going. Instead of seeing age as a handicap, she saw it as the experience that came along with it. She also believes in giving back to society wherein she has led to job creation for society, has supported Indian brands, and promoted self-care among women.

Conclusion:

Sita, Draupadi, Kunti, Sage Gargi Vachaknavi, and Falguni Nayar hailed from different eras, yet their **methods for overcoming challenges align**. Each displayed unwavering determination, adapting to circumstances, breaking barriers, and embracing continuous learning. These heroines' mechanisms for success remain strikingly similar, regardless of the era in which they lived.

10. Case Study 2: Vandana Luthra, Founder of VLCC Healthcare Ltd. and Ancient Women Characters – Sita, Draupadi, Kunti, Gandhari, and Sage Gargi Vachaknavi

Introduction:

Vandana Luthra, born on July 12, 1959, in New Delhi, pursued education at the Polytechnic for Women in New Delhi and further honed her expertise in Beauty and self-care in Europe. In her mind, she had an idea to build her own business in this industry. Although she had secured the necessary expertise required for this industry, she was not enough. She had many hurdles lined up her way.

Challenges:

The first of them is **gender bias and stereotypes**. There was a question raised about her credibility and ability to manage the business. The second one is **access to mentorship**. It was difficult to have access to valuable guidance from mentors in an industry where women are underrepresented at leadership levels. The third one was **perceptions of competence**. Women must work hard to prove their competence whereas their male counterparts may find it easier. The fourth one is **visibility and recognition**. It is difficult to receive recognition in the media for a woman setting up her own distinctive business without any male support. Against all these odds, Vandana had the **strongest support system – her husband**. He walked shoulder to shoulder in this journey. (*Fincash, Success Story behind VLCC founder Vandana Luthra*)

Life of Ancient Women:

When we time travel in the ancient period, The Brihadaranyak Upanishad takes note of a philosophical debate known as the Brahmaṇaḥatya episode also held in the courtroom of King Janak of Videh. King had invited all the scholars for a debate. There arose a question about the nature and ultimate reality of Brahman. The king had announced a reward for the best explanation for this concept. **Sage Gargi**, participated fearlessly in **discussing profound metaphysical concepts**. Such active participation in such philosophical and intellectual debate discourse was quite unusual for women belonging to that era. Her **boldness, and intellectual pursuits** demonstrated that she was not limited by gender and openly challenged traditional norms. (*Brihadaranyak Upanishad, Chapter 3*)

In the earlier Yugas, the women were not given formal training. Yet we can find some mentors from whom **Sita, Draupadi, Kunti, Gandhari, and Gargi** learned. **Sita**'s upbringing in **Mithila** was under the **guidance of her learned father and other mentors' scholars and advisors exposed her to many learned scholars and advisors.** The Ramayan also takes note of an incident where **Sita eagerly learns from Sage Valmiki during her exile**. **Draupadi** too had a mentor in her life that was **Lord Krishna**, who was her **confidant and guide** throughout her life. He helped her at every stage of her life be it a happy or sad one. Also, it can be observed that these protagonists rooted themselves in a mentor or a strong support, who made them make decisions wisely. (*Ayodhya Kand, Uttar Kand, Adi Parva*)

Kunti's life is a witness to the **perception of competence**. She uses her **wisdom and careful decision-making** throughout her life. Kunti's role as the mother of the Pandavas and her efforts to raise them in the alternating environments of the royal Kuru court and the forest accompanied by no one. She **excelled in managing relationships, politics, and personal challenges**. Although women were less recognized, Kunti gained a special position in the eyes of every elder as she ran a household being a **single parent**. Undoubtedly, she worked hard for it, but she is noticed and recognized. (*Kunti Parva*)

In ancient times, women gained recognition by performing their traditional roles to the fullest. While **Sita and Gandhari gain recognition for being a 'Pativrata' or 'a devoted wife', Draupadi gains recognition for her strong-willed personality and her pivotal role in the epic.** She had an **outspoken nature** and **unwavering determination** that helped her progress in her life despite various challenges; Sage Gargi is renowned for her intellectual brilliance and Kunti, for her wise upbringing. Thus, we can see that there existed a **balance between the traditional roles and challenging roles** of women in the ancient scriptures.

Observation:

Vandana found **no mentor in flesh and blood** but learned as much as possible from academia and her experiences. She gained **academic brilliance as Sage Gargi** does on her own. She **competed well in the male-dominated corporate world and made her own unique identity**. The world today, knows her as the woman who went out of her way to follow her dreams. She began from a **small shop in Safdarjung Enclave in New Delhi known as Curves and Curles** and found her destination as a widely known brand owner in the self-care industry. Her **husband supported her financially and in other dimensions of her struggle**.

She also perfectly **manages to balance the roles** of being a wife, mother, and businesswoman. When no one wanted to believe in her, she believed in herself and set out on a rough journey.

Conclusion:

When we compare the lives of Prominent Ancient women and that of Vandana, a **striking similarity** comes out. Although **both face challenges at their levels the mechanism to deal with the same is quite similar.** Vandana has also **contributed to society and the empowerment of women**. She has undertaken **social responsibility initiatives, provided an entrepreneurial vision, and promoted health and well-being among women.** She has also undertaken many **social responsibility initiatives like health and hygiene awareness campaigns, supporting underprivileged communities, and promoting education and skill development.**

11. Case Study 3: Richa Kar, Co-Founder of Zivame and Ancient Women Characters – Sita, Draupadi, Kunti, Gandhari, and Sage Gargi Vachaknavi

Challenges:

Richa Kar is an Indian entrepreneur. Initially, she was a software engineer. She is the founder of Zivame, an online innerwear and lingerie store. Zivame stands for *Radiant Me.* This famous e-commerce store was founded in 2011.

Due to male leadership in most lingerie businesses, limited sizes, uncomfortable shopping experiences, and a lack of understanding of women's needs resulted in women sacrificing their comfort. In this scenario, Richa entered the business world. Richa Kar faced **opposition from her own family**. Her parents were afraid of the shame that would be brought to her. She faced innumerable challenges which included overcoming **cultural conventions and restrictions** surrounding lingerie shopping and the **conservative mindset** of the people. There were so many **gender biases in funding**. Her difficulties in getting funds even increased as her **business area was lingerie.** Hence during the initial stage, she was not able to find investors for her business. Due to the same reason, she borrowed Rs.30 lakh from her family and friends ("Funding for Women Entrepreneurs: A Challenge", n. d.). Additionally, it was difficult for her to **replace traditional street shops** with online shopping. She also faced **strong competition** from other established players in the market.

Life of Ancient Women:

Ravana, to marry Sita forcefully takes her. Even in a threatening situation she was determined enough to take control of circumstances. Despite being isolated in an uncomfortable place she firmly rejected all offerings of Ravana. These incidents revealed her **courage** to stick to her moral values, to stay **loyal** to her husband, her **determination** to stand up for herself, and her **resilience** to face such dire circumstances. (Ramayan, Chapter 49)

Kunti experimented and gave birth to Karna after being awarded a boon. She sent him away in a basket as she feared society and humiliation. To protect her family, before the war, she revealed this truth to her son Karna. Thus, justice was served to Karna by knowing his identity. She made him promise that he would not kill any of his brothers, except Arjun. This incident revealed Kunti's **emotional strength** to make tough choices. She must choose between her sons. Through her **decision-making skills and strategic thinking,** she was able to reduce bloodshed within her own family.

Gandhari also portrayed leadership qualities. Knowing her husband Dhritarashtra is blind, she decides to share his difficulty by sacrificing her sight for the rest of her life by voluntarily blindfolding her eyes. Thus, she beautifully accomplished her responsibilities and duties as a wife without whining. During her whole life, she portrayed **commitment** to Dharma and loyalty to her husband. (Mahabharat, Sambhav parva)

The Kauravas tried to publicly humiliate Draupadi by disrobing. She fully utilized her inner and physical strength to stop them. Even in the drastic situation, she stood up for herself fearlessly and never bowed her head below. When she felt her strengths would not help, she appealed to Lord Krishna. Thus, none of the situations were capable of breaking her. Her **courage** is beautifully revealed not only in the face of adversity but also after it. (Mahabharat, Sabha Parva)

During Gargi's period, women's roles were restricted to managing households and farming. In a society of male-dominated philosophers, Gargi became a philosopher. She used an **innovative approach to express her opposition to traditional norms and gender biases.** She engaged in philosophical debates and tried to change stereotypical thinking by spreading knowledge. She contributed to the **empowerment of women.**

Overcoming of Challenges:

At the time of starting Zivame, she had a **strong vision** to create a comfortable environment for lingerie shopping. She contributed to **empowering women.** She was able to **break the traditional stereotypes** connected to the bodies of women and sexuality. Despite all the opposition and gender inequalities, her strong **commitment** helped her in breaking the cultural barriers. She accomplished her goals with **resilience and determination.** She was able to maintain unity among her employees. Her employees were allowed to participate in decision-making and to come up with ideas. Thus, by creating an inclusive environment, employees were satisfied at their levels. This reveals her skills in **team building and management.** Turning to the strategies used, photographs were used instead of written content to promote the products through social media which captured the attention of her target audience, women between the ages of 20-35+. She tried to improve the customer experience through innovation. Thus, by **strategic thinking and innovative practices,** she overcame the competition. Most of her decisions were focused on the well- being, comfort, and experience of her customers. Thus, her **decision-making** skills have also played an important role in the success of Zivame.

Comparison of Women Leaders in Business and Ancient Tales:

Both Richa Kar and ancient women disclosed exceptional leadership qualities while facing challenges. Richa's vision, commitment, determination, innovation, strategic thinking, and decision-making enabled her to break cultural barriers in the lingerie industry. Sita’s determination and resilience, Kunti's strategic thinking, Gandhari's commitment, Panchali's courage, and Sage Gargi's innovative approach in a male-dominated society all exemplify their leadership.

12. Case Study 4: Radhika Ghai Aggarwal, Co-Founder of ShopClues.com and Ancient Women Characters – Sita, Draupadi, Kunti, Gandhari, and Sage Gargi Vachaknavi

Challenges:

Radhika is an Indian entrepreneur. She completed her education at The Maharaja Sayajirao University of Baroda. She founded ShopClues, an online marketing website along with Sanjay Sethi and Sandeep Aggarwal in 2011. She is the CBO of the company. She is the first woman from India to enter the Unicorn Club.

One of the major challenges faced was the **strong competition** from Amazon, Flipkart and Snapdeal. It was **difficult for them to convince the investors** about their potential. During their first Valentine's Day, they received an order for 200 flowers. They relied on someone for the supply, as they were not that big at that time. But the supplier didn't deliver the flowers. Hence Company was **not able to maintain a good supply chain** and logistics (Himanshu Kakkar, n. d). They faced **difficulty in earning the trust of people**, as they focused on people from small areas and towns as their customers and their sellers were from small and medium-scale businesses. It was difficult for her to **replace traditional street shops** with online shopping. In addition to this, she had to establish her name in a traditionally **male-dominated tech industry**. Radhika's personal life is also not away from the challenges. Her father's job required her to **shift to 10 different cities.** She was kept under the responsibility of **managing both the company and her family.** Her husband has also filed a case accusing her of an illicit love affair and of deliberately minimizing her husband's contribution to creating ShopClues.

Life of Ancient Women:

Sita accompanied Ram during his 'Vanavasam'. Despite knowing the dangers and adversities, she took this selfless choice without a second thought and thus prioritized their relationship over anything. Thus, it revealed her exceptional **decision-making** skills and **risk-taking** abilities**.** (Ramayan, Ayodhya Kand)

After 'Panchali’s Vastrakshepam', she took a vow not to tie her hair, until she cleaned it with the blood of Dushasana, who had humiliated her (Mahabharat, Sabha Parva). Her life in the forest was full of challenges. She, the Queen who was provided with all the comforts of life was denied everything suddenly. She also faced disrespect and misbehavior from Keechaka when she was disguised as a maid as a part of her Ajnathavasam. Despite all the challenges, she never compromised her vow. All of these accentuated her **determination and commitment** to acquiring justice.

Kunti was able to raise her five children well without showing partiality amid adversities faced. She also managed to provide them with **guidance** as and when required. Kunti allowed Madri, another wife of her husband to use the Mantra to invoke God for children. Her willingness to share the mantra showed her **selflessness**. Thus, Kunti's exceptional **humility** can be witnessed throughout Mahabharat.

Blindfolded Gandhari was successful in **adapting** herself to the darker world without whining. After the Kurukshetra war, she lost all her sons, except one. Being a mother, she must have gone through immense grief. Still, she never blamed Pandavas for her son's death. She also did not direct her anger towards them. She understood her sons' wrong acts. Thus, she could adapt herself to such difficult circumstances.

The gender biases present during Gargi's period were not capable enough to stop her from pursuing her Yajnavalkya. Passion. She entered the world of knowledge by becoming a philosopher. Through her **determination**, she overcame societal barriers and grew beyond societal limitations. She also demonstrated her **risk-taking abilities** in her debates with

Overcoming of Challenges:

By concentrating on affordable prices and adopting a **customer-centric approach**, Radhika overcame the competition and gained trust. Despite knowing the strong competition, she was **willing to take the risk**. Her **visionary thinking** helped to identify the market gap. Their **innovative approach** of focusing on customers from small towns, small and medium-sized businesses, and unstructured product categories helped them to stand ahead and acquire the required funds. When they failed to deliver the flowers on the first Valentine's Day, they delivered soft toys and chocolates with an apology letter to their customers. This incident demonstrated her **quick decision-making skills**. Her **strategic thinking** also helped to overcome the challenges in supply chain and logistics. Shifting to different cities helped her to increase her **adapting** skills. She was able to **maintain a balance between both** managerial roles and motherhood. Hence, she **broke** the usual tradition of housewives **being the icon of sacrifices.** She overcame societal norms. She was also good at **multitasking**. They practiced a no-door policy between the employees and co-founders and **broke the traditional system** of hierarchy. Her collaborative leadership contributed to the **empowerment of employees**. She also conducts women's panels, where women workers are encouraged to speak about the problems. Thus, her contribution to **women's empowerment** is huge. All these revealed her **humility and empathizing nature**. She broke the stereotypes and became the first Indian woman entrepreneur in the unicorn startup. Even after being faced with so many challenges in her personal life she didn't give up her entrepreneurial passion and came up with her next venture 'Kind life'. Throughout her life, we can witness her **commitment**, **resilience, determination, and perseverance.**

Comparison of Women Leaders in Business and Ancient Tales:

In both modern and ancient contexts, we witness the power of determination, resilience, adaptability, risk-taking, and visionary thinking. Also, both these women displayed empathy and empowered others.

13. Case Study 5: Kiran Mazumdar Shaw, Founder and Executive Chairperson of Biocon Biologics Ltd. and Ancient Women Characters – Sita, Draupadi, Kunti, Gandhari, and Sage Gargi Vachaknavi

Challenges:

Kiran Mazumdar Shaw was born on March 23, 1953, in Bangalore, Karnataka. She completed her education at Ballarat College in Australia. She is the founder and executive chairperson of Biocon Ltd, a biopharmaceutical company that faced innumerable challenges. She had to establish her name in the **male-dominated** biotechnology and pharmaceutical industries. There were so many **gender biases in funding.** Her difficulty in funding was aggravated as it was a new concept. She was not getting loans from banks and at the same time, she faced difficulty in finding employees as no one was willing to work for a woman during 1978(Zee Media Bureau,2023). Additionally, she faced **strong competition** from established players. She faced **technological issues** due to poor infrastructure.

Life of Ancient Women:

At the time of Sita Mata's abduction, she leaves her ornaments and jewelry to provide clues for Rama and Lakshman to find her. It demonstrated her **resourcefulness**. (Ramayan, Chapter 49). Dronacharya was indirectly killed by Pandavas, Ashwatthama son of Dronacharya killed five sons of Draupadi. When he was brought before her, she forgave him, understanding his state and a son's grief. This mirrors her **empathetic nature.**

Kunti raised her five sons alone and in that journey, she faced innumerable hardships. She provided emotional support to her sons and remained composed. After the war, Kunti 'the single mother ' faced the loss of her eldest son, Karna, and her grandsons. In all the mentioned situations, we can witness her **resilience**.

She never compromised her ethical principles. After the Kurukshetra war, she lost all of her sons, except one. Being a mother, she must have gone through immense grief. Still, she never blamed Pandavas for her son's death. She also did not direct her anger towards them. She displayed forgiveness in this incident, and she was always loyal. Thus, it showcased her commitment to **ethical values**.

She engaged in debates with renowned scholars like Yajnavalkya by asking intellectual questions relating to the nature of reality, self, and universe. She was capable of thinking beyond societal norms. This accentuated her **visionary thinking.**

Overcoming of Challenges:

At the time of starting Biocon itself, Kiran had a **strong vision** to make it a globally recognized company, which helped to motivate team members. She overcame the obstacles of gender biases through her **resilience**. She was able to create a positive work environment by understanding the needs of employees. This accentuated her **empathy**. Her **strategic thinking** and **optimal management of resources** significantly contributed to Biocon's growth. Her devotion to corporate social responsibility, sustainability, and ethical business practices mirrors **ethical values.**

Comparison of Women Leaders and Ancient Tales:

Both ancient women and Kiran displayed strong vision, resilience, empathy, ethics, and resourcefulness throughout their lives. Though they are from different eras, they exhibited similarities in qualities.

14. Interpretation and Analysis:

In this study, we have conducted a comparative analysis between women depicted in ancient scriptures and women entrepreneurs in contemporary society. The female entrepreneurs that we focused on for the analysis include Falguni Nayar, Vandana Luthra, Richa Kar, Radhika Aggarwal, and Kiran Shaw. The study compared the experiences of the above-mentioned women with Sita, Draupadi, Kunti, Gandhari, and Gargi.

We found striking **similarities between challenges** faced by women from different eras. It’s surprising to see that each woman from both categories dealt with **gender biases,**

societal norms, and personal hurdles while achieving their goals. Despite these challenges, they demonstrated exceptional **determination, resilience, and courage** in their pursuit of triumph.

Women of both earlier and contemporary times demonstrated **visionary thinking, decision-making, strategic thinking, and commitment to ethical values. Empathy and resourcefulness** can be observed as a shared characteristic among them. They gave precedence to the well-being of others whether it was their family, employees, or society as a whole. They significantly contributed to the **empowerment of others** by **breaking stereotypes.** Women from both present and past eras have proven themselves to be **adaptable**, whether in different environments or industries. Hence, all of these factors underscore their leadership abilities.

15. Hypothesis 1 (H1)

Thus the null hypothesis is rejected.

The hypothesis H1 is accepted - There is a significant difference between contemporary Women Entrepreneurs' lives and struggles in India when compared with Women Protagonists' lives and struggles from The Indian Scriptures.

16. Conclusion

In conclusion, a comparative study reveals the surprising resemblances between challenges faced by women, even though eras and contexts differ. The stories of Sita, Draupadi, Kunti, Gandhari, Sage Gargi Vachaknavi, and contemporary women entrepreneurs inspire us. We also witnessed similarities in their way of overcoming challenges with their exceptional leadership qualities such as determination, resilience, courage, visionary thinking, decision-making, strategic thinking and commitment to ethical values, empathy, resourcefulness, empowerment of others, and adaptability.

These women, separated by centuries, exemplify the enduring essence of women's empowerment and the capability to overcome adversity. Their stories challenge stereotypes, break down barriers, and accentuate the limitless potential of women in diverse fields. When contemplating these stories, we must acknowledge the historical contributions of women from past eras and celebrate the achievements of contemporary women entrepreneurs. By recognizing these shared qualities and challenges, we should work towards a more inclusive and equitable future, where women continue to excel and lead in all aspects of society.

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Ancient Indian Education System And National Education Policy And The Relevance Of Ancient Indian Education System

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Abstract:

The education system in ancient India, was a holistic approach to learning. Which is rooted in rich traditions and philosophies, encompassed various aspects of life. This research paper explores the fundamental elements of the ancient way of eduction, including its emphasis on Guru- Shishya, vidya (knowledge). Paper also go through the role of ancient institutions and universities like takshashila and Nalanda, which fostered in imparting the knowledge. The ancient Indian education system not only transmitted the knowledge but also developed personality, character, values within the learner and worked as a bridge between materialism and spirituality, leaving a well scientific and advance path to the world in education and philosophy.

The National Education Policy (NEP), approved by Union Cabinet in India in July 2020, is a wide-ranging and progressive framework that seeks to transform the country's education system. This research paper highlights the key features of the policy, such as the advancement of digital skills, emphasis on vocational learning, a flexible and multi-skilled approach to higher education and also promotion of regional languages. It also delves into the policy's focus on diversity, equity and inclusion, and the use of technology to enhance learning. 21st century referred as a century full of challenges and opportunities which is, a way different from the traditional one, and to overcome these NEP will help through encouraging critical thinking and creativity, and a holistic development through education. With its potential to reshape the structure of Indian education, this policy promises learners a brighter future with a view of jobs creator and not job seeker.

We have conducted a survey along with a literature review and collected and analysed the opinions on the relevance of ancient Indian education system in the newly proposed National Education Policy in India.

Introduction:

The Ancient Indian Education System was first of all mainly compromised on the four Vedas, which are as Rigveda, Saavedra, Yajurveda and Atharvaveda. In one or another way all four of these had common practices which were followed during ancient time and which is different from the current existing Education Policy.

Here are some ways through which we will get an idea about the Education System during Ancient India. The education system of that time was primarily oral, with knowledge being passed down from generation to generation through the Guru-Shishya tradition.

1. Guru-Shishya Tradition: Education was conducted in one-to-one manner, with a Guru (teacher) imparting knowledge to Shishyas (disciples or students). The Guru played a crucial role in the student's life, not just as a mentor but also as a guide in all aspects of life.
2. Oral Transmission: Writing systems were not widespread during this period, education relied heavily on oral transmission. Earlier knowledge used to pass down through discussions, and debates. In fact, one of the important Veda, Rigveda, collection of hymns and verses, was passed down orally from one generation to another, contributing in transmission of knowledge.
3. Rigveda: The Rigveda which is the oldest know Vedic Sanskrit text, used to be the central source of knowledge in ancient times. It contained 1028 hymns among which some are dedicated to various deities and 10,600 verses. Questions like origin of universe and many philosophies are being addressed. Students used to memorize and recite these hymns.
4. Curriculum and Subjects: The Gurukul System focused on a wide range of subjects beyond just religious scriptures. The 4 Vedas played crucial role, and gave a learning about the literature, art (Shilpa), philosophy (Darshana), scientific methods, mathematics (Ganita), ethics, astronomy (Jyotisha), and other practical skills. This

approach resulted into holistic development of student, intellectually, practically and also ethically.

5. Character Development: In the Ancient period, it is believed that one's behaviour towards the society and nature is more important so Guru used to emphasize on character development and imparting ethical values. Students were channelled in such a way that they live balanced life, uphold moral principles, and serve the society in the best possible way.
6. Practical Skills: Education was not only focused on bookish knowledge but also practical knowledge necessary for daily life. Teachings in different fields like musical instruments, arts, crafts, and vocational skills used to be provided by the Gurus. This ensures that in future if needed they can earn a livelihood from these skills and life a better life
7. Secluded Environment: The Gurukuls were located away from the village in an undisturbed environment. This allowed them to learn by staying away from the family. This helped them to be more focused on their education and develop a strong mindset.
8. Vedic Studies: Samaveda focuses on the musical aspect of the sacred hymns. Precise Svara (intonations or tone) and rhythms of hymns were demonstrated to learners. It is believed that if one recites the hymn with a proper Svara then energies in the form of chakras can be experienced and it also have a metaphysical significance.
9. Student-Centric: Education was individualized based on the skills and interests of each student. The Guru is aware of strengths and weaknesses of each student and provided personalized guidance accordingly.
10. Caste-based Education: The education system was often based to the individual's caste (varna). The priestly class, Brahmins, received education focused on rituals, and recitation of sacred texts. Kshatriyas, the warrior class, were trained to be in army along with some philosophical teachings. Skills related to trade and commerce were taught to Vaishyas, the merchant class. Shudras, the labouring class, considered as a backward class had limited access to formal education.
11. Ashramas (Stages of Life): In Hindu text of medieval era there were ashramas or stages of life: Brahmacharya (student life), Grihastha (householder life), Vanaprastha (retired life), and Sannyasa (renunciant life). In brahmacharya stage, education of child takes place, where students lived with their guru, acquired knowledge, and learned required life skills.

12. Emphasis on Sound and Pronunciation: Correct pronunciation of Vedic hymns was crucial, as it was believed that the vibrations which is created during recitation held spiritual power. Students spent a significant amount of time perfecting their pronunciation and intonation under the guidance of their guru.
13. Mental and Physical Discipline: Discipline in all aspects of life was emphasized in Vedic education system. Students were taught how to master their senses and, maintain a healthy lifestyle. Also helped to develop mental focus through meditation and self-control.
14. Women importance: Women were also educated in Vedic period as per the evidences despite in so called male dominant society. It is believed that women were a channel to transfer knowledge related to household duties, and social norms as well as religious rituals within the family.
15. Preservating Tradition: The Vedic education system played a critical role in preserving religious and cultural practices across generations. This ensured India's rich heritage and contributed to the development of society, in terms of spiritually as well as intellectually
16. Sanskrit: Sanskrit is one of the oldest language in the world and believed to be the best medium for transmitting knowledge. Students were taught how to read, write, and speak Sanskrit fluently.

Let us now get a little brief about the National Education Policy System. The National Education Policy (NEP) is a framework which will transform Bharat through providing a high quality education. It was approved by Union Cabinet on 29th July 2020, it will focus to increase the Gross Enrolment Ratio from 26.3%(2018) to 50% by 20235. Along with skill enhancement and technology integration, the policy aims at implanting a deep-rooted pride in being Bhartiya(Indian). The newly introduced Education Policy will now have a pre school for 3-6 age group and has quaternary structure at school education, namely, foundational, Preparatory, Middle and Secondary. The policymakers have come up with a change in evaluation and assessment methods. Also by 2040 all the HEIs shall aim to become multidisciplinary institutions and some new educational institutions will be established.

1. Holistic approach: Through integrating various skills and subjects, the new policy will leverage the growth of INDIA by shifting from British era's rote learning to a Holistic and multidisciplinary approach.

2. Early Childhood Education: The policy recognizes the importance of early childhood education and it will ensure foundational literacy for all children.
3. Flexible Curriculum: Based on their interests and aptitudes, NEP will provide a flexible curriculum that allows students to choose from a wide range of subjects and fields.
4. Skill-based Education: Nowdays, there is lot of competition and because of that the students need to be prepared. This policy will focus on imparting practical and vocational skills along with theoretical knowledge
5. Multiple Entry and Exit Points: The new policy will allow students to enter and exit academic programs without any barrier at various stages. It will help the students by giving the freedom if they want to explore and pursue different fields and paths like vocational education, diploma courses, management courses and degree programs.
6. Assessment Reforms: we have seen a performance pressure among students for the acedamics, the policy aims to transform assessment methods. So through assessing broader range of skills, emphasis on high-stakes board exams will reduce.
7. Teacher Training: NEP emphasizes the need for training programme for teachers. professional development of teachers and the use of technology in teaching these 2 aspects will be focused in that training period along with command over subject.
8. Digital Learning: NEP promotes the use of technology in education, including using useful online tools, online resources, digital classrooms, and e-learning platforms which will directly benefit the students.
9. Mother Tongue language as Medium of Instruction: NEP suggests using local language (mother tongue) as the medium of instruction up to at least Grade 5. It will promote better understanding and will help in retention of concepts.
10. Various Reforms in Higher Education: This policy recommends changes in governance and increased autonomy for educational institutions.it also aimed to double the gross enrolment ratio(GER) in higher education to 50% by 2035.
11. Research and Innovation: NEP has a great emphasis on research and innovation in education. It will encourage the establishment of research centers and cultivate a culture of curiosity and creativity.
12. Global Exposure: International exposure and collaboration is one of the key aspects of NEP, which will give more opportunities to students. Information exchange programs is one of them.
13. Student-Teacher Ratio: Teacher-student Ratio means number of students divided by no. of teachers. The desired ratio is 30:1 30 students:1 teacher

Objectives Of This Study:

1. To find out firstly how our Ancient Indian Education system was.
2. To find out about the National Education Policy Programme initiated by Government Of India.
3. To check if there is any relevance of ideas used in ancient Indian education system into the current existing National Education Policy Programme.
4. To conduct survey among different age groups regarding this.
5. To finalise the data collected from the survey.

Literature Review:

"The Educational Heritage of Ancient India: How an Ecosystem of Learning Was Laid to Waste" by Sahana Singh, published in 2017:

This book offers a thought-provoking exploration of the rich Educational traditions of ancient India and their decline over time. Sahana Singh takes readers On a journey through India's past, discussing the Gurukul system and the way knowledge was Transmitted in a guru-disciple relationship. She emphasizes the interdisciplinary nature of Education, where subjects like philosophy, science, mathematics, ethics, and arts were Integrated into the curriculum. The book also examines the impact of external forces, particularly the colonial era, on India's Educational traditions. Singh critically analyzes the British influence on the education system And how it led to a shift from traditional methods to a more structured, exam-oriented Approach. She discusses how the indigenous knowledge systems were marginalized and Replaced by Western education models. Singh argues for a return to certain aspects of the Gurukul system, such as personalized learning, experiential education, and a focus on Character development. She also suggests that Indian education should embrace its own Cultural heritage while adapting to modern needs.

Overall the whole book prompts readers to reconsider the education system's roots and the Potential benefits of incorporating elements of the past into contemporary education. It Encourages a broader aspect about the way of education in the modern era.

"Development of Education System in India" by J.C. Aggarwal, published in 2004"

This is a Comprehensive and insightful exploration of the evolution and transformation of the education System in India. This book offers a historical perspective, analyzing the various phases and key Developments that have shaped India's education landscape. Aggarwal begins by tracing the roots of education in ancient India, highlighting the Gurukul System and traditional modes of learning. He then delves into the impact of colonialism on Education, shedding light on how the British introduced a new model of education that catered To their administrative needs and often neglected indigenous knowledge systems. The book systematically covers different periods, policies, and challenges in India's educational Journey. It discusses the post-independence era, focusing on the establishment of universities, Expansion of access, and the challenges of equity and quality.

He acknowledges the progress made in terms of increased enrollment and the proliferation of educational institutions, while Also critiquing persistent issues like rote learning, lack of vocational education, and the need for continuous teacher training. However, given that the book was published in 2004, some of Its content might not be up-to-date with the latest developments in Indian education. Reforms and changes in policies may have occurred since then.

The document published and issued by "Ministry of Human Resource Development" of "Government of India":

It is a comprehensive and ambitious reform document introduced to Revamp the country's education system. It gives us a understanding of National Education Policy(NEP) by the Union Cabinet Of India in 2020, replacing the previous "National Policy Of Education,1986".

This document gives us the objectives and aim of the policy as it aims to Address the evolving needs of the 21st century and make education more holistic, flexible, and Relevant to the needs of students. Talks about the significant features of the NEP 2020, its emphasis on a multidisciplinary Approach to education, encouraging the integration of various subjects and skills, promoting a Well-rounded development of students. The most awaited reform is discussed, that is the policy Promotes flexibility in choosing subjects, allowing students to have a broader choice in their Academic pursuits. It also tells us how it promotes multiple entry and exit points within the Higher education system, making education more adaptable to individual needs. It talks about how NEP will promotes a multilingual approach to education, encouraging Students to learn in their mother tongue or regional language while also ensuring proficiency in other language.

It gives us the overall deep idea of the NEP with its practicality and Technicality and how it holds the potential to transform the Indian education system to better Suit the needs of the modern world.

"The Universities of India" by P. Seshadri:

Published in 1935, provides a historical and Informative overview of the universities in India during that time period. The book offers Insights into the state of higher education in India under British colonial rule and sheds light On the challenges and developments faced by Indian universities during that era.

The book offers a snapshot of the education landscape in India during the early 20th century, capturing The socio-political and cultural context of the time. It covers prominent universities like the University of Calcutta, Bombay, and Madras, as well as their efforts to balance Western Education with Indian cultural values.

The book discuss the challenges faced by Indian universities, including issues related to Funding, curriculum design, faculty training, and the integration of local languages and Subjects. It can light up debates around the balance between traditional knowledge and modern Education.

"The Heritage of Nalanda," edited by C. Mani:

It is a significant scholarly work that delves into The historical, cultural, and educational legacy of the ancient Nalanda University. Nalanda was A renowned center of learning in ancient India, attracting scholars and students from various Parts of the world. This book aims to capture and present the multifaceted heritage of Nalanda Through a collection of scholarly contributions. The book likely offers an in-depth exploration of Nalanda's history, tracing its origins, development. How Nalanda played a role in spreading Buddhist teachings across Asia is highlighted in this book. Nalanda University used to offer subjects such as astronomy, Literature, medicine, and arts.

The book is well-researched and well-written. It also provides a complete overview of the Nalanda Mahavihara. It is an insightful resource for anyone who is interested in the history and Philosophy of ancient times. One can easily gather the evidence of the education system patterns in ancient times, as it provides understanding into the methods and practices that were adopted and used at Nalanda for the holistic growth of learners.

1) History
2) Early Medieval Scholasticism:
3) Literature:
4) Monastic Education:
5) Nalanda Experience:
6) Art and archeology

The book discusses how Nalanda's influence has helped shaping education, culture, and philosophy not only in India but also beyond its borders. It suggests some efforts to revive the spirit of Nalanda through some along with contemporary Educational institutions and initiatives.

“Future of the Indian Education System: How Relevant is the National Educational Policy 2020?” by Narendra Jadhav

This book by Narendra Jadhav offers an insightful and relevant analysis of newly proposed India's educational scenario, particularly in the context of the National Education Policy (NEP) 2020. Jadhav thoroughly explores different facets of the NEP 2020, including its focus on comprehensive education, prioritization of skill enhancement, and proposed alterations in teaching approaches.

- Part I: The Evolution of Indian Education Policy
- Part II: The NEP 2020: A Critical Analysis
- Part III: The Challenges and Opportunities for Indian Education
- Part IV: The Way Forward

In the First Part, Jadhav give us a broad overview of historic developments of education policies and its evolution from Colonial time to the 21st Century and present day. Through laying out the historical data, he gives us the gist of principles that govern the current Education system.

In the Second Part, the writer, we can say, have done a SWOT analysis of the NEP 2020. Assessing the strength, weakness and current and future potential implications of education. Also highlights the challenges that we can faced in early childhood education.

In the Third Part, we get to know the multitude of challenges faced by the Indian Education system. Also highlights various barriers that hinders educational progress in India including socio-economic, structural and cultural barriers. Gender inequality, discrimination, reservations all these issues have been addressed.

In the Fourth and Final Part, the author gives certain recommendations and suggestions that one can consider for the future of Indian education, among these, teacher training programs, participatory learning, holistic approach and a technology driven curriculum were the prominent one.

After reading the book it became clear that the author has a expertise in the world of education and also a well knowledge of policy making. One can derive, the relevance and potential impact of NEP 2020. One who is interested and with a view of shaping the education system of India must consider this book.

Science and Technology in Ancient Indian Texts by Bal Ram Singh:

Bal Ram Singh in his book gives a in depth knowledge about the scientific and technological achievements of Ancient Bharat.

Part I: Mathematics and Astronomy

Part II: Physics and Chemistry

Part III: Engineering and Technology

Part IV: Medicine and Agriculture

In First Part, the author explores the remarkable advancements in mathematics(Ganita) and astronomy(Jyotisha) documented in ancient India, listing down the revolutionary concept of zero which showed a path to many mathematicians. The contributions of Aryabhata, Brahmagupta, and Bhaskara to the concept of trigonometry along with India's mastery on celestial observation and calculation and various astronomical theories is being pointed.

In the second part, the author makes the reader familiar with the foundational concepts of chemistry like theory of atom(anu), theory of light and sound. The innovation and experimentation of various chemical particles and matters that were practiced in the Ancient India and it is believed that the theory of gravity was given by Brahmagupta in 7th century.

In Third part, the author talk about the engineering and technological advancement in the ancient India, discusses their accomplishments in regards to infrastructure development, urban planning. Architectural marvels like Harappan cities, Ellora Temple which is made from cutting a single rock and many such techniques were being discussed in the book.

In the Fourth Part, Singh examines the healthcare techniques discussed in ancient text such as Sushruta Samhita and Charaka Samhita. Highlighting the facts of the first plastic surgery of World was held in India. Singh in his book discusses about the agricultural practices practiced in Ancient India like Crop Cultivation, Rotation and development of indigenous crop variety. The author is an expert on the history of science and technology in India, and he brings a Wealth of knowledge to the book. He provides a balanced and objective overview of the field.

The book is a valuable resource for anyone who is interested in learning more about the Scientific and technological achievements of ancient India. It is also a valuable resource for Historians of science and technology.

Data and Methodology:

▪ Data Collection: -

The Data for the research have been taken from both primary and secondary sources. For the Primary data we have made a sample survey on Google Form mainly focussing on people who are students to working professionals. And their opinion on the relevance of ancient Indian education on the New Education Policy.

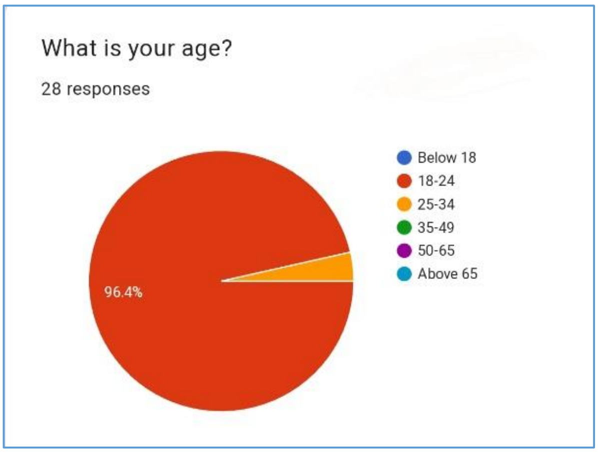
For the Secondary source, we have referred or read many books, websites and articles both on Ancient Indian Education System and on The New Education Policy and then conpared and checked if there is any relevance or not according to other authors and to our knowledge.

▪ **Results and Discussion:**

In today's time our education system is very different from what it was before. This is also because there was lesser technology during earlier times in our country but still the ancient education system is considered top tier till date as there is a lot of similarity while we study with the new education policy programme.

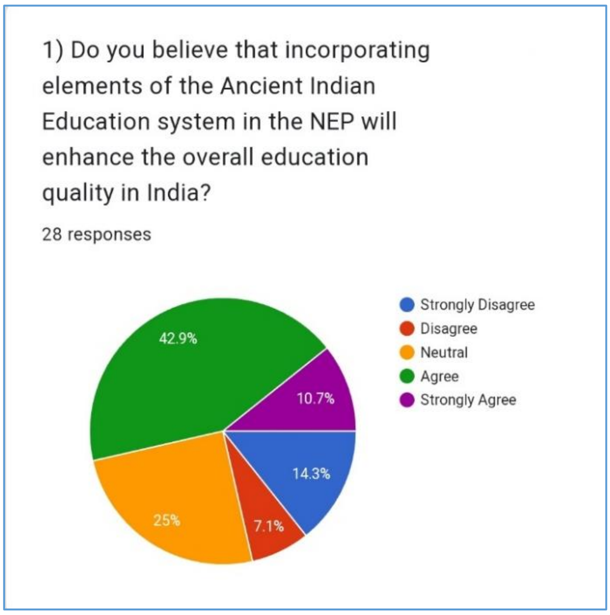
Hence a sample survey was conducted on the youth to understand how they feel about the current existing education system which is based on the New Education Policy and if it is different from Ancient Indian Education System and if there is any similarity between both of them.

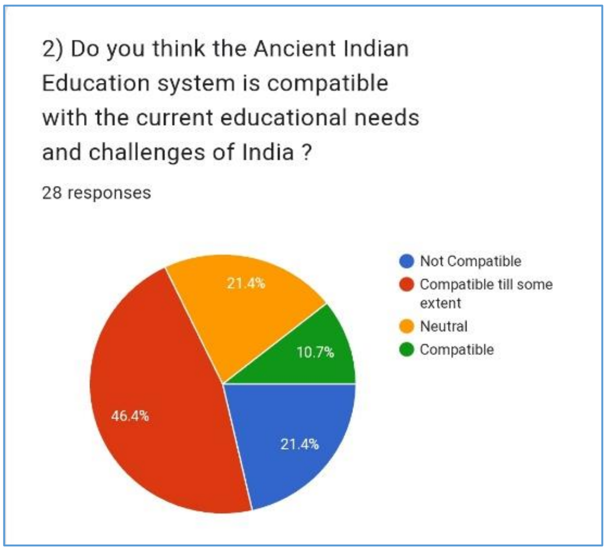
And the responses are below 👇



The respondents are ranging between below 18 and above 65. With the majority with 18 to 24, as it mainly focused on students because they know the pattern of education system currently and they can give out the best response or reaction to it.

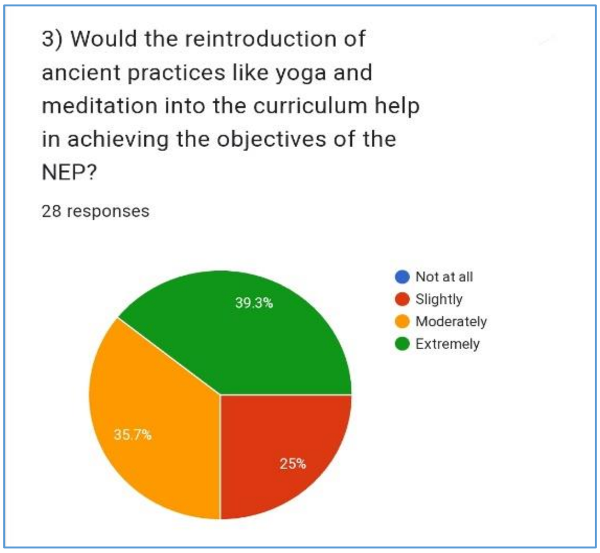
From the responses of first question we get to know around majority of people with 42.9% agree that incorporating elements of the Ancient Indian Education System in the New Education Policy will overall enhance the quality of education in India.There are 10.7% people who strongly agree with this while we have around 14.3% people who strongly disagree to this question as well.

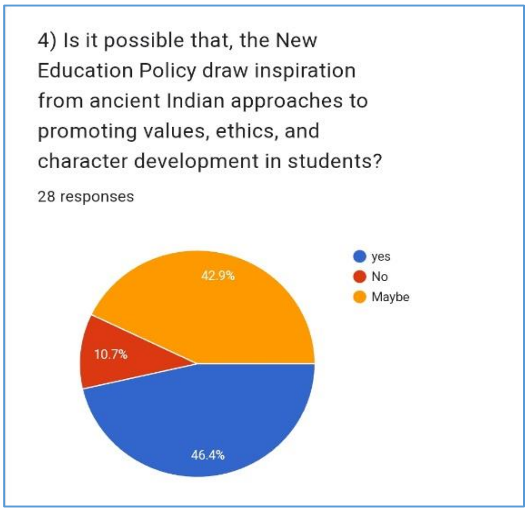




10.7 % of the responders think that Ancient Indian Education System is compatible with the current existing education system and the challenges it faces currently. While 21.4% people think that it is not compatible.

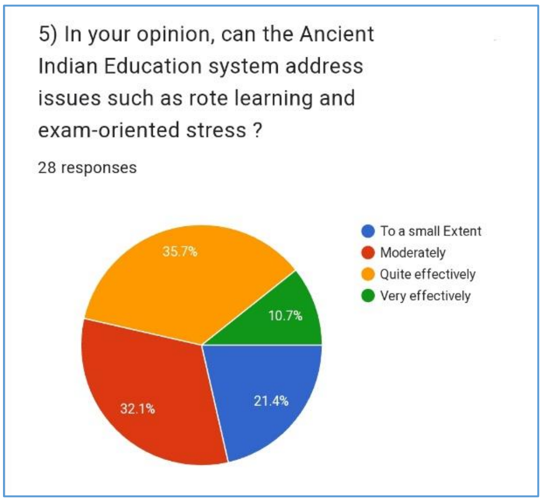
Majority with 39.3% of respondents think that the reintroduction of ancient practices like yoga and meditation into the curriculum help in achieving the objectives of the NEP.

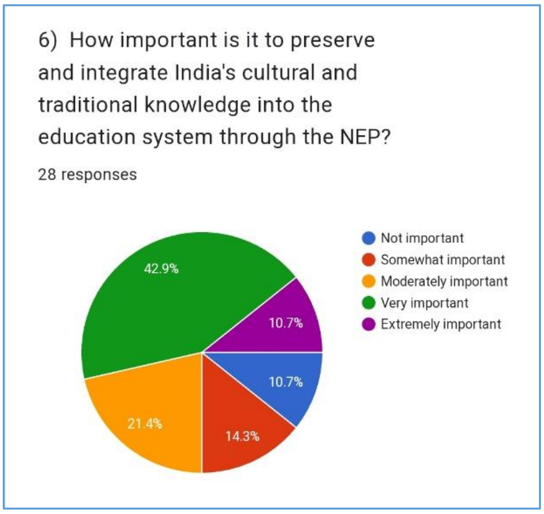




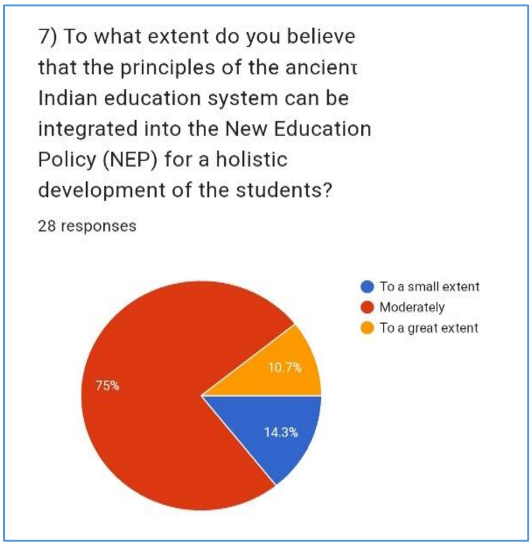
Majority with 46.4 % think that it is possible that, the New Education Policy draw inspiration from ancient Indian approaches to promoting values, ethics, and character development in students.

. Majority with 35.7% think that it is quite effectively possible that Ancient Indian Education system address issues such as rote learning and exam-oriented stress.

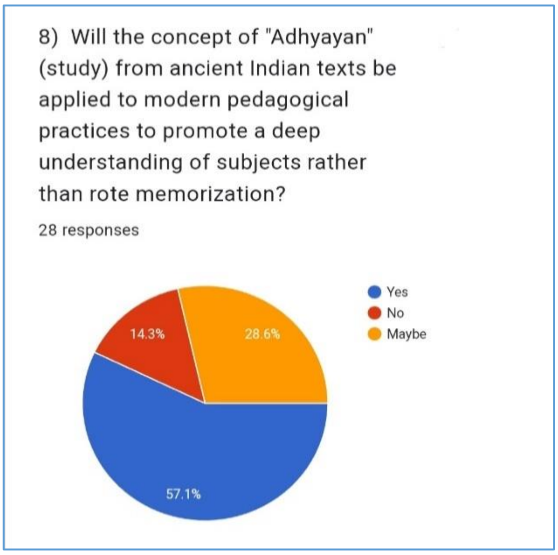




Majority with 42.9% think it is important to preserve and integrate India's cultural and traditional knowledge into the education system through the NEP. While 10.7% think it is not important.

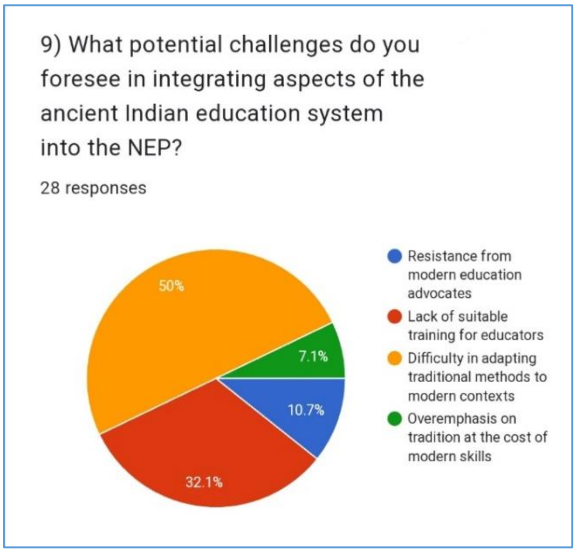


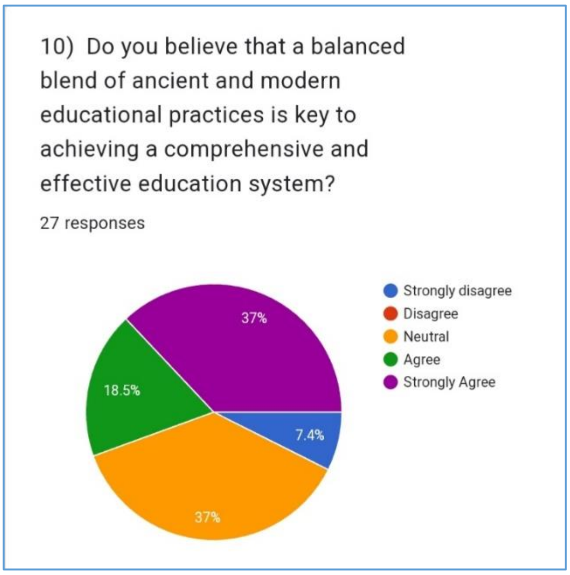
The responses to this question were neutral as moderate amount of respondents think that the principles of the ancient Indian education system can be integrated into the New Education Policy (NEP) for a holistic development of the students.



Majority with 57.1 % think that the concept of "Adhyayan" (study) from ancient Indian texts be applied to modern pedagogical practices to promote a deep understanding of subjects rather than rote memorization. While 14.3% think do not.

About 50% of the responders think that the potential challenge in integrating aspects of the ancient Indian education system into NEP will be adapting traditional methods into modern contexts.





The answer to the last question of the survey was 37% each that strongly agree and 37% that are neutral and believe that a balanced blend of ancient and modern educational practices is key to achieving a comprehensive and effective education system.

Suggestions:

1. Weapon Learning should be part of schooling, every student should learn in order to protect their sisters, mothers and themselves too. Self-Defence techniques should be taught.
2. Ancient Indian education systems have a rich cultural and historical significance. Incorporating elements of these systems can help preserve and promote India’s cultural heritage.
3. The Gurukul system often tailored education to the specific needs and traditions of local communities. Incorporating localized learning can make education more relevant and meaningful to students.
4. Teachings from 4 Vedas and elements of “Nalanda” and “Takshshela” will give students a knowledge about to know the purpose of one’s Life.
5. Ancient Indian education systems placed a strong emphasis on values and ethics. So first 3 Years of schooling after pre-primary should have moral and ethics lesson.

6. It’s important to note that the implementation of ancient Indian education policies should be done thoughtfully and in harmony with modern educational goals and methods. In order to better results strict laws should be made to have a Quality Teachers in Rural and Urban Areas
7. Spirituality must be included in the National Education Policy, activities like meditation and some sadhnas, which is not surrounded by any particular religion. This will not only make the student's state of mind stable but will also help them in putting their efforts and subconscious mind into one direction.

Conclusion:

Through this research paper we come to a conclusion that ancient Indian education system, often referred to as the Gurukul system, does have some relevance to the current education policies in India. Through the introduction of NEP we have seen a shift from a one-size-fits-all approach to a more localized and student centric model.

We get to know that there was a huge impact of colonialism on Indian Education System because britishers designed the system with a motive to meet their Administrative Needs. Also in the Gurukul system, education was not limited to academic subjects but also included character development, ethics, and physical fitness. Similarly, the NEP 2020 emphasizes holistic development by incorporating co-curricular and extra-curricular activities, life skills, and values education.

Also in ancient India, education was often personalized to the student’s needs and interests. The NEP encourages flexibility in curriculum design and assessment methods, allowing schools and teachers to adapt to the specific needs of their students.

The Gurukul system fostered a close mentorship between the(teacher) Guru and the (student) Shishya. The NEP recognizes the importance of this close mentorship and come up with a pupil teacher ratio which will enhance their learning and encourage more interactive sessions.

Sanskrit and the preservation of indigenous knowledge were central to ancient Indian education. The NEP acknowledges the significance of mother tongue and regional languages in education and promotes their use in teaching. It will also encourage the study of traditional Indian knowledge systems.

The Gurukul system encouraged students to think critically and solve real-world problems. The NEP aims to shift the focus from rote learning to a more inquiry-based and experiential learning approach. It encourages students to explore and analyze, fostering critical thinking skills.

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5 things we can adopt from the ancient Indian education system in the new-age of education reforms https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://timesofindia.indiatimes.com/blogs/voices/5-things-we-can-adopt-from-the-ancient-indian-education-system-in-the-new-age-of-education-reforms/&ved=2ahUKEwiW74LN4ImBAxWK-2EKHRwYAukQFnoECBUQBQ&usg=AOvVaw1MV5e9yEs11EuU37vfgmXM

The Role Of User Experience In Enhancing Gesture-Based Multi-Modal Interfaces For IoT

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Abstract:

This paper explores the significance of User Experience (UX) in advancing Gesture-Based Multi-Modal Interfaces for the Internet of Things (IoT). Understanding and enhancing UX becomes essential for efficient utilization and acceptance as gesture-based interactions gain popularity and IoT applications expand quickly. This study examines the benefits and problems associated with deploying gesture-based IoT device interfaces. This study intends to maximize the impact of gesture-based multi-modal interfaces for IoT by offering insights into how UX design may be customized to meet the different demands of users through a thorough assessment of existing literature and case studies.

Keywords: UX Design, Gesture-based Multi-Modal Interfaces, Internet of Things (IoT)

Introduction

Overview Of Gesture-Based Multimodal Interfaces In IoT:

In recent years, the proliferation of Internet of Things (IoT) devices has transformed the way we interact with technology, enabling seamless connectivity and automation in various aspects of daily life. Among the emerging trends in IoT interfaces, gesture-based multimodal interactions have garnered significant attention. These interfaces allow users to control and communicate with IoT devices using gestures, voice commands, touch inputs, and other modalities, offering a more intuitive and immersive user experience.

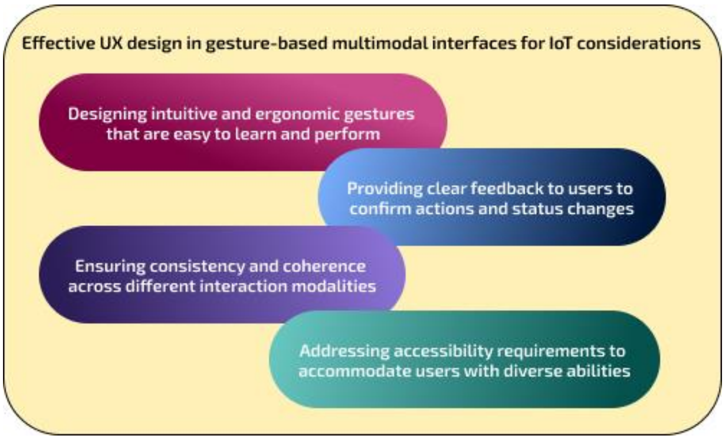
Gesture-based interactions leverage natural human movements to interact with digital systems, mimicking real-world interactions and reducing the cognitive load associated with traditional input methods. By incorporating gestures into IoT devices, users can perform tasks such as controlling smart home appliances, navigating virtual environments, and accessing information with greater ease and efficiency.

What is IoT and how does it work?

Importance Of User Experience Design In IoT Interaction:

User experience (UX) design plays a pivotal role in shaping the effectiveness and adoption of IoT devices, particularly in the context of gesture-based multimodal interfaces. A well-designed user experience not only enhances usability but also fosters user engagement, satisfaction, and trust in the technology.

In the realm of IoT, where devices often operate in complex and interconnected environments, UX design becomes even more critical. It involves understanding user needs, preferences, and behaviors to create interfaces that are intuitive, responsive, and accessible across diverse user demographics and usage scenarios.



By prioritizing UX design principles in the development of gesture-based interfaces, IoT devices can deliver enhanced user satisfaction, increased productivity, and greater acceptance in the market.

Current Challenges In Ux Design For Gesture-Based Multimodal Interfaces In Iot

Let's consider the example of a smart home system that utilizes gesture-based multimodal interfaces to control various IoT devices such as lights, thermostats, and entertainment systems. Here's how each of the mentioned challenges manifests in this context:

- **Gesture Recognition Accuracy:**

The smart home system relies on gesture recognition to interpret user commands accurately. However, variations in user gestures, environmental factors (e.g., lighting conditions), and hardware limitations (e.g., sensor accuracy) can lead to inaccuracies in gesture recognition.

Example: A user tries to turn off the lights with a gesture, but the system fails to recognize the intended gesture due to poor lighting conditions or interference from background movement.

- **Complexity Of Gestural Languages:**

Designing a gestural language that is both intuitive and efficient poses a challenge. Gestures need to be easy to learn and remember while also providing sufficient flexibility to accommodate a wide range of commands and interactions.

Example: The smart home system uses different gestures for controlling various devices (e.g., swiping to adjust thermostat settings, waving to turn off lights). If the gestures are too complex or inconsistent, users may struggle to remember them or accidentally trigger unintended actions.

- **Interference With Other Input Modalities:**

In a multimodal interface, gestures may interfere with other input modalities such as voice commands or touch inputs. Designing interfaces that seamlessly integrate multiple input modalities while minimizing interference is crucial.

Example: A user tries to adjust the volume of the TV using a voice command while another family member simultaneously gestures to change the channel. If the system cannot distinguish between the two inputs, it may result in confusion or unintended actions.

- **Accessibility And Inclusivity:**

Ensuring accessibility and inclusivity in gesture-based interfaces is essential. Designers must consider the needs of users with disabilities or impairments and provide alternative input methods or accommodations.

Example: A user with limited mobility relies on gesture control to interact with the smart home system. However, if the gestures require precise hand movements or dexterity, it may exclude users with motor impairments.

- **Privacy And Security Concerns:**

Gesture-based interfaces may raise privacy and security concerns, particularly regarding the collection and use of biometric data for gesture recognition. Designers must implement robust security measures and transparent privacy policies.

Example: The smart home system collects biometric data for gesture recognition, raising concerns about privacy and data security. If the data is compromised or misused, it could lead to unauthorized access to the home or personal information.

Addressing these challenges requires a holistic approach that combines technological advancements with user-centered design principles. By iteratively refining the gesture-based interface, considering user feedback, and implementing appropriate safeguards, designers can create a smart home system that delivers a seamless and secure user experience for all users.

Research Question And Objectives:

Against this backdrop, the research question guiding this study is: **"How can user experience design be optimized to enhance interaction with gesture-based multimodal interfaces in Internet of Things (IoT) devices?"**

The primary objectives of this research are to:

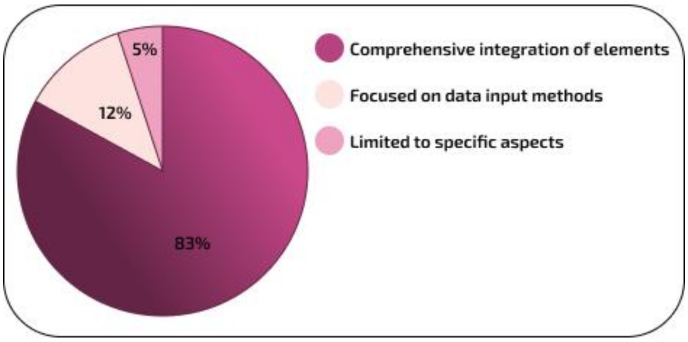
- Investigate current challenges in UX design for gesture-based multimodal interfaces in IoT.
- Explore the effectiveness of different gesture modalities and their impact on user experience.
- Identify best practices and design guidelines for improving UX design in gesture-based IoT interfaces.
- Provide practical recommendations for designers and developers to enhance interaction with IoT devices through effective UX design strategies.

Research Methodology:

Utilizing a mixed-methods research approach, this study amalgamates qualitative and quantitative methodologies to thoroughly explore the complexities and impacts of UX design in gesture-based multimodal interfaces within IoT contexts. Drawing upon insights gleaned from an extensive literature review, a structured questionnaire is devised. This questionnaire features a range of multiple-choice questions meticulously designed to elicit responses from users heavily invested in Tech and IoTs.

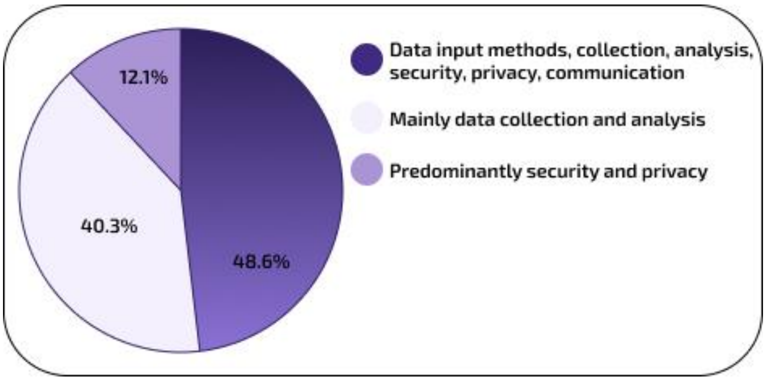
Data Analysis Results And Integration Of Findings:

The structured questionnaire is formulated using Google Forms and disseminated electronically to chosen participants through various online survey platforms. Participants are allotted a specific timeframe to complete the questionnaire, ensuring prompt data collection. Quantitative data gathered via the questionnaire underwent analysis utilizing descriptive statistics to discern prevalent patterns and trends within the responses.



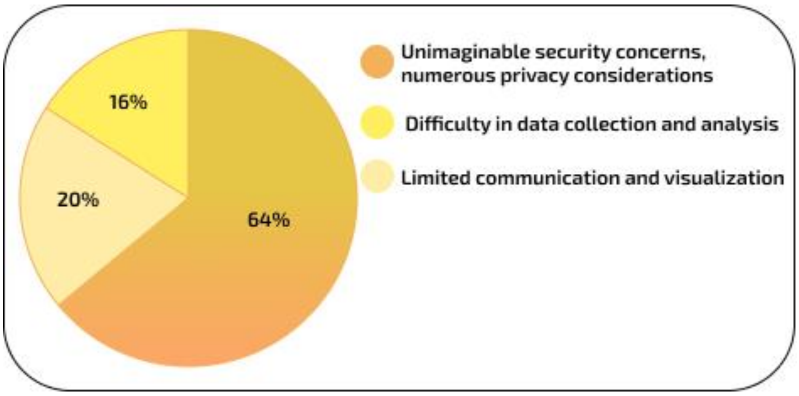
- **Perception of "SMART" in IoT**

The data from question 1 reveals that 83% of respondents perceive "smart" in IoT as a comprehensive integration of various elements, emphasizing the interconnectedness of data input, collection, analysis, security, privacy, and communication. This suggests a prevailing understanding of the complexity and interdependence within smart IoT systems. The 12% who chose *focused on data input methods* may prioritize specific aspects, possibly due to their expertise or focus area within IoT. Similarly, the 5% who opted for *limited to specific aspects* may have a narrower interpretation, possibly emphasizing certain elements over others based on their role or domain expertise.



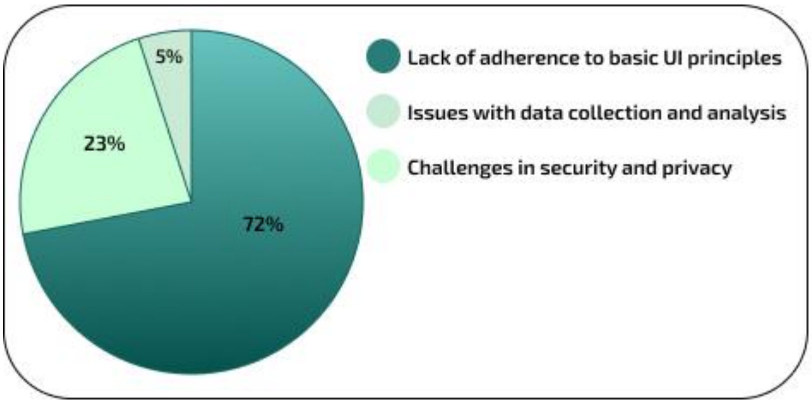
- **Key components of the "smart" concept in IoT**

The data from question 2 reveals diverse perspectives on the key components of "SMART" in IoT. Nearly half of respondents 48.6% prioritize a comprehensive integration of elements, reflecting the interconnected nature of IoT functionalities. The focus on data collection and analysis techniques by 40.3% suggests a data-centric approach to defining "smartness". Additionally, 12.1% prioritize security and privacy considerations, possibly driven by growing concerns about data protection and regulatory compliance. These findings underscore the complexity of defining "smart" in IoT and highlight the need to balance various elements in system design to meet diverse stakeholder needs.



- **Challenges in ensuring security and privacy in IoT**

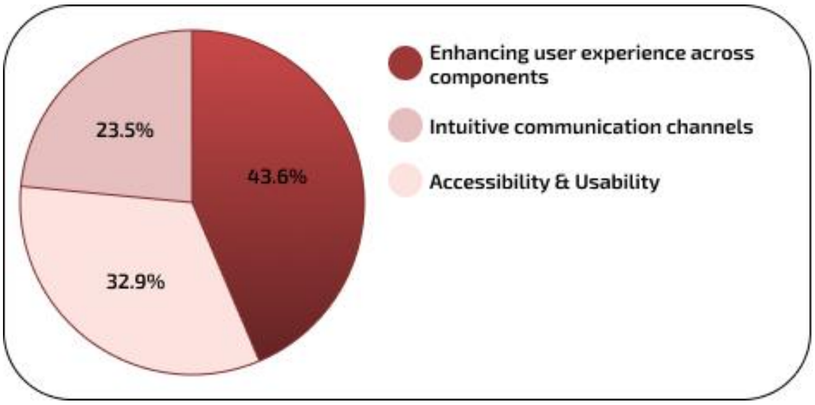
The data from question 3 reveals that 64% of respondents identified security concerns and privacy considerations as primary challenges in IoT. This highlights widespread recognition of the intricate security landscape surrounding IoT deployments. Additionally, 20% expressed concerns about data collection and analysis reliability, while 16% noted limitations in communication and visualization of IoT data. These findings underscore the multifaceted challenges in ensuring security and privacy in IoT, emphasizing the need for comprehensive solutions.



- **Shortcomings in existing dashboards and apps for IoT control**

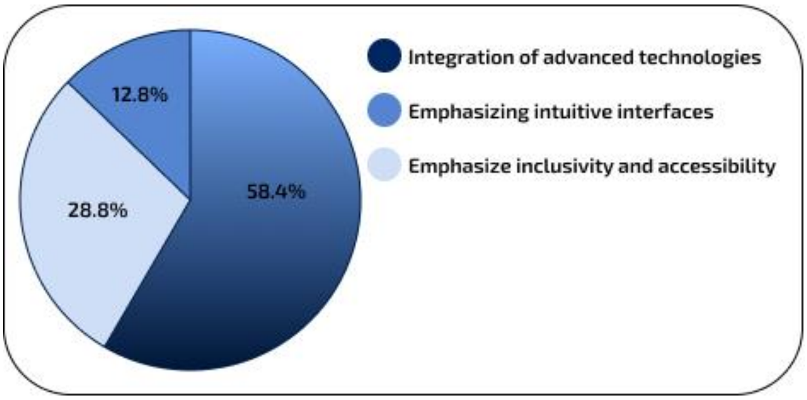
The responses to question 4 indicates that 72% of participants identified a lack of adherence to basic UI principles (option a) as a common shortcoming in existing dashboards and apps for controlling IoT devices. This suggests that a majority of respondents perceive usability issues in current interfaces, potentially leading to user frustration and inefficiencies in device control. Additionally, 23% expressed concerns about issues related to data collection and analysis, indicating a subset of participants who prioritize data accuracy and interpretation.

Furthermore, 5% noted challenges in security and privacy, emphasizing the importance of safeguarding sensitive IoT data. Overall, these findings highlight the need for improved UI design and data management practices to enhance user experiences and address security concerns in IoT interfaces.



- **Contribution of UX design in addressing IoT complexities**

The responses to question 5 reveal varied expectations regarding the contribution of UX design in addressing IoT complexities. Approximately 43.6% of respondents prioritize sensor design, dashboard development, and enterprise applications (option a), indicating a focus on enhancing user interfaces and functionalities. This suggests a recognition of the pivotal role UX design plays in shaping user interactions with IoT devices and systems. Additionally, 32.9% emphasize the importance of voice, alerts, and notifications, highlighting the significance of intuitive communication channels in facilitating user engagement and feedback. Furthermore, 23.5% underscore the need for methods to find and join apps, suggesting a focus on seamless integration and accessibility of IoT applications. Overall, these findings underscore the multifaceted contributions of UX design in addressing diverse challenges and enhancing user experiences in IoT environments.



- **Anticipated advancements in UX design for gesture-based interfaces**

The responses to question 6 underscore diverse expectations for UX design advancements in gesture-based interfaces for IoT. With 58.4% prioritizing advanced technologies for improved gesture recognition, respondents likely anticipate innovations like machine learning algorithms or sensor enhancements to enhance accuracy and usability. Additionally, 28.8% emphasizing intuitive interfaces may seek design improvements to streamline user interactions and feedback mechanisms. The 12.8% focusing on inclusivity may underscore the importance of addressing accessibility challenges, reflecting a growing awareness of diverse user needs. These findings collectively highlight the need for technological innovation and user-centered design to drive UX improvements in IoT interfaces.

Practical Recommendations:

User experience (UX) design plays a crucial role in ensuring that gesture-based multimodal interfaces in Internet of Things (IoT) devices are intuitive, efficient, and enjoyable for users. Based on my research and the questionnaire responses, UX design can contribute significantly to gesture-based multimodal interfaces in IoT by addressing several key aspects like:

- **Understanding User Context and Needs:** UX designers need to deeply understand the context in which IoT devices are used and the needs of the users interacting with them. This understanding helps in designing gestures that are natural and intuitive for users within their specific environment and task requirements.
- **User Research and Testing:** Conducting thorough user research and testing is essential for refining gesture-based interactions. UX designers can gather insights on how users naturally interact with objects and devices in their environment and iterate on design solutions accordingly.
- **Simplify Interactions:** Gestures should be simple and easy to remember. UX designers should aim to reduce cognitive load by minimizing the number of gestures required and ensuring consistency across different interactions and devices.
- **Feedback and Guidance:** Providing clear and immediate feedback is crucial in gesture-based interfaces. UX designers can incorporate visual, auditory, or haptic feedback to confirm user actions and guide them through the interaction process.

- **Accessibility Considerations:** Designing for inclusivity is paramount in UX design. Gesture-based interfaces should accommodate users with diverse abilities and preferences. UX designers need to consider alternative input methods and provide options for customization to ensure accessibility for all users.
- **Error Handling:** Anticipating and designing for errors is important in gesture-based interactions. UX designers should implement error prevention mechanisms and provide informative error messages to help users recover from mistakes easily.
- **Seamless Integration:** Gestures should seamlessly integrate with other modalities, such as voice commands or touch inputs, in multimodal interfaces. UX designers need to ensure consistency and coherence across different interaction modes to provide a unified user experience.
- **Scalability and Flexibility:** UX designers should design gesture-based interfaces that can scale across different devices and accommodate varying levels of user proficiency. Providing flexibility in gesture recognition algorithms and customization options can enhance the adaptability of the interface.
- **Privacy and Security:** UX designers need to address privacy and security concerns associated with gesture-based interactions in IoT devices. Implementing transparent privacy settings and secure authentication mechanisms can help build user trust and confidence in the system.
- **Iterative Design Process:** UX design is an iterative process, and continuous refinement based on user feedback and real-world usage is essential. UX designers should monitor user interactions, gather analytics data, and iterate on the design to continuously improve the user experience of gesture-based multimodal interfaces in IoT.

Conclusion:

Firstly, UX design stands as a critical determinant of user interaction and engagement in IoT environments. By prioritizing user-centric principles and intuitive interface design, UX professionals can enhance the usability and accessibility of gesture-based interfaces, thereby improving user experiences and satisfaction. Moreover, the integration of advanced technologies such as machine learning algorithms and sensor enhancements holds promise for optimizing gesture recognition accuracy and usability. This technological innovation, coupled with a deep understanding of user behaviors and preferences, can pave the way for more seamless and intuitive interactions with IoT devices and systems.

Furthermore, addressing challenges related to security, privacy, and inclusivity remains paramount in the development of gesture-based multimodal interfaces. By incorporating robust security measures, ensuring data privacy, and promoting inclusivity in design, UX professionals can foster trust and confidence among users while mitigating potential risks associated with IoT deployments.

Overall, this research underscores the multifaceted contributions of UX design in shaping the future of gesture-based multimodal interfaces in IoT. By embracing user-centric approaches, leveraging technological advancements, and addressing key challenges, UX professionals can unlock the full potential of IoT devices and systems, ultimately enhancing the overall user experience and driving innovation in the IoT landscape.

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Nudge Design Challenge On The Topic "Procrastination Reduction Nudge"

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Abstract:

Procrastination, the act of delaying decisions or tasks despite potential negative consequences, remains aprevalent challenge in modern society. Our project delves into its multifaceted nature, drawing from traditional and behavioral economics, as well as psychology.

Through rigorous examination of theories such as Temporal Motivation Theory and Emotional Regulation Theory, we uncover the underlying mechanisms driving procrastination behavior. We explore its impact on individuals, groups, and society as a whole, recognizing the opportunity costincurred when priorities are neglected

Our research culminates in actionable recommendations for individuals and organizations to combat procrastination. Strategies include enhancing time management skills, addressing emotional triggers, and utilizing pre-commitment devices. By fostering proactive decision-making and achievement, we aim to promote productivity and well-being across diverse contexts

In conclusion, our study contributes to a deeper understanding of procrastination and offers practical interventions to mitigate its detrimental effects. Through collaborative efforts and evidence-based strategies, we strive to empower individuals and institutions to overcome procrastination and achievetheir full potential.

Introduction:

Procrastination is the act of unnecessarily postponing decisions or actions and putting offtasks until the last minute despite the potential negative consequences. It is likely that procrastination has existed for as long as humans have lived and will until the end of time because no matter what you work on, you're not working on everything else.

So, we can say that procrastination is an opportunity cost incurred when individuals indulge in activities that don't necessarily align with their priorities or goals. Opportunity cost is the value of the next best alternative that must be forgone when a decision is made to pursue a particular option. In the context of procrastination, the opportunity cost is what could have been achieved or gained if the time spent procrastinating had been used more productively. Some of the costs incurred are lost time, missed opportunities, reduced quality of work, stress and anxiety, hampered personal development and impact on relationships.

The effects of procrastination cannot be just restricted to opportunity cost incurred at individual level. Procrastination can have effects on micro and as well as at macro levels. Within smaller groups or organizations, the effects can be felt in terms of team dynamics, project outcomes, and overall productivity. On a macro level, the society as a whole is affected when there are delays in important decisions or policy implementations. This canhave a ripple effect on the economy. We can say that procrastination can have a snowball effect and if identified and worked upon at the individual level, can boost the productivity,growth, and overall efficiency of an organization or even the whole society.

In this project, our objective is to explore various aspects of procrastination comprehensivelyby drawing from traditional economics, behavioural economics and theories of psychology and human behaviour. By understanding how individuals make decisions regarding task completion and time management, we aim to interpret the underlying mechanisms driving procrastination behaviour.

Our analysis will shed light on the economic implications of procrastination, including its impact on productivity and resource allocation. Leveraging insights from behavioural economics, we intend to devise a nudge mechanism aimed at mitigating procrastination tendencies. This mechanism will be intricately crafted to align with behavioural economic theories, employing strategies such as choice architecture and incentive framing to encourage more timely and efficient decision-making.

Furthermore, we seek to explore innovative approaches, such as gamification and social incentives, to further incentivize proactive behaviour. Through this comprehensive and multifaceted approach, our goal is not only to gain a deeper understanding of procrastinationbut also to develop practical interventions capable of positively influencing individual behaviour and organizational outcomes.

Objectives:

1. To examine practical methods for reducing procrastination tendencies and improving time management abilities.
2. To develop a nudge mechanism that assists individuals in breaking down tasks into smaller, achievable components or establishing efficient routines.
3. To evaluate the impact of incentives, reminders, and peer influence on encouragingtask completion and fostering productivity within the nudge framework
4. To justify the design choices of the nudge by applying principles from behavioral economics to demonstrate their effectiveness in influencing behavior.
5. To analyze and deal with the difficulties that come with using nudges to stop procrastination, considering things like behavioral changes that are sustainable, individual disparities in receptivity, and reluctance to change.

Literature Review:

Theories of Procrastination

1) Temporal Motivation Theory

About the theory:

Temporal Motivation Theory (TMT) is a dynamic model of motivation that deals with decision-making among multiple options over time. It suggests that motivation decreases when there is a long time before the reward is obtained and when individuals are sensitive to delays or impulsiveness. According to Temporal Motivation Theory, three key factors influence motivation: expectancy, value and impulsiveness. Expectancy refers to one's belief in successfully completing a task, value is a measure of how desirable the rewards are for completing a task and impulsiveness reflects the tendency towards immediate gratification.

How does it explain procrastination?

Temporal Motivation Theory (TMT) emphasizes how motivation decreases when people put their short-term mood ahead of their long-term goals. This causes people topostpone aversive tasks to avoid negative emotions. According to Temporal Motivation Theory, hyperbolic discounting—the phenomenon where motivation risesas a task's deadline draws near—causes procrastinators to lose focus on projects with ethereal rewards and hurdles. This theory is consistent with the finding that people tend to put off challenging or unpleasant tasks and give priority to enjoyable ones.

Using important motivational factors including self-efficacy, success motivation, and impulsiveness, Temporal Motivation theory highlights how people's impulsivity and sensitivity to delays can result in poor self-control and procrastination.

Some practical strategies to overcome procrastination using temporal theory

(i) Increase task value: Divide the work into smaller, easier-to-manage parts, andgive each completed part a value or reward. This could improve the task's appeal and boost motivation

(ii) Decrease delay: By reducing the time between initiating a task and receiving its rewards, individuals can enhance motivation and decrease the likelihood of procrastination

(iii) Enhance expectancy: Enhancing self-assurance in reaching intended resultscan increase drive and decrease procrastination tendencies in people.

(iv) Manage impulsiveness: Techniques such as mindfulness, self-monitoring, orcreating implementation intentions can help individuals regulate impulsive behaviors and stay focused on task completion

(v) Create structured plan: Structured plans provide a roadmap for task completion, helping individuals stay on track and minimize procrastination.

2) Emotional Regulation Theory

About the theory:

Emotional regulation theory posits that individuals engage in behaviours, such as procrastination, to manage their emotional states. It suggests that people procrastinateto avoid or alleviate negative emotions associated with tasks, seeking short-term reliefover long-term goals. This theory highlights the role of emotions in decision-making and behaviour, emphasizing how individuals regulate their emotions through various strategies, which can influence actions like procrastination.

How does it explain procrastination?

Research suggests that individuals employ various emotion regulation strategies to cope with negative emotions associated with tasks. These strategies may include avoidance behaviours, such as distraction or task substitution, which serve to regulateemotional states in the short term but often exacerbate procrastination in the long term. The literature exploring procrastination through the lens of emotional regulation theory provides a comprehensive framework for understanding the complex interplay between emotions, cognition, and behaviour underlying this prevalent phenomenon. By elucidating the emotional drivers of procrastination, this perspective offers valuable insights for developing effective interventions to help individuals overcome procrastination and improve their task management skills.

Some practical strategies to overcome procrastination using emotional regulationtheory

(i) Recognize triggers: Identify the emotions that trigger procrastination, such as fear, anxiety, or boredom, and develop a plan to address these emotions constructively

(ii) Challenge negative beliefs: Examine and challenge the beliefs that contribute to procrastination, such as perfectionistic thinking or catastrophizing, and replace them with more balanced perspectives.

(iii) Practice mindfulness acceptance: Learn to accept unpleasant feelings withoutpassing judgment on them and allow yourself to endure them while pursuing your objectives, as opposed to trying to repress them.

(iv) Implement mood repair: Choose healthy ways to improve your mood, such astaking breaks, engaging in enjoyable activities, or practicing gratitude, rather than resorting to procrastination as a quick fix.

3) Cognitive Behaviour Theory

About the theory

Cognitive Behavioral Therapy provides a structured and evidence-based approach to address the cognitive, emotional, and behavioral aspects of procrastination, offering practical tools for individuals to overcome this common challenge. Procrastination isoften explained in CBT as a result of dysfunctional thinking patterns, such as findingjustifications for delaying work or believing conditions will be better in the future

How does it explain procrastination?

Procrastination is defined in Cognitive Behavioral Theory as a difference between a person's true task performance and their intentions, goals, or priorities. Irrational ideasresulting from conventional methods of thinking frequently maintain this disparity.

CBT stresses that in order to effectively address procrastination, these irrational ideasmust be replaced with sensible ones. Some examples of cognitive distortions related to procrastination:

- Time perception distortions: Individuals may either overestimate or underestimate the amount of time needed to finish a task, which leads them toput it off.
- Perfectionism: Fearing mistakes, individuals may avoid starting or completinga task due to the belief that they won't meet their standards
- Catastrophizing: People may put off preparation or application processes if they think that failing at a task will prohibit them from having opportunities inthe future.
- Overgeneralization: Drawing conclusions based on single events, individualsmay avoid tasks due to previous failures

Some practical strategies to overcome procrastination using CognitiveBehavioral theory

(i) Behavioral Experiments: Therapists use behavioral experiments to challenge and reevaluate work methods and assumptions about one'sability to achieve tasks. This helps individuals adopt more realistic perspectives and reduce procrastination

(ii) Mindfulness training: Emphasizes developing a judgment-free awarenessof thoughts and feelings. People who are aware of their thoughts during procrastination might learn to break free from destructive habits and concentrate again on their responsibilities.

(iii) Coping cards: Individuals create coping cards with strategies or plans to overcome procrastination. Keeping these cards handy serves as a reminderof effective coping mechanisms during challenging moments

(iv) Self-reinforcement strategies: Encouraging oneself for small achievementsor progress made towards overcoming procrastination can reinforce positive behaviors and motivation

4) Freud's Psychoanalytic Theory

About the theory and how does it affect procrastination

Freud's psychoanalytic theory does not explicitly discuss procrastination in detail. However, some insights can be drawn from his broader concepts. Procrastinationmight be understood as a defense mechanism to avoid threatening situations or emotions, such as anxiety, fear, and insecurity

Early childhood experiences, particularly those related to attachment and separation, may play a role in procrastination, as individuals who struggled with disruptions in their attachments may find it difficult to complete tasks requiring separation or independent work Additionally, Freud's concept of the ego's recognition of threats posed by certain tasksmight apply to procrastination, as individuals may avoid tasks that trigger anxiety or discomfort.

Some practical strategies to overcome procrastination using Cognitive Behavioraltheory

(i) Explore early childhood experiences: Consider how previous experiences with attachment and separation may have shaped your current procrastinating habits. Knowing how your early connections affect your independence at workwill help you better understand why you tend to put things off.

(ii) Address self-esteem issues: Work on improving self-esteem and self-worth toreduce the fear of failure that may contribute to procrastination. Engage in activities that boost self-confidence and challenge negative self-perceptions

(iii) Improve emotional regulation: Enhance your ability to regulate emotions related to tasks by identifying triggers that lead to procrastination. Develop strategies to manage emotional responses and increase motivation to tacklechallenging assignments.

Theories of Behavioural Economics

1) Time Inconsistent Preferences

About the theory

When someone's choices alter over time as a result of changes in their values or preferences, this is referred to as having time-inconsistent preferences. The study ofhuman behavior in the setting of irrationality, self-control, and self-interest is knownas behavioral economics, and it is centered around this idea.

***How does this theory explain procrastination*?**

Time-inconsistent preferences can explain procrastination since people frequently place a higher value on short-term satisfaction than on long-term gains. For instance,someone can decide that they would rather start working on a project tomorrow whenthey feel like they will have more drive or energy. But when tomorrow approaches, this inclination shifts, and they keep putting off the task.

Tackling procrastination with Time-inconsistent preferences theory

(i) Pre-commitment: By making decisions now that lock you into future actions. Examples could include setting up automatic savings plans, scheduling regularexercise sessions, or using productivity apps to block distracting websites during work hours.

(ii) Framing: Framing a task as part of a larger goal or emphasizing the negative consequences of procrastination might encourage action.

(iii) Mental accounting: Breaking down large projects into smaller, manageablechunks can make them seem less daunting and reduce the temptation to procrastinate. Additionally, assigning specific budgets or deadlines to each subtask can provide structure and accountability.

(iv) Rewards and Penalties: External motivators such as prizes for timely completion or penalties for missing deadlines can be used to offset time-inconsistent preferences.

2) Present Bias

About the theory

Present bias is the tendency to prioritize immediate rewards over larger, delayed rewards, even when the latter offer greater benefits in the long term. It reflects a formof time inconsistency where individuals favor instant gratification despite recognizingthe potential for larger rewards in the future. This phenomenon, closely related to temporal discounting, leads individuals to discount the value of future rewards more than economic models predict, favoring smaller, immediate rewards. Present bias affects various decision-making contexts, such as savings, health choices, and procrastination, often leading to suboptimal outcomes. Understanding present bias iscrucial for designing interventions like pre-commitment devices and framing techniques to promote long-term decision-making. Psychological factors like impulsivity and self-control influence the degree of present bias observed across individuals and contexts.

***How does this theory explain procrastination*?**

Present bias explains procrastination by highlighting individuals' inclination to prioritize immediate rewards or relief over long-term goals. It involves:

1) Preferring immediate gratification: People procrastinate to avoid discomfort oreffort, opting for immediate rewards instead of long-term benefits.
2) Exaggerated discounting of future rewards: Procrastinators undervalue future benefits, leading them to delay tasks in favor of immediate rewards or stress relief.
3) Time inconsistency: Initial intentions to complete tasks give way to immediaterewards as deadlines approach, shifting behavior towards procrastination.
4) Coping with discomfort: Procrastination serves as a coping mechanism to alleviate negative emotions associated with tasks, offering short-term relief.
5) Self-control challenges: Present bias exacerbates self-control difficulties, making ithard to resist immediate distractions, perpetuating the cycle of procrastination.

Tackling procrastination with Present bias theory

Understanding present bias helps tackle procrastination by:

1) Setting Immediate Rewards: Structuring tasks with small, immediate incentives to maintain motivation.
2) Connecting to Long-Term Goals: Emphasizing how present actions align withfuture benefits to resist immediate gratification.
3) Using Pre-Commitment Devices: Employing strategies like public commitments or penalties for procrastination to align future actions with intentions.
4) Increasing Awareness of Future Consequences: Making future costs ofprocrastination clear to motivate action in the present.

5) Improving Self-Control: Utilizing techniques like mindfulness and self-monitoring to manage impulses and resist procrastination.
6) Creating Structured Environments: Designing spaces that minimize distractionsand reinforce task-focused cues.

3) Loss Aversion

About the theory

Loss aversion is a cognitive bias where individuals feel the pain of losing twice as intensely as the pleasure of gaining. This bias leads people to avoid losses and make decisions based on minimizing potential losses rather than maximizing gains. Loss aversion is influenced by various factors such as neurological makeup, socioeconomicstatus, and cultural background

***How does this theory explain procrastination*?**

Procrastination can be increased by loss aversion, which makes people put off chores or decisions in order to prevent possible losses from acting. Fear of making mistakes orsuffering unfavorable consequences can result in avoidance of behavior, when people put short-term anxiety alleviation ahead of long-term advantages.

Tackling procrastination with Loss Aversion theory

(i) Risk refraining: By focusing on potential gains and viewing setbacks as learning opportunities rather than failures, individuals can reduce the impact ofloss aversion on decision-making.
(ii) Gradual exposure: It is possible to help people become less sensitive to theirfear of failing by introducing them to activities or choices that cause loss aversion gradually. People can overcome the paralysis brought on by loss aversion by beginning with tiny steps and gradually gaining confidence.

Hypothesis Formulation:

Null hypothesis: - The nudge mechanism will not influence people's behaviour, and they will not cease procrastinating.

Alternative hypothesis: - The nudge mechanism will influence people's behaviour, and they will cease procrastinating.

Methodology:

Data sources: Primary data source: data collection done through two rounds of surveys which were conducted in a virtual as well as physical mode.

Secondary data source: collection of statistics, figures, data done through various articles onthe internet.

Size of survey 1: 85

Size of survey 2: 30

Methodology used:

Methodology of Project:

- Started with studying theories to understand underlying reasons of procrastination
- Theories of behavioural economics to understand it further.
- Conducted a survey to get real-time data and understand reasons why people procrastination
- Developed a nudge mechanism: app to tackle procrastination
- Conducted another survey to see if people will respond to the nudge, how and towhich extent they will respond.
- Found solutions, suggestions to improve the nudge mechanism.

Studying Theories: Began by delving into theories, particularly in behavioural economicsand economics, to grasp the fundamental causes of procrastination.

Survey Conduct: Administered a survey to gather real-time data and gain insights into the specific reasons why individuals engage in procrastination behaviours.

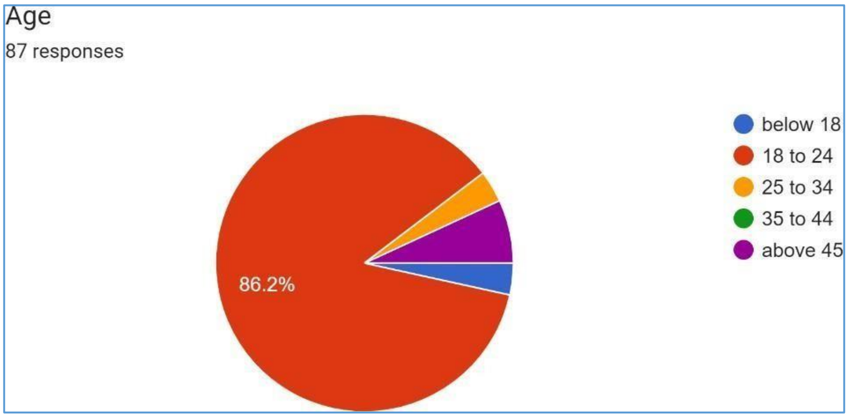
Nudge Mechanism Development: Developed a nudge mechanism, specifically in the formof a mobile application, designed to address and mitigate procrastination tendencies.

Second Survey: Conducted a follow-up survey to assess individuals' responses to the nudge mechanism, determining how and to what extent they engaged with it.

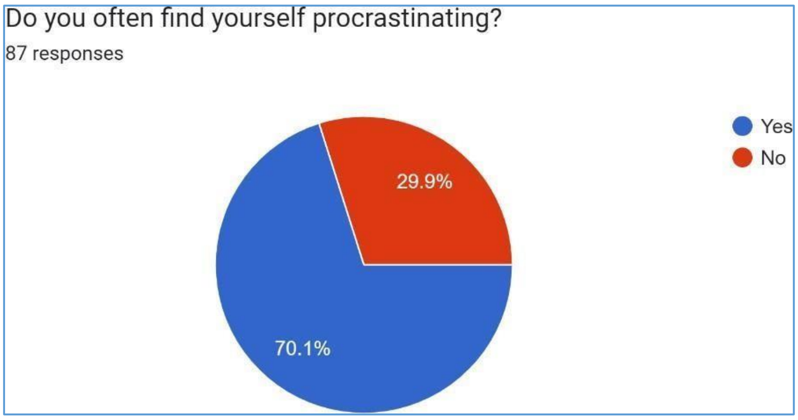
Solution Identification: Identified solutions and gathered suggestions for enhancing the effectiveness of the nudge mechanism based on the findings from the second survey.

Observation and Analysis:

Survey 1 – This was conducted to understand the reasons behind procrastination.

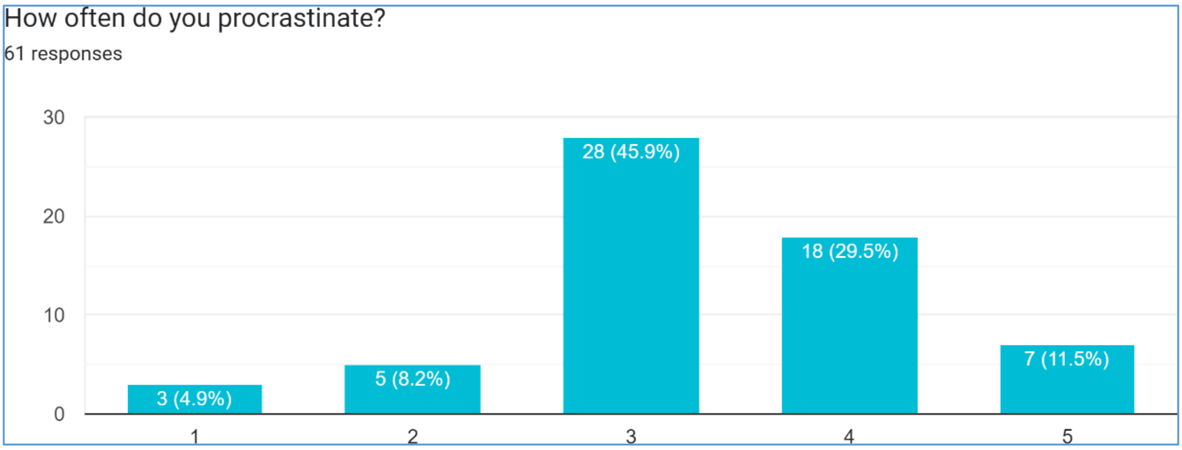


The prevalence of the 18-24 age category in nudge theory studies on procrastination impliesvaluable insights for interventions targeting this demographic. Yet, the presence of older agegroups emphasizes the need for age-diverse approaches. Tailored interventions should accommodate varying life stages and experiences to effectively address procrastination behaviour across age groups.

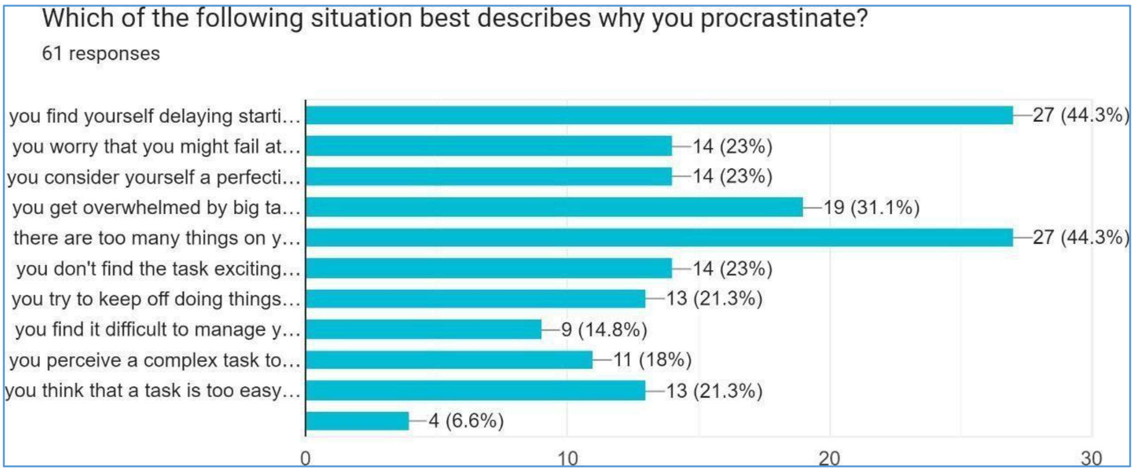


The study reveals a high prevalence of procrastination, with 68.3% admitting to often procrastinating. This highlights the significance of procrastination as a behavioural phenomenon within nudge theory. Understanding its contributing factors and developing effective interventions is crucial for productivity and well-being. Additionally, recognizingthe

31.7% who do not procrastinate suggests variations in susceptibility, necessitating tailored approaches for different segments of the population.



The distribution of responses highlights a moderate level of procrastination among the majority (46.4%) of respondents, indicating a nuanced spectrum of procrastination tendencies. While most fall within the moderate range, the presence of respondents at both extremes underscores individual variability. Tailored approaches are needed to address this spectrum effectively within nudge theory interventions.



The responses to the question on reasons for procrastination provide insight into various factors contributing to procrastination behaviours within the context of nudge theory. The predominant reasons cited include avoidance of challenging tasks due to stress (41.1%) and feeling overwhelmed by task complexity or volume (28.6%). Other significant factors include fear of failure (21.4%) and difficulty in task prioritization (42.9%). Additionally, personality traits such as perfectionism (19.6%) and discomfort with tasks (19.6%) also play a role.

These findings underscore the multifaceted nature of procrastination and suggest the importance of tailored interventions addressing cognitive, emotional, and situational factorsto effectively mitigate procrastination tendencies.

Analytically, the responses to the question regarding the reasons for procrastination offer valuable insights into the multifaceted nature of procrastination behaviors within the framework of nudge theory. The predominant reason cited by respondents is delaying challenging tasks to avoid stress, opting instead for enjoyable activities. This highlights the role of emotional regulation and the avoidance of negative feelings as significant drivers of procrastination, indicating a potential target for interventions focused on managing emotions and increasing task engagement.

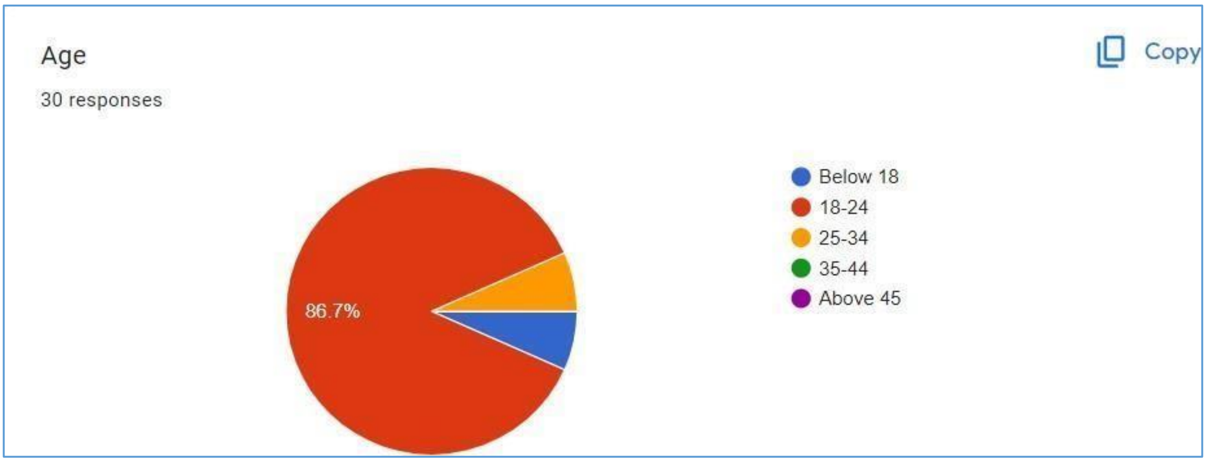
Additionally, responses such as worrying about failure, feeling overwhelmed by large tasksand struggling with decision-making due to task overload underscore the cognitive and situational factors that contribute to procrastination tendencies. These findings suggest the importance of addressing cognitive biases, such as fear of failure and decision paralysis, through nudges aimed at promoting task prioritization and breaking down large tasks into manageable components.

Furthermore, responses indicating perfectionism and discomfort with tasks highlight the role of individual personality traits and motivational factors in influencing procrastination behavior. Tailored interventions focusing on self-compassion, realistic goal-setting, and building resilience to discomfort may be effective in addressing these underlying factors.

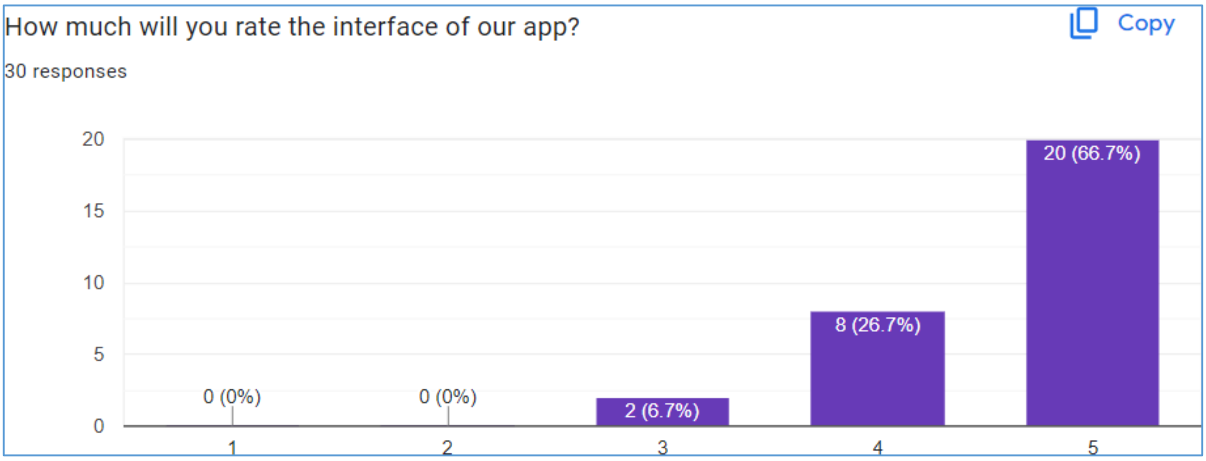
The diversity of reasons cited for procrastination, including task difficulty perceptions, task excitement levels, impulse management difficulties, and task underestimation, underscores the need for a nuanced and multifaceted approach to intervention design within the framework of nudge theory. By targeting specific cognitive, emotional, and situational factorsimplicated in procrastination, tailored nudges can effectively promote behavior change and facilitate task initiation and completion.

The psychological theory of procrastination seen in the responses is largely aligned with the Cognitive-Affective Theory of Procrastination (CAP). This theory posits that procrastinationis influenced by both cognitive factors (such as task difficulty perceptions, fear of failure, anddecision-making difficulties) and affective factors (such as emotional regulation, stress avoidance, and task excitement levels). The responses indicating avoidance of challenging tasks due to stress, fear of failure, feeling overwhelmed by large tasks, and struggling with decision-making align closely with the cognitive and affective dimensions outlined in CAP. Additionally, the mention of personality traits like perfectionism and discomfort with tasks reflects individual differences in motivation and affect that CAP also considers. Overall, the multifaceted nature of procrastination behaviors described in the responses aligns well with the Cognitive-Affective Theory of Procrastination.

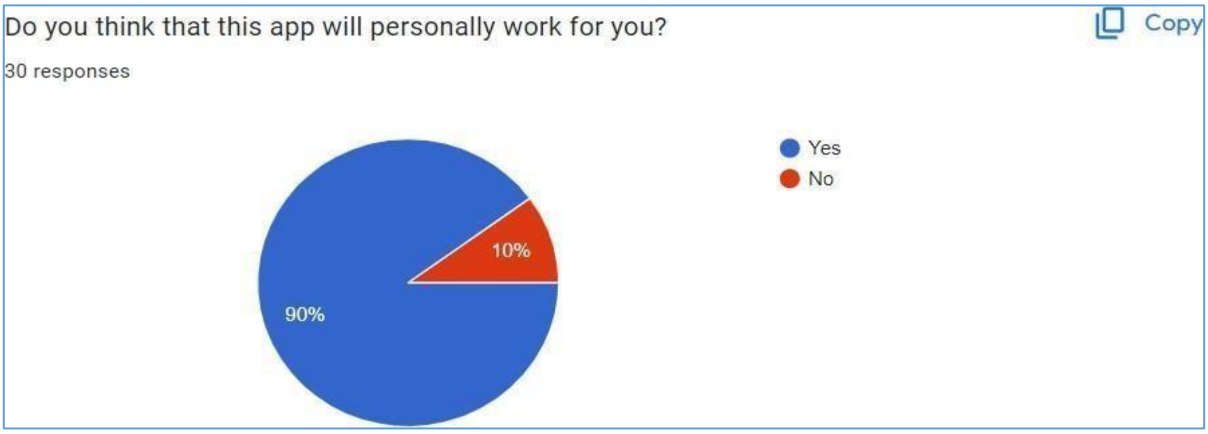
Survey 2: Feedback of app analysis



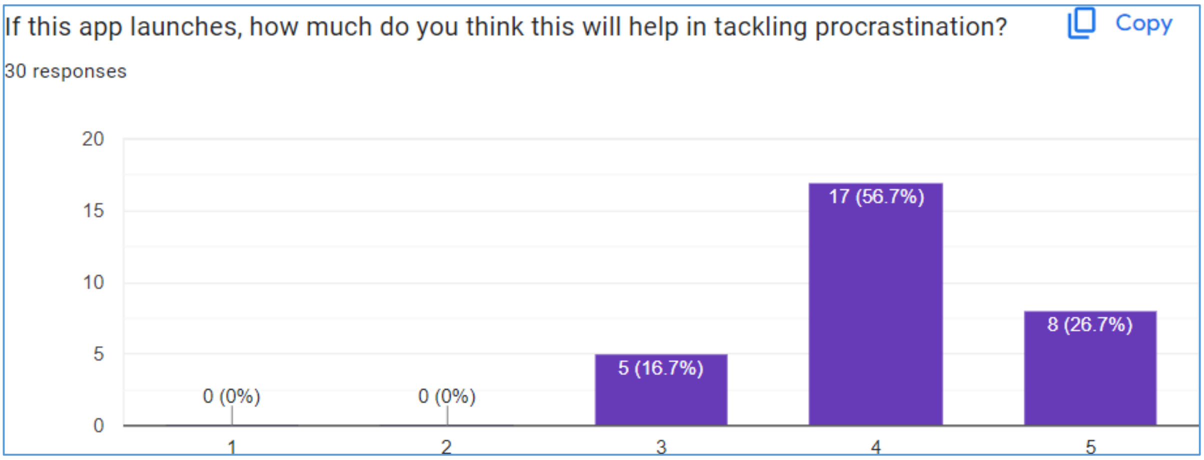
The majority of respondents to the 'age' question fall into the 18-24 category, comprising 86.7% of the total. A smaller but still notable portion, 6.7%, belongs to the 25-34 category. The remaining respondents fall below the age of 18. This information suggests that the apphas a strong appeal to a younger demographic, particularly those in the late teens and early twenties, but it also attracts users in their mid-twenties to early thirties.



The majority of respondents (66.7%) gave the highest rating of 5, indicating a strong positiveperception of the app's interface. A significant portion (26.7%) rated it as 4, suggesting overall satisfaction but with some room for improvement. The lowest rating of 3 was given by 6.7% of respondents, indicating a smaller group with more critical feedback. Consider investigating comments or additional feedback to identify specific areas for improvement and refine the interface based on the majority's positive reception.



The majority of respondents (90%) express confidence that the app will personally work for them. This high positive response suggests a strong belief in the app's potential effectiveness.The 10% who responded negatively may offer valuable insights into specific concerns or areas for improvement, warranting further exploration to enhance overall user satisfaction and app effectiveness.

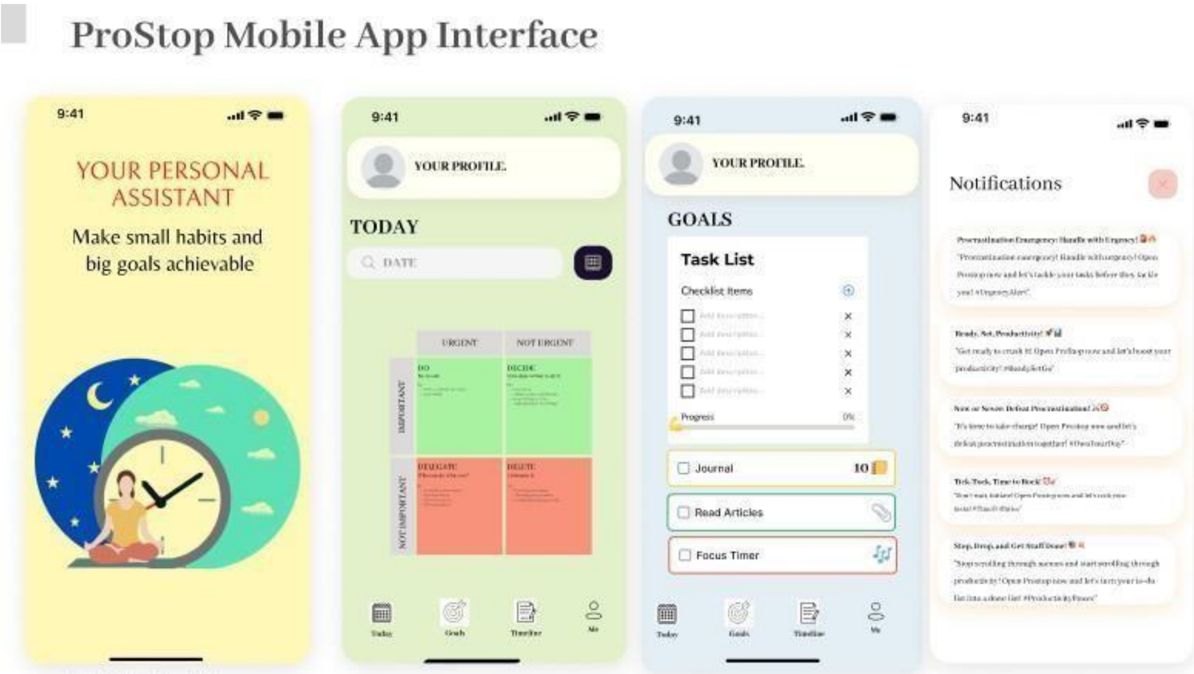


The majority of respondents (56.7%) gave the app a rating of 4, indicating a high level of confidence in its potential to help tackle procrastination. Another substantial portion (26.7%) rated it as 5, further supporting positive perceptions. While a smaller percentage (16.7%) gave a rating of 3. Overall, the responses suggest a strong belief among users that the app willbe effective in addressing procrastination.

Nudge Mechanism To Tackle Procrastination:

For the nudge in our project aimed at reducing procrastination, we've conceptualized an app idea. The goal of the app is to reduce procrastination and it is called ‘ProStop’, a shortened form of "procrastination stop." To bring this idea to life, we used ‘Figma’, a web designing app,to develop the app's interface, providing a glimpse of what users will experience once the app is launched.

About Our APP



Interface of the app

Detailed Explanation

As users open the ProStop app, they are greeted with this opening page. The opening page presents the message "Your Personal Assistant," emphasizing the app's role in assisting users in overcomingprocrastination.

In our ProStop app, we leveraged colour theory to design an interface that promotes productivity and positivity. Color theory explores how colors can influence human emotions, behaviors, and perceptions. It helps in creating visually appealing designs and evoking specific responses from users.

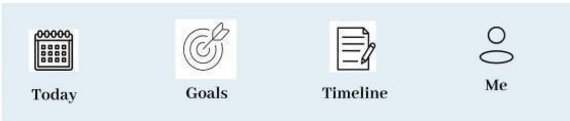
The background colour of the opening page is yellow, which is associated with happiness, positivity, and optimism. This choice aims to catch users' attention and set a positive tone for their experience withthe app.

Additionally, we used red colour for the phrase "Your Personal Assistant" on the opening page. Red is known to retain attention and stimulate excitement, making it an ideal choice to emphasize the importance of the app's roleas a personal assistant in combating procrastination.

Additionally, our logo, meticulously designed using Canva, aligns with the overall aestheticand purpose of ProStop. We've ensured that the logo's colors complement the app's theme.

After the opening page, users are greeted with a screen featuring four options or tabs locatedat the bottom of the interface:

- Today
- Goals
- Timeline
- Account



These tabs serve as navigational elements, allowing users to access different sections of the app based on their preferences and needs. Each tab provides distinct functionalities aimed at aiding users in their journey to combat procrastination and achieve their goals effectively.

About Each Tab

1. ‘TODAY’ TAB

Within the "Today" tab of the app, users are greeted with a screen designed to facilitate short-term goal setting and task management. The background color of this tab is a soft green, chosen for its association with growth, balance, and harmony.

This colour choice creates an environment conducive to focused decision-making and action-taking.

Instead of a conventional to-do list, we have used the **Eisenhower Box**, also known as the Urgent-Important Matrix. This box divides tasks into four categories: Do, Decide, Delegate, and Delete. Each category is color-coded to provide visual cues to users:

- Green represents tasks that are both urgent and important, encouraging immediate action ("Do") as well as tasks which are Important but not urgent (“Decide”) prompting users to schedule these tasks for laterconsideration.
- Red is used for tasks that are urgent but not important (“delegate” i.e. assigning the task to others) and tasks which are neither urgent nor important (“delete”) which should simply be eliminated.

By incorporating color-coded categories, we simplify task prioritization and empower users tomake informed decisions about where to focus their time and energy.

2. ‘GOALS’ TAB

Within the "Goals" tab of the app, users can focus on long-term goal setting and taskmanagement. The background colour of this tab is a soothing blue, chosen because it is associated with calmness, serenity, and productivity. This color choice aims to evoke feelings of renewal and freshness, providing users with a supportive environment for tackling their goals and overcoming procrastination.

On the task list within the Goals tab, users can view and manage tasks thatneed to be completed within a month or longer. Additionally, a progress bar accompanies each task, allowing users to track their progress towards achieving their goals effectively. Below the task list, three options are available:

1) Journal: The journaling option serves as a space for users to reflecton their actions and progress. By committing to journaling, users engage with the *commitment device theory. If a user consistently writes in their journal for two consecutive days, a streak begins, indicated by anumerical count. This streak increases with each subsequent day of journaling, similarto Snapchat streaks. However, if a user fails to write in their journal for two days, the streak breaks, and they must restart their streak.

   Commitment devices are tricks we use to help us stay committed to our goals, like setting up astreak for journaling in the app. It's a way to motivate ourselves to keep going by making it harder to quit

2) Read Articles: Users can access articles discussing why people procrastinate and strategies to overcome procrastination. This knowledge empowers users with insights about procrastination, enabling them to make informed decisions and take proactive steps towards combating procrastination.

3) Focus Timer: The focus timer feature allows users to set dedicated time intervals for tasks or meditation sessions. Users have the option to play soothing music or mantras during meditation, creating a calming atmosphere conducive to focus and productivity.This space also serves as a self-affirmation and meditation space for users struggling with procrastination due to anxiety or perfectionism.

3. NOTIFICATIONS

Notifications in the app serve as *positive reinforcements, providing encouragement and motivation for users to engage with the app. By receiving notifications with uplifting messages like

"Ready, Set, Productivity!
Get ready to crush it!
Open Prostop now and let's boost your productivity!
#ReadySetGo" and "Tick-Tock, Time to Rock!
Don't wait, initiate! Open Prostop now and let's rock your tasks!
#TimeToThrive",

Users feel empowered and inspired to take action towards their goals. These notifications act as reminders of their commitment to productivity and serve as prompts to open the app and continue their journey towards overcoming procrastination.

Positive reinforcement is like getting a reward for doing something good.It's like a pat on the back or a thumbs-up that encourages you to keep doingwhat you're doing.

To summarise, in ProStop, our goal is to combat procrastination through an intuitive app interface designed with user psychology in mind. Using Figma, we crafted an engaging user experience centered around color theory, evident in the cheerful yellow openingpage and calming blue Today tab. Each feature, from the Eisenhower Box to journal streaks and article insights, is meticulously tailored to empower users in their productivity journey. Positive reinforcement through notifications further reinforces users' commitment, fostering a supportive environment conducive to achieving their goals and overcoming procrastination.

Conclusion:

Our project aimed to combat procrastination and enhance time management through the development of the ProStop app, a nudge mechanism designed to break tasks into manageable parts and establish productive routines. Grounded in behavioural economics principles, we explored various strategies, including incentives and peer influence, to encourage proactive behaviour.

We utilized both primary and secondary data sources to investigate procrastination and developeffective interventions. Primary data collection involved two rounds of surveys, both virtual and physical. We began by studying theories, particularly in behavioural economics and economics, to understand the underlying reasons for procrastination. This informed the development of a nudge mechanism ProStop, designed to tackle procrastination tendencies.

Overall, our project employed a multifaceted approach combining theoretical study, data collection through surveys, and the development of a practical intervention to address procrastination. Through this comprehensive methodology, we aimed to gain insights into procrastination behaviours and provide individuals with tools to better manage their time and tasks.

Suggestions:

Reducing procrastination requires a multi-faceted approach, involving both personal awareness and external support systems. One suggestion could be to introduce time management classes into schools at an early age, teaching students about the importance of managing their time effectively and how to avoid procrastinating on tasks. This would allow them to develop goodhabits from a young age, making it easier for them to manage their time as they grow older.

Another suggestion could be to encourage individuals to analyse their own working styles andpreferences, allowing them to identify what works best for them when it comes to productivity.For example, some people may find that taking regular short breaks helps them stay focused, while others might prefer longer periods of uninterrupted concentration. By understanding theirindividual needs, people will be better equipped to create a productive environment for themselves. Additionally, techniques such as ‘pomodoro technique’ can provide structure and guidance for those who need assistance staying on task.

Governments can also intervene and help in combating procrastination by mandating time management education in schools, enforcing workplace efficiency regulations, and launching public awareness campaigns. These measures promote proactive behavior and provide supportfor individuals struggling with procrastination, fostering a more productive society.

Overall, by combining personal reflection with structured learning opportunities, individuals can take control over their own productivity levels and reduce the amount of time spent procrastinating.

Solution:

Following were some inputs given by potential users:

- There should be a specific alarm or reminder which will timely remind you to complete your to-do list. Time to time alarm will help to grab the attention so that one doesn’t forget to do their work.

- Enhanced commitment device like linking the Prostop app to a clock app which will automatically set an alarm for the task decided.
- ‘Today’ Tab can be made more interactive and attractive
- Notifications can include recent trends and memes.
- There can be better incentives rather than just personalization of account that will actually motivate people to stick to their goals, like some coupons or discounts

These are the solutions we have come up with to improve the application:

- Implement customizable alarms or reminders within the app to prompt users to complete their to-do lists, ensuring timely notifications to maintain focus and prevent forgetfulness.
- Incorporating social accountability features into the app, such as allowing users to connect with friends or join groups to share their progress and goals. By fostering a sense of community and accountability, users may feel more motivated to stick to theirtasks and commitments.
- Improve the visual appeal of the ‘Today Tab’ by incorporating attractive designelements and user-friendly layouts to enhance overall user experience and retention.
- Introduce meme-style notifications to inject humor and entertainment into reminders, making them more engaging and memorable for users.
- Enhance motivation by offering tangible incentives such as coupons or discounts for achieving goals, providing additional rewards beyond personalization to encourage sustained engagement and progress.

Contribution:

Our project has deepened our understanding of procrastination by bringing together different theories and insights, giving us a clearer picture of why it happens and what factors contributeto it. We've turned this understanding into action by creating tools like the ProStop app, whichdirectly tackle procrastination. This isn't just about theory; it's about real solutions that can helppeople overcome procrastination and become more productive and happier in their lives.

Learning:

Throughout our project, we studied many theories about procrastination, understanding why ithappens and how it affects us. We also learned how to design apps effectively, focusing on creating tools to help people with behavioural challenges like procrastination. Using ideas frombehavioural economics, we got better at understanding why people make certain decisions, especially when it comes to procrastination. We didn't just stick to theories; we also learned practical skills like designing surveys and collecting data, which helped us gather important information. This learning journey wasn't just about procrastination; it also taught us valuable skills in research, design, and helping people change their behaviour for the better.

This learning journey wasn't just about procrastination; it also taught us valuable skills in research, design, and helping people change their behaviour for the better.

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Appendix

Questions of Survey 1

Q1) NameQ2) Age

Q3) Do you often find yourself procrastinating?Q4) How often do you procrastinate?

Q5) Which of the following situation best describes why you procrastinate?

Questions of Survey 2

Q1) Age

Q2) How much will you rate the interface of our app? Q3) Do you think this app will personally work for you?Q4) If no, please specify the reason

Q5) Please drop suggestions, if any

Q6) If this app launches, how much do you think this will help in tackling procrastination?

Using Attendance For Exercise & Better Health Using Nudge Design & Behavioral Economics Principles

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Introduction:

Recently, public health trends have seen a significant difference due to rising mortality ratesamongst young adults and children. As per the statistics, 27% of deaths in India are caused bycardiovascular diseases. While heart attacks are commonly associated with adults and oldindividuals, a staggering percentage of increasing death rates has been observed in teenagersand young adults. Even with the overall medical care advancements and initiatives, it hasbecome the need of the hour for targeted interventions and heightened awareness surroundingheart health from an early age. Understanding the factors affecting the mortality rates hasbecome a crucial factor in public healthcare and wellbeing and thus to formulate importantstrategies for nudges to mitigate risks and promote healthier lifestyles among children and young adults. This calls for comprehensive efforts encompassing education, policyinterventions, community outreach programs, and proactive healthcare measures to address theevolving landscape of cardiovascular health and ensure the well-being of future generations. In recent years, there's been a growing worry about students not moving enough, which is badfor their health. They're sitting around a lot, partly because of school stress and spending toomuch time on phones and computers. Schools are trying new ways to get students to exercisemore and stay healthy. One idea is to use gentle pushes, called nudges, to encourage them. Forexample, **they might get extra credit for going to the gym or taking part in sports.** The goalis to get students to make exercise a regular part of their lives, which not only helps their bodiesbut also makes them sharper and better at school.

Using nudges like this to get students moving more seems like a good idea for schools. By giving rewards for doing healthy activities, like exercising, schools can tap into students' natural motivation to take care of themselves. Plus, when schools make staying active a priority, it shows students that being healthy is just as important as doing well in classes. Thishelps create a school culture where everyone values fitness and well-being, helping students lead happier, healthier lives.

Objectives:

In order to reduce health risks, this research primarily focuses on following aspects:

1. Design and deploy nudges to encourage healthier lives, with a focus on encouraging youth engagement in cardio activities such as walking or working out.
2. Use behavioural psychology knowledge to create effective juvenile physical activity promotion programmes.
3. Understand the motivations, challenges, incentives, and decision-making processes thatinfluence students' participation in physical activity.
4. Increase student participation in physical activities by offering additional attendance incentives, and assess the impact of these nudges on general health, academic achievement, and classroom engagement.

Methodology:

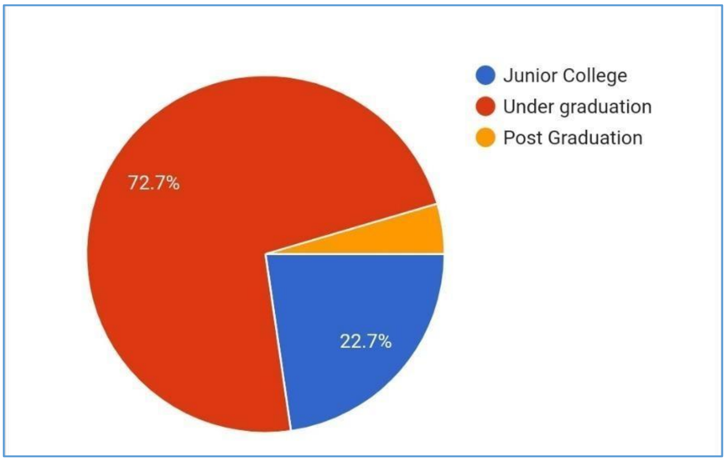
1. The methodology for this research involves collection of primary data through online platforms like Google Forms from a sample size of 66 students.
2. A comprehensive survey questionnaire was designed that covered all the key aspects such as current physical activity level, barriers in achieving healthier lifestyle, and more.
3. The primary collected data was carefully observed and analysed in order to generate the insights and preferences of children and youth. This was further represented

with the help of graphs.

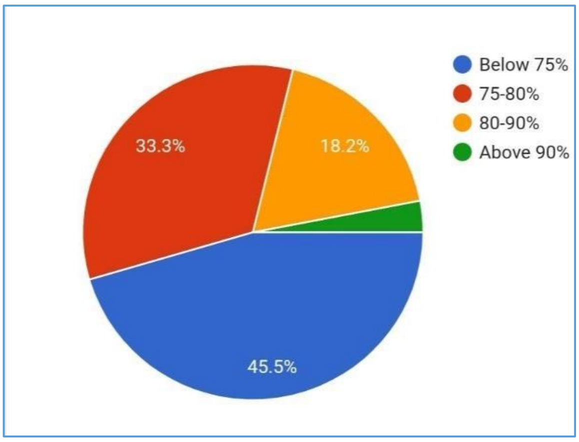
4. Finally, on the basis of the interpretations, nudges were tailored to contribute to promoting healthier lifestyles amongst the youth.

Survey Analysis:

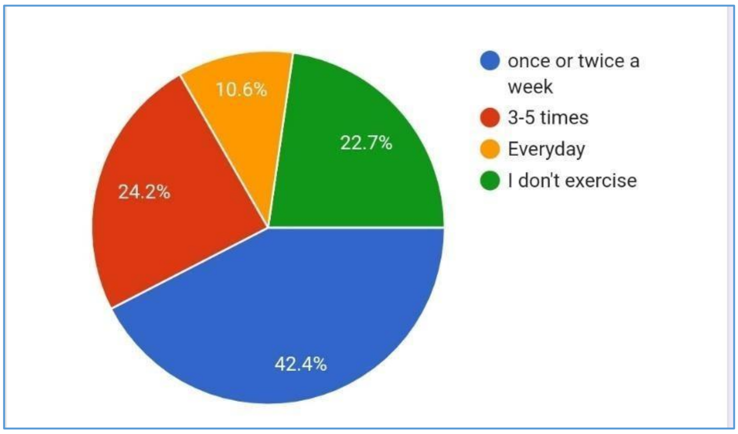
1.) **Education level of Participants: -** We wanted to know what Education level are Participants pursuing currently. According to our Primary research 73 percent of students are pursuing under graduation which is a large sample size.



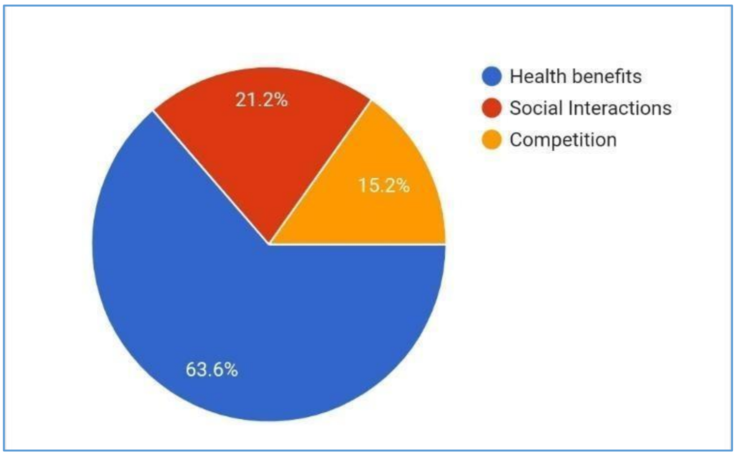
2.) **Current Level of attendance of the Participants: -** The question was asked to testthe current level of attendance of Participants to know how well students are managing their attendance. Surprisingly almost 45 % of Students are struggling to meet attendance criteria of 75%. This proves that a large number of students need to increase their attendance to prevent from getting debarred



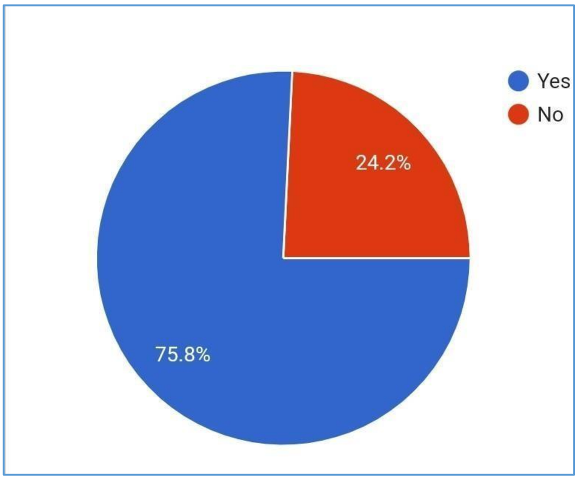
3.) **Consistency of exercise of Participants:** We wanted to understand as to how oftendo these students exercise during the week, to estimate their fitness levels. We cameto know that the 43 percent of students engage in exercise once or twice a week. This shows that Participants are inconsistent when it comes to exercise.



4.) **Motivation to exercise**: A large number of students engage in exercise in order to gain health benefits. This shows that the Participants understand the importance ofbeing fit and healthy, hence health awareness isn’t a major issue.



5.) **Are students willing to exercise for improving their attendance:** Our main question was to test if students are willing to exercise and be fit and healthy in orderto increase their attendance in college. Fortunately, 75 percent of the Participants are willing to exercise in order to benefit with higher attendance. This concludes that we are successful in encouraging students to follow our nudge



Overall, the poll indicates that, while participants are highly aware of the value of fitness and health, there is still space for improvement in attendance management and exercise regularity.However, the majority's desire to exercise for improved attendance suggests that the nudges are helpful in persuading students to adopt healthier behaviours.

Process:

Implementing attendance based on a certain number of steps involves several steps:

1. **Setup and Registration:** First, students need to register for the program. This involvesdownloading an app "Google Fit".

2. **Device Integration**: Students need to sync their devices, such as fitness trackers to smartphones. This could involve linking their device to the app.

3. **Setting Goals**: Students will have a monthly step goal within the app of 250K. This goal could be tailored to their fitness level or could be a standardized target set by the college.

4. **Steps Tracking**: The app tracks the students' steps throughout the day. This could be done in real-time or updated periodically.

5. **Attendance Calculation**: At the end of each month, the system calculates the total steps

taken by each student. If the student meets the required threshold, their attendance is marked as present for the certain days or 10% of the total lectures held in the month or according to thecollege criteria.

6. **Verification**: To prevent cheating, the system may implement verification measures, such as requiring students to periodically check in at designated locations on campus or using GPSto confirm their physical presence.

7. **Attendance Reporting**: Attendance records are compiled and made available to instructorsand administrators for review.

8. **Feedback and Incentives**: The system may provide feedback to students on their progress and offer incentives for achieving or surpassing their step goals. This could include rewards such as discounts at campus stores, access to special events, or recognition ceremonies.

9. **Continuous Improvement**: The system should be periodically evaluated to assess its effectiveness and make any necessary adjustments based on feedback from students and staff.

By implementing such a system, colleges can encourage students to be more physically activewhile also promoting attendance and engagement in campus activities.

Implications:

1. **Increase in student participation:** Offering additional attendance incentives may increase student participation in physical activities, leading to better health outcomes.

2. **Effectiveness Measurement:** Assessing the success of the attendance nudge is critical for understanding its effects on students' overall health and well-being. This includes measuring participation rates and healthindicators over time.

3. **Academic Performance and Engagement:** There is an opportunity to investigate how

increasing physical exercise influences academic achievement and classroom engagement. Positive outcomes in these areas may justify additional investment in similar efforts.

4. **Identifying barriers:** Identifying and removing barriers to student engagement in physical activities is critical. Thiscould include things like limited access to facilities, time limits, or motivational challenges.

5. **Implementation guidelines:** Creating explicit rules and recommendations for adopting and maintaining the attendance nudge approach will ensure its long-term effectiveness. This includes training workers, fostering supportive workplaces, and changing interventions in response to feedback.

Challenges:

1. **Accuracy of Tracking:** Fitness tracking devices may not always provide accurate step counts. Factors such as devicecalibration, user behaviour, and environmental conditions can affect the reliability of step tracking.

2. **Cheating and Gaming the System:** Students may attempt to cheat the system by artificially increasing their step count or manipulating the tracking mechanism. Implementing effective verification measures to preventcheating can be challenging

3. **Measurement of Impact:** Accurately quantifying the impact of the attendance push on students' health outcomes and academic achievement necessitates rigorous data collection and analysis, which may be resource-intensive.

4. **Balancing academic demands:** Finding the ideal balance between scholastic responsibilities and physical activity can be difficult. Schools must guarantee that increasing physical exercise does not reduce academic performance or raise student stress.

5. **Resistance and compliance:** Some students may resist or fail to comply with the

attendance nudge, either due to personal preferences, competing commitments, or a lack of enthusiasm. Strategies for overcoming thisresistance and fostering buy-in are critical for success.

Connecting Design To Behavioural Economics Principles:

The concept of utilising nudges to encourage students to engage in physical activities is strongly related to various behavioural economics ideas, particularly those involving incentives, decision architecture, and social norms.

1. ***Incentives:***
   Schools use the notion of incentives to provide extra credit or other benefits for participating in physical activities. Individuals are more inclined to take action if they perceive a tangible benefit or reward for doing so, according to behavioural economics.

2. ***Choice Architecture:***
   The environment's design, or "choice architecture," has a substantial impact on how people make decisions. Schools influence students' decisions without limiting their freedom by strategically implementing incentives and nudges, such as awarding additional credit for gym attendance. This is consistent with the idea that modest changes in the environment can causesubstantial changes in behaviour.

3. ***Social norms:***
   Behavioural economics emphasises the role of social norms in shaping individual behaviour. By prioritising physical activity and praising involvement, schools not only provide incentivesbut also establish a social norm surrounding exercise. When kids see their peers participating in physical activities and receive praise for it, they are more likely to regard exercise as a desirable and socially acceptable behaviour.

To summarise, the concept of utilising nudges to promote physical activity in schools is consistent with core behavioural economics ideas of leveraging incentives, influencing decision architecture, and tapping into social norms to facilitate positive behaviour change.

Some Other Related Behaviour Economics Principles:

1. ***Loss Aversion:***

   Loss aversion refers to an individual's strong preference for avoiding losses over earning equivalent rewards. Schools might take use of this principle by portraying a lack of physical activity as a potential loss (e.g., poor health implications) and providing incentives to minimisethat loss.

2. ***Present Bias:***

   Present bias is the tendency for people to prioritise present gains over long-term benefits. Schools can combat present bias by offering immediate prizes or incentives for engaging in physical activity, highlighting the benefits in the current moment and raising motivation to participate.

3. ***Default Bias:***

   Default bias implies that people are more likely to stick with the default option rather than actively making a selection, particularly when the default needs less work. To capitalise on thispredisposition and improve involvement, schools might develop programmes that make physical activity the default option (for example, incorporating exercise breaks into the daily timetable).

4. ***Peer Effects:***

   Peer effects are the impacts that individual behaviour and decisions have on the behaviour andchoices of others. Schools can capitalise on peer effects by fostering group activities and socialincentives for physical activity, which fosters a sense of community and peer support around exercise.

5. ***Loss of variety:***

   Loss of variety occurs when people feel bored or tired of repetitious activities. Schools may address this by providing a range of physical activities and rewards, which will keep kids interested and motivated to participate over time.

By taking these extra behavioural economics concepts into account, schools can improve theirnudge-based techniques for promoting physical activity and improving students' overall healthand well-being.

Alignment With The New Education Policy (NEP)

Creating a system that encourages college students to attend physical activities fits well with the ideas in the New Education Policy (NEP) that started in 2020. This policy wants students to learn more than just academic subjects. It also wants them to be healthy and develop skills for life.

Here's how encouraging attendance in physical activities connects with the NEP:

1. Helping Students Grow in Different Ways: The NEP thinks students should learn about lotsof different things, not just what they study in class. Encouraging them to join physical activities helps them grow in other areas, too.
2. Keeping Students Healthy: Being active is important for staying healthy, which is somethingthe NEP wants to focus on. When colleges push students to join physical activities, they're helping them stay healthy.
3. Teaching Lifelong Habits: The NEP wants students to keep learning even after they finish college. By encouraging them to be active now, colleges are helping them build habits that willkeep them healthy and active in the future.
4. Learning by Doing: The NEP likes when students learn by doing things, not just by listeningto lectures. Being part of physical activities teaches students important skills like working withothers and being resilient when things get tough.
5. So, by encouraging students to take part in physical activities, colleges are not only helping them stay healthy but also preparing them for life after college, which is exactly what the NewEducation Policy wants to achieve.

Conclusion:

Finally, utilising nudges to encourage children to move more and adopt better lives in schoolshas the potential to improve both their physical health and academic performance. Schools hope to persuade students to engage in regular physical activities by offering incentives and using insights from behavioural psychology, with a particular emphasis on cardio workouts such as walking or gyming.

The initiative's goals include identifying the incentives and challenges to student participation,assessing the effectiveness of attendance nudges, and making recommendations for long-termengagement in physical activities.

According to survey results, while the majority of students are pursuing undergraduate degrees and understand the necessity of exercise for health benefits, a substantial portion struggle with completing attendance requirements and maintaining exercise regularity. However, the poll revealed a positive result: a large percentage of students are eager to exercise to increase theirattendance, demonstrating the effectiveness of the nudges in promoting healthy behaviours.

Overall, the findings indicate that, while challenges such as attendance management and exercise consistency exist, students are eager to adopt healthier habits, indicating the possibility of continued success in cultivating a culture of health and wellness within the school community.

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GST: Is It A Game Changer? Impact Of GST On Indian Economy

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Abstract:

GST is a new and current indirect tax regime in India, implemented from 2017. It was launched with a slogan of one nation one tax as it nullified the effect of all the other indirect taxes and combined it into one that is GST. GST is a tax levied on supply of goods and services and in this report, we will understand what was its impact on India's economy, and try to reach to a conclusion whether it was a game changer? We will discuss about reasons behind its implementation, features of GST, E way bills, E invoices and how they benefit the economy, effects on various sectors of the economy, how the implementation of GST has led to reduction in tax evasions and what conclusion can be derived from the report, finally answering the dilemma of whether GST has proven to be game changer for the economy or does it still needs lot of improvements.

Introduction:

A major source of revenue for any government is *"TAX"*. Tax is a compulsory payment made by citizens, earning individuals or entities to the government. There are two types of taxes through which government earns, one is direct tax and the other being indirect tax. Direct tax is levied on person on whom it is imposed. The burden of tax cannot be shifted on to another person. Direct taxes are progressive in nature, that means as one's income grows - one has to pay more tax. One of the prime example of direct tax is Income Tax, other examples include wealth tax, personal property tax,etc. Another type of tax is called Indirect Tax. Such type of taxes are borne by the end customers, as it's burden can be shifted from one person to another.

India have had many different indirect tax regimes. Earlier there were numerous indirect taxes, for example, VAT, CST, Excise, Octroi, etc. Now, all those taxes are combined into one single tax under the slogan "One Nation, One Tax", and is named GST, i.e Goods and Service Tax.

GST was brought into effect on 1st April 2017, which received assent of the then President of India, Pranab Mukherjee on 8th September 2016. The tax was implemented in three parts.

1. CGST (Central GST)
2. SGST (State GST) *
3. IGST (Integrated GST)

[* Union Territory uses UTGST instead of SGST]

Here, equal amounts of tax were to be collected by central government and state government on 'Intra-State' transactions, instead of what happened in the old regime. Where the law had given rights to central government to collect certain indirect tax eg. CST: Central State Tax, and states had right to collect indirect taxes on other types eg. Octroi. IGST is collected by centre on inter-state transactions and later on allocates it to the producing and consuming states respectively.

Overall, we will be discussing that is GST a game changer. And if yes! How did it transform the Indian Indirect Taxation landscape?

Body

As we are briefed about taxation system and GST in the introduction part, we may now understand why GST was brought into the picture, what has changed, and find out solutions to our various dilemmas.

1. Why GST? What Changed?

GST brought in many benefits, let us understand a few. It eradicated *'tax on tax'*. Note the given example.

Suppose Ravi is a manufacturer based in Surat, Gujarat. He produces goods worth Rs.10,000/- he has to pay **central excise** of let's say **10%** before selling his good. (for which he gets credit). So, the cost now is Rs.11,000/-.

Further, in the distribution chain **VAT** will be levied by state government, let's say **5%.** This 5% will be computed on 11,000 and not on 10,000. Here we can understand that Ravi also had to pay 5% tax on 1,000 which was added to the cost as tax. So, the cost now is Rs.11,550.

Further when transporting it to market in Mumbai, Municipality will collect an **octroi of 5%.** This 5% will be levied on Rs.11,550 and not on original Rs.10,000. So, the cost now will be Rs.12,128.

Computing similar situation under GST tax regime. Ravi, a manufacturer based in Gujarat

sells his product in markets of Mumbai, Maharashtra. The product costs Rs.10,000. As it is an Inter-State transaction IGST will be levied. Let us assume the tax rate to be 18%. So, the final cost will be Rs.11,800.

This example proves how GST removes cascading effect of tax i.e tax on tax. This has many other benefits rooting out of it.

- As the goods now become cheaper, the income left after consumption with an individual increases. The individual can use it for investing leading to increase in investments, which will push economic growth.
- Lower price of local goods will act as a very strong competitive advantage in market. Where our local products will be able to compete, cheap products sent by foreign countries, eg. China.
- It will not only boost local markets but help us generate income from exports. Cheaper goods will also be able to compete foreign goods in foreign markets. This will help a nation gain a strong hold at international trade.

Here, GST has played the role of a gamechanger for our economy and proved why it was essential.

2. How Gst Stops Black Markets

GST came along with various statutes and regulations like E-way Bill and E-invoice. Let us understand how these features helps the economy.

There is a large portion of economy that carries out transactions without recording them on books to avoid taxes on it, but with the rise of this technological age and GST, the picture has changed. Earlier, there was no medium to keep track of complex distribution chains and analyse the transactions. GST brought along with-it E-Invoice, which compels a businessman to record transactions, and why exactly is he compelled? Let us find out:

On not issuing E-Invoice, these situations may occur to the businessman:

- Businessman not being able to avail credit.
- Customer not being able to avail credit.
- Generation of E-Way Bill not possible, creating issues in transportation.
- If, international trade is involved, issues regarding customs and litigations may arise.

And many more reasons compel an individual to record transactions. This helps the government to receive fair data of economy of our company which works as an aid to create suitable and beneficial policies for the nation.

Another by-product of GST is E-Way Bill. It is a document that is to be issued by businessman (registered), if the goods that are being transported are over Rs.50,000/- or if they receive goods of such amount from an unregistered person. It becomes a more trustworthy and solid document than bilty and can be relied upon by authorities checking containers on highways and other modes. The document is of a descriptive nature, having details about quantity, weight, source address, destination address, details of parties involved, etc. As it is digitally generated the data also is stored with the government which can use it to cross check entries, reducing chances of exclusion to record and black marketing.

In the older tax regime, many fake invoices went unnoticed but due to such additional features that GST regime brought with it, many fake billing scams are being caught and eradicated now a days. Hence, GST has definitely been a game changer for Indian economy.

3. Effect Of GST On Various Sectors Of Nation's Economy

1. *E-commerce:*

E-commerce sector in India is making progress day by day and after implementation of GST there is a continuous growth in e-commerce sectors but seeing its long term effect will be interesting because tax collection at source (TCS) mechanism is introduced by GST law for e-companies with which they are not too happy. Introduction of GST will increase administrative cost of e-commerce companies because GST makes it necessary to collect tax collection at source which disrupts the relation between buyer and seller. Current rate prevailing in India for TCS is 1%.

2. *Pharma:*

The Indian pharmaceutical industry is a self-sufficient sector. It is also one of the top foreign earner industries and proudly the third largest pharmaceutical sector in the world. The rise of GSt has a positive impact on the pharma industry as this new tax regime is simplifying the rather complex indirect tax structure. GST has merged 8 different indirect taxes into itself. Furthermore, GST enables a seamless flow of tax credit along with a better compliance system.

Experts believe that GST will rationalize the supply chain as well. Earlier, the import of pharmaceutical machinery and equipment was a costly affair for the companies. But with GST, such companies are enjoying the benefit of ITC on such levies.

However, it has also had an adverse impact on the industry. Earlier the medicines with 5% tax are now available at 12% GST rate. Things like free samples and discount offers, bonus schemes, inter-state movement of expired medicines are GST levied now. Moreover, the pharma companies cannot enjoy area-based immunities under this new tax structure and as a result, the end-consumers will suffer from the increased cost. Experts say that GST for sure will remove the complexities of the business and help grow the business. While it is hard to comment on the overall profit or loss, GST has certainly given a significant boost to the medical tourism industry.

3. *Telecommunication:*

Before GST, telecom operators paid a service tax of 15% which has now increased to 18%. Apart from the increased tax burden, new compliances have been included. Earlier telecom companies were registered centrally and had to file returns annually. Under GST, they have to register under each state and file returns every month. GST has increased the operational burden on this industry. However, GST allows telecom operators to avail ITC on imported equipment. They can also claim a refund of IGST paid on domestic products and equipment. This was not permitted before GST.

4. ***Real Estate:***

In Indian economy real estate is a most essential sector, and it also has a huge role in employment generation. Generally, GST is levied on investors and buyers while investing in property that is under construction. Before the implementation of GST, many taxes including VAT, Octroi, stamp duty, , etc. had to be paid by home buyers. With the introduction of GST on real estate, one has to pay taxes only on under-construction properties. Notably, one does not need to pay GST on ready for sale or completed properties that have a legitimate Completion Certificate. (Schedule III- Negative List) The registration and stamp duty charges remain untouched under the GST on real estate regime. Nevertheless, individuals are not liable to pay GST on their property registration. Additionally, under the GST regime, input tax credit (ITC) is available for developers, enabling them to claim a tax credit for the GST paid on the goods and services they purchase. This has resulted in a decrease in the project cost, resulting in lower property prices. Overall, the rise of GST has had a good impact on the Indian real estate sector, and with continued controlled reforms, the sector is well-positioned for sustained growth in the future.

5. ***Agriculture***

Agriculture sector is the base of Indian economy as a large part of population depends on agriculture and it has 16% part in overall GDP. One of the major issues in the agricultural sector is that the farmers are not able to get the true value for their produce. Prior to the implementation of GST, when interstate deals took place, various taxes were levied on the crops. Also, it was a mandatory to get a license from each of the states' authorities wherever trade was carried on. This posed as a big problem in the trading of farming produces inter- states. However, after the implementation of GST markets were open for agricultural produce. The various GST laws promote transparency, reliability, and improvement of the timeline in the supply chain. A strong supply chain system ensures a better cost for the farmers/retailers and also promises a reduction in wastage. GST promotes transparency at each level of the supply chain of every commodity and makes the tax regime easier.

Apart from this, even industry experts have appreciated the reform in the field of indirect taxation. Mr. Adi Godrej who is chairman of a well-known group, that is the Godrej Group mentioned in the Investor Conference of 2016 that GST will add 1.5 to 2% to GDP growth within few quarters of its implementations. He also said that it will not only curtail evasion in the indirect taxes but also help in identifying and prevention in direct tax evasions. This raises a question; how does that happen? This report further explains how GST helped in achieving this.

The gate servers collect information from the taxpayer and processes the output, it ultimately gets stored with the back end server, which is connected with the back end server of direct taxation returns. So, it catches any mismatch and highlights it to the concerned authority. Let us understand this better with an example:
Mr. Patel is a trader; he purchases from suppliers and distributes it to retailers and other users of the supply chain. Due to compliances, he had to create E-invoices, without which he won't be able to get ITC and hence attract tax burden on him. So, he creates E-invoices, the total amount is hence recorded along with his GSTIN at the GST servers. GSTIN comprises of PAN number, which is used for Income Tax (direct tax) filings. As the invoices are already up at the servers and can also be identified by the direct tax servers, Mr. Patel cannot give a different amount as its sales at the direct tax portal and cannot evade tax.

Conclusion:

GST is a game changing reform for the Indian economy as it creates a common Indian market, reducing the cascading effect of tax on the cost of goods and services. It impacts the tax structure, tax incidence, tax computation, tax payment, compliance, credit utilization and reporting, leading to a complete overhaul of the current indirect tax system. GST has a far-reaching impact on almost all the aspects of the business operations in the country, for instance, pricing of products and services, supply chain optimization, IT, accounting, and tax compliance systems.

In terms of growth, price, current account deficit and budget balance, the macroeconomic impact due to the introduction of GST is significant. GST is a shift from income-based tax to consumption-based tax and this provides substantial boost to source of government revenue from a flourishing service sector of today's India. A short-lived limited price impact is reached in the form of inflation with the introduction of GST. However, a larger impact is seen on the administrative compliance cost of GST which is likely to increase tax revenue thus reducing fiscal deficit.

GST is still new; it will take few years to shape into perfection. The challenges will be huge, and businesses will get challenged. However, in a country of the scale and size as India, it is indeed commendable that a transformation of this magnitude has been attempted. This does indicate resilience of the constituents of country's economy and an ability to embrace change. The next few years for India are surely worth watching and will be interesting resulting into sectors gaining growth opportunities. GST will certainly act as a catalyst to propel the country's economy on this trajectory.

GST is like that far sighted adult, with eyes on the roads of future, changing the landscape of India!

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Healthy Eating Nudge At Workplace And School

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Abstract:

This study examines the effectiveness of using nudges to promote healthy eating habits in canteens at work and in schools. There is an urgent need to investigate novel approaches to encourage healthy eatingchoices due to the increasing incidence of obesity and diet-related disorders. This research uses a variety of nudges, such as changing how food selections are presented and made available, to influence customerdecisions without limiting their freedom of choice. It is based on the concepts of behavioural economics. We evaluate the effects of these nudges on patterns of food selection and attitudes towards healthy eatingusing a mixed-methods approach including surveys, observations. Our research shows encouraging outcomes, showing a notable rise in the variety of nutrient-dense food options when nudges were put intoplace.

Qualitative observations can provide important guidance for improving the efficacy of nudging interventions in canteen settings and illuminate the fundamental mechanisms underpinning behaviouralchange. In addition to adding to the expanding body of research on behavioural interventions for encouraging healthy eating habits, this study also provides a digital solution for healthy eating nudge.

Keywords: Healthy Eating Nudge, Key Aspects: Behavioural Economics, Psychology, Nudges, Health, Nutrition, Wellness Promotion.

Introduction

In today's fast-paced world, making healthy choices can feel like a constant battle. From the allure of convenient, processed foods to the ever-present temptation of sugary treats, navigating the food landscape can be challenging.

Healthy Eating Nudge focuses on utilizing insights from behavioural economics to subtly encourage individuals to make healthier food choices. Unlike traditional interventions that rely on strict rules or extensive education, nudges work subtly, "nudging" individuals towardshealthier options without taking away their autonomy. We will explore various nudge techniques, focusing on how they can be implemented in different settings, such as workplaces, supermarkets, and even our own homes. By understanding the psychological principles behind nudges and their practical applications, we can empower ourselves and others to make informed decisions that contribute to a healthier and happier life. Our aim is to provide individuals, organizations, and policymakers with a practical understanding of how nudges can be harnessed to promote healthy eating habits. Our nudge focuses on strategic food placement, appealing menu design, and creative messaging to influence dietary choices positively. Drawing upon behavioural economics principles, we leverage concepts like choice architecture and the default effect to encourage the selection of healthier alternatives. By prominently featuring nutritious options, simplifying decision- making, and providing clear information, we aim to make healthier choices the default, aligning with individuals' natural inclinations.

However, implementing such a nudge is not without challenges. Balancing ethical considerations is crucial, as nudges must respect individuals' autonomy and avoid manipulation. Striking this balance while navigating potential resistance and ensuring transparency in messaging are ongoing challenges that demand careful consideration throughout the implementation process.

Objective and Research Methodology

Objective- Investigating the efficacy of using nudges to encourage healthier food choices in cafeteria settings is the aim of the study paper on healthy eating nudges at work and school. This involves evaluating how nudge interventions affect students' and workers' attitudes towards healthyeating and their routines for choosing foods. Furthermore, the study intends to investigate the fundamental processes propelling behavioural modification in reaction to prods and to offer useful suggestions for augmenting the effectiveness of nudging tactics in educational and professional settings. The ultimate objective is to aid in the creation of evidence-based treatments that promote better eating practices and enhance nutritional outcomes in these environments.

The survey method involves gathering information from a sample of individuals through the administration of a set of questions. Surveys can be conducted through various mediums suchas paper forms, online platforms, phone calls, or face-to-face interviews. They are employed to gather information on the attitudes, beliefs, actions, or traits of a population in order to deduce or draw conclusions about the greater group. Multiple-choice, open-ended, Likert scale, and ranking questions are just a few of the question formats that may be used in surveys, which can be organised or unstructured. Statistical methods are often used in survey data analysis to find patterns, trends, and linkages in the data, understand how to design and implement effective interventions that encourage individuals tomake healthier food choices in various settings, ultimately contributing to improved public health outcomes.

Survey and Analysis:

- ❖ **Observation:** Age Distribution of the survey is shown below.

- **18-30 (71.2%):** The largest segment of the pie chart represents individuals belongs toage group 18-30, indicating our target audience.
- **Below 18 (19.2%):** The second largest group is represented by people below 18. This shows that the participants are from primary and secondary school.
- **31-50 (3.8%):** This middle-age group represents the smallest proportion of the piechart.
- **Above 50 (5.8%**): people belonging to older age group also participated in oursurvey.

- ❖ **Observation:** The graph shows the results of a survey asking people about the factors thatinfluence their food choices in a canteen.

  The most common factors were:

- **Taste (78.8%)** - Taste is the most important factor, with nearly 8 out of 10 people saying it influences their choices. This suggests that people prioritize enjoying theirfood over other considerations.
- **Healthiness (46.2%)** – It is the second most important factor for almost half of the respondents. This suggests that people are increasingly aware of the importance of eating a healthy diet.
- **Price (44.2%)** – Price is also an important factor. This is likely because people have limited budgets and need to consider how much they are spending on food.
- **Convenience (36.5%)** - This could be because people are short on time or don't wantto put in a lot of effort to prepare their food.
- **Variety** was also a factor, with 32.7% of respondents saying it influenced their choices. This suggests that people get bored eating the same foods all the time andlike to have options to choose from.

❖ Observation: The pie chart shows the results of a survey question asking people if they have noticed any efforts in the canteen to promote healthy eating.

67.3% of respondents said they have noticed efforts to promote healthy eating. This suggests that the canteen is doing a good job of making healthy options available and raisingawareness about healthy eating.

32.7% of respondents said they have not noticed efforts to promote healthy eating. Thiscould be due to a number of reasons, such as:

- The efforts are not well-communicated or visible to customers.
- The efforts are not targeted at the right audience.
- The efforts are not effective in promoting healthy choices.

❖ **Observation:** The graph you sent shows the results of a survey asking people which of the following healthy eating nudges would encourage them to make healthier food choices:

- **Clear labelling of healthier options:** 42.3% of respondents said this would encourage them to make healthier choices. This suggests that people appreciate clear and easy- to-understand information about the healthiness of food options.

- **Offering smaller portion sizes:** 26.9% of respondents said this would encourage them to make healthier choices. This suggests that some people may be influenced bythe size of the portion they are served, and may be more likely to choose a healthy option if it is presented in a smaller portion size.
- **Placement of healthier options at eye level:** 51.9% of respondents said this would encourage them to make healthier choices. This suggests that people are more likelyto choose foods that are placed at eye level, which is a prime location in terms of visibility and accessibility.
- **Offering discounts or promotions on healthier items:** 34.6% of respondents said this would encourage them to make healthier choices. This suggests that some peoplemay be motivated by price and may be more likely to choose a healthy option if it is discounted or promoted.
- **Providing nutritional information for menu items:** 34.6% of respondents said this would encourage them to make healthier choices. This suggests that some people value having access to detailed nutritional information about the food they are considering.

Overall, the survey suggests that a variety of nudges can be effective in encouraging people to make healthier food choices. Some people may be more responsive to certain nudges thanothers, so it is important to use a variety of approaches to reach a wider audience.

❖ **Observation:** The pie chart you sent shows the results of a survey asking students whetherthey would eat healthier if their school offered healthier food by default in comparison to junk food.

- **80.8%** of the respondents said they would eat healthier if their school offered healthier food by default. This suggests that a majority of the students are willing tomake healthy choices when healthy options are readily available.
- **19.2%** of the respondents said they would not eat healthier regardless of the options available. This could be due to a number of reasons, such as taste preferences, habits,or lack of awareness about healthy eating.

Thus it suggests that there is a demand for healthy food options in schools and that studentsare more likely to choose healthy options when they are readily available.

- **Observation:** The pie chart shows if people would eat healthier or lead a healthier lifestyle iftheir workplace or school gave them recognition for it.

- **30.8% of respondents said yes.** This suggests that some people are motivated by recognition and would be more likely to make healthy choices if they were praised or rewarded for doing so.
- **69.2% of respondents said no.** This suggests that the majority of respondents are not motivated by recognition and would make healthy choices for other reasons, such as their own health or well-being.

By asking this questions, employers and schools can get a better understanding of what motivates their employees or students to make healthy choices and can create programs and policies that support healthy lifestyles.

- **Observation:** The graph shows the analysis of factors that would influence people towardshealthy eating.

71.2% of respondents answered **"Yes"**, indicating they believe these initiatives would influence them to eat healthier. This suggests that these individuals may be open to trying new healthy recipes, using hydration stations, and attending educational workshops to learnmore about healthy eating.

28.8% of respondents answered **"No"**, indicating they believe these initiatives would notinfluence them to eat healthier. his could be due to various reasons, such as:

- They may already have healthy eating habits and don't feel they need additionalinfluence.
- They may not be interested in the specific initiatives offered (e.g., they may not cookat home or prefer to get their own water).
- They may be sceptical of the effectiveness of such initiatives.

Nudge Recommendations:

1. Giving Recognition To Employees/ Students ForHealthy Lifestyle:

Introducing initiatives like “Nutri-Hero” of the month can promote healthy atmosphere of health and well-being in offices and schools. When receive people recognition they geta sense of achievement therefore this can be an incentive or nudge towards promoting healthy eating habits. Recognizing and incentivizing healthy eating habits in the office can yield numerous benefits for both employees and employers. Here are some advantages:

- Improved Employee Health: Encouraging healthy eating can lead to improved overall health among employees. This can result in fewer sick days, increased productivity, and higher morale.
- Reduced Healthcare Costs: Healthier employees are less likely to develop chronic diseases such as diabetes, heart disease, and obesity-related conditions. This can lead to lower healthcare costs for both employees and employers.
- Positive Workplace Culture: Promoting healthy eating habits can foster a positive workplace culture centered around wellness and mutual support. It can also encourage teamwork and camaraderie among colleagues.

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3. Labelling Healthy Food Green And Junk Food Red:

Marking healthy food items with green labels and junk food items with red labels can have asignificant impact on consumers' psychology. This practice leverages the power of color association and visual cues to influence decision-making processes. Green is often associated with health, freshness, and vitality, while red can signal caution, danger, or indulgence. When healthy options are prominently labelled with green, it can subconsciously prime individualsto perceive these foods as more desirable and beneficial for their health. This positive association may lead consumers to feel a sense of accomplishment or virtuousness when selecting green-labelled items, reinforcing their commitment to making healthier choices.

Conversely, labelling junk food with red may trigger feelings of caution or guilt among consumers. The red color can serve as a visual warning, signalling that these items are high in calories, sugar, or unhealthy fats. This can prompt individuals to pause and reconsider their choices, potentially leading them to opt for healthier alternatives instead. Additionally, the use of color-coded labels can simplify decision-making processes for consumers. By clearly distinguishing between healthy and unhealthy options, it reduces cognitive load and makes it easier for individuals to make informed choices aligned with their health goals.

Overall, marking healthy food with green and junk food with red can influence consumers' perceptions, preferences, and behaviours, ultimately nudging them towards making healthierdietary decisions. This approach capitalizes on the psychology of color and visual cues to promote healthier eating habits in both conscious and subconscious ways.

4. Vending Machine With More Healthy Foods:

A vending machine that is mostly filled with nutritious food selections may have a big effect on the mindset and actions of its customers. First of all, the simple fact that a vending machineoffers healthier options tells customers that the company values their health and wellbeing. Customers may develop a favourable opinion of the company or area as a result, increasing goodwill and trust.

Additionally, a vending machine's design and presentation have a significant impact on how customers behave. It is possible to attract attention and raise the chance of selection by putting the healthier alternatives clearly displayed or at eye level. This is referred to as "choice architecture," in which the way alternatives are arranged gently influences choosing. The vending machine's selection of nutritious food and drinks accommodates a range of tastes and preferences among its customers. Because individuals feel empowered to make decisionsthat are in line with their health objectives, this sense of autonomy and choice empowerment might improve customers' overall pleasure.

Furthermore, the presence of healthy products in a vending machine might aid in the transformation of societal norms and attitudes towards snacking behaviours. Healthy eating habits are normalised and people are encouraged to make better decisions even in settings that are often associated with convenience or indulgence by making nutrient-dense food options more easily available and convenient. Furthermore, the availability of healthy vending alternatives may cause a phenomenon known as the "health halo" effect, in which customers believe that the vending machine is healthier overall, independent of the particular products they select.

5. Junk Food Portion Reduction And Increase HealthyFood Portion

Reducing portion sizes of junk food while simultaneously increasing the availability of healthyfood options can have a multifaceted impact on consumer psychology and eating habits.

Firstly, this approach aligns with the principle of "nudging," where subtle changes in the environment can guide individuals towards healthier choices. By reducing the portion sizes ofjunk food, consumers may perceive these items as less appealing or satisfying, nudging them towards healthier alternatives.

Increasing the availability of healthy food options sends a powerful signal to consumers that theestablishment prioritizes their health and well-being. This can positively influence perceptions of the brand or location and foster trust and loyalty among customers. Moreover, having a greater variety of healthy options provides consumers with a sense of autonomy and choice, empowering them to make decisions aligned with their health goals.

Additionally, the principle of "social proof" comes into play when healthy food options are more prevalent. Seeing others opt for nutritious choices can influence individuals to follow suit, as they perceive such behaviours as socially desirable or normative. This can create a ripple effect, where healthy eating habits become more widespread within the community or workplace. Furthermore, reducing portion sizes of junk food can help recalibrate consumers' perceptions of appropriate serving sizes. Over time, individuals may become accustomed to smaller portions and adjust their expectations accordingly, leading to more mindful eating habits. This can contribute to a greater sense of satisfaction and satiety, as individuals learn to appreciate the quality of food over quantity.

Moreover, the combination of reduced junk food portions and increased availability of healthy options can contribute to a shift in taste preferences and cravings over time. As consumers consume more nutritious foods, their palates may adapt, leading to a decreased desire for highly processed, calorie-dense foods. This can ultimately lead to long-term improvements in dietary patterns and overall health outcomes.

6. Free Samples/ Trials Of Healthy Food:

Giving away free samples or trials of nutritious food may have a big influence on the eating habits and psychology of customers. First of all, it makes use of the psychological concept ofreciprocity, which states that people are obligated to return the favour or gift they receive.

Customers may feel obligated to reciprocate by contemplating buying the product or include itin their normal diet when they are given free samples of nutritious food.

Free samples provide customers a chance to personally feel the flavour, texture, and allure of healthy food selections. People are more prone to form good associations with meals they finddelightful and gratifying, therefore this sensory experience can have an impact on how people perceive and prefer certain foods. Giving away free samples or trials of nutritious food may have a big influence on the eating habits and psychology of customers. First of all, it makes use of the psychological concept of reciprocity, which states that people are obligated to return the favour or gift they receive. Customers may feel obligated to reciprocate by contemplating buying the product or include it in their normal diet when they are given free samples of nutritious food. Free samples provide customers a chance to personally feel the flavour, texture, and allure of healthy food selections. People are more prone to form good associationswith meals they find delightful and gratifying, therefore this sensory experience can have an impact on how people perceive and prefer certain foods.

Roots App

Concept: Roots - Grow a Healthy Garden

Mechanics:

Planting Seeds: Users set goals like eating a certain amount of vegetables, drinking enough water, or avoiding sugary drinks during a set time period. Each goal represents a seed you plant inyour virtual garden.

Growing Your Garden: As you stick to your goals (tracked through manual input or integrationwith fitness trackers), your seeds sprout and grow into healthy plants. The longer you stay on track, the more vibrant and flourishing your garden becomes.

Wilting and Revival: Straying from your goals (e.g., having a sugary drink) wilts your plants. The app offers gentle reminders and encourages users to get back on track to revive their garden.

Social Garden and Challenges: Connect with friends and build gardens together. Participate infun challenges like who can grow the tallest sunflower (most vegetables eaten) or nurture the most diverse garden (eating a variety of healthy foods).

Rewards and Gamification: Earn in-app currency for staying on track, which can be used tounlock new plants, garden decorations, or healthy recipes.

Complete collections of plants to unlock special rewards or badges.

Additional Features:

Personalized meal planning and recipe suggestions based on user goals and preferences. Educational content about healthy eating and the benefits of different foods.

Integration with grocery delivery services to make healthy eating more convenient.

This app would use positive reinforcement and gamification to make healthy eating habits moreengaging and enjoyable, similar to how Forest helps users stay focused.

ROOTS APP UI/UX

Home Page:

Imagine a vibrant mobile screen showcasing a lush, animated garden with various colourful plants representing different healthy habits.

A prominent "Set New Goal" button sits below the garden, inviting usersto embark on their journey.

Smaller icons with labels like "Track Progress", "Explore Recipes", and"Social Garden" offer quick access to key features.

Goal Setting Page:

Picture a clean and uncluttered screen with three sections:

A dropdown menu displaying various health-related goals (e.g., "Eat morevegetables", "Drink more water").

A calendar interface to choose the desired duration of the goal (e.g., 1week, 1 month).

A plant selection screen showcasing different types of plants, each representing a chosen goal (e.g., a leafy green for vegetables, a waterdroplet for hydration).

Track Progress Page:

Visualize a user-friendly interface with options to track progressdepending on the goal:

For eating vegetables, a simple form with buttons to mark consumedservings.

For drinking water, a progress bar that fills up as the user logs theirwater intake.

Integration with fitness trackers could be represented by a connectingicon with the tracker app logo.

Social Garden Page:

One side showcases the user's individual garden with their plants flourishingbased on their progress.

The other side displays a combined view of the user's and their friend'sgardens, creating a visually engaging and motivating atmosphere.

A "Challenges" section at the bottom could display a leaderboard andupcoming friendly competitions with friends.

Rewards Page:

Picture a visually appealing screen showcasing earned rewards:

Unlocked in-app currency could be represented by animated coins or gems.

New plants for the garden could be displayed visually with their names anddescriptions.

Earned badges or recipe collections could be presented with celebratoryanimations.

Remember, these are just descriptive examples, and the actual UI/UX designof the Sprout app can be further customized and creatively enhanced based on your specific vision and preferences.

Limitations:

- Only Mumbai city was selected for the study.
- All conclusions and analysis is based in 52 samples.
- In this project environment, social and cultural aspects were not been considered.
- Only a few psychological aspects of behavioural changes were considered for the research.
- Too many nudges or conflicting messages would overwhelm individuals and their decisionmaking.
- Long term health issues and food choices may be challenging.

Conclusion:

Upon observing the implementation of healthy eating nudges in workplace and school settings, it becomes evident that these subtle interventions have a profound impact on individuals' dietary behaviours. In workplaces, where the hustle and bustle of daily tasks can sometimes overshadow health considerations, strategically placed nudges, such as placing fruit bowls in communal areas ordesigning cafeteria layouts to highlight nutritious options, have been observed to lead to increased consumption of healthier foods. Additionally, the provision of nutritional information on menus or within easy reach allows employees to make informed choices about their meals, fostering a sense of empowerment and awareness. Providing employees with a subscription ready plan for smoothie bowls helps them be regular in practicing a healthy lifestyle.

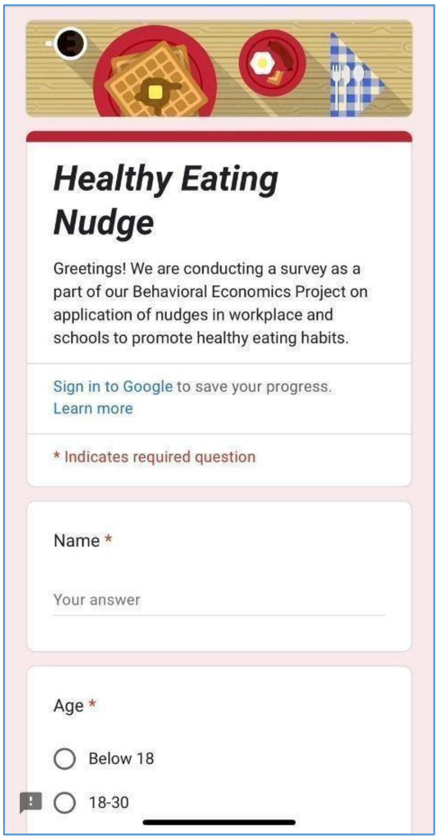
In schools, where young minds are being shaped, the impact of healthy eating nudges is equally noteworthy. Observations reveal that incorporating nutrition education into the curriculum not only enhances students' knowledge about food but also translates into tangible changes in their food choices. Schools that prioritize offering appealing, well-balanced meals and creating an environmentthat promotes healthy eating habits have seen a positive shift in students' overall well- being, including increased energy levels and improved concentration during classes. Also providing students with healthy food options in canteens at low cost so it influences their eating options.

In both settings, the key lies in fostering a holistic approach to healthy eating, recognizing the interconnectedness of physical well-being, mental health, and overall productivity. By making nutritious choices more accessible, attractive, and convenient, we can collectively contribute to building a healthier and more vibrant community, both at work and in educational institutions. As we embrace the importance of healthy eating nudges, we take a significant step towards creating environments that empower individuals to make informed and positive choices about their nutrition,thereby laying the foundation for a healthier and more resilient society.

As we reflect on these observations, it is clear that healthy eating nudges go beyond influencing individual choices; they contribute to shaping the culture and ethos of the environments in which they are implemented. By creating surroundings that prioritize health and well-being, both workplace and school settings can become catalysts for positive lifestyle changes, promoting a ripple effect that extends to the broader community. As organizations and educational institutions continue to refine and expand their approaches to healthy eating nudges, the potential for long-termbenefits in terms of health, productivity, and overall quality of life becomes increasingly evident.

In conclusion, implementing healthy eating nudges in both workplace and school environments is aproactive and impactful approach to fostering positive dietary habits among individuals. These nudges serve as gentle reminders and encouragements, steering individuals towards healthier food choices and ultimately contributing to overall well-being.

Appendix:



Healthy Eating Nudge

Greetings! We are conducting a survey as a part of our Behavioral Economics Project on application of nudges in workplace and schools to promote healthy eating habits.

Sign in to Google to save your progress. Learn more

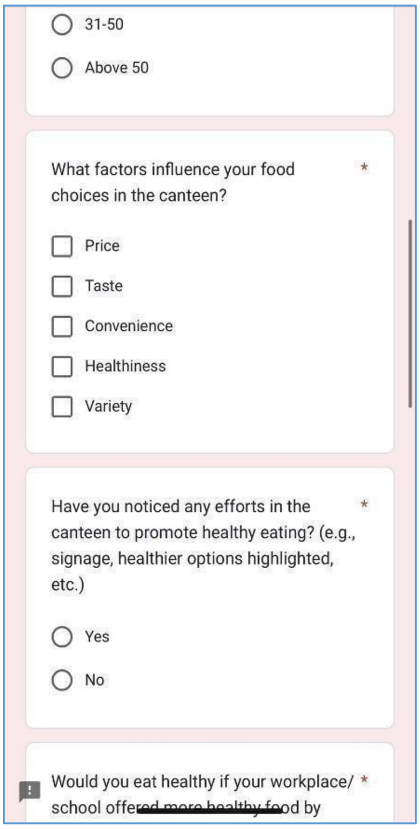
* Indicates required question

Name *

Your answer

Age *

- Below 18
- 18-30



- 31-50
- Above 50

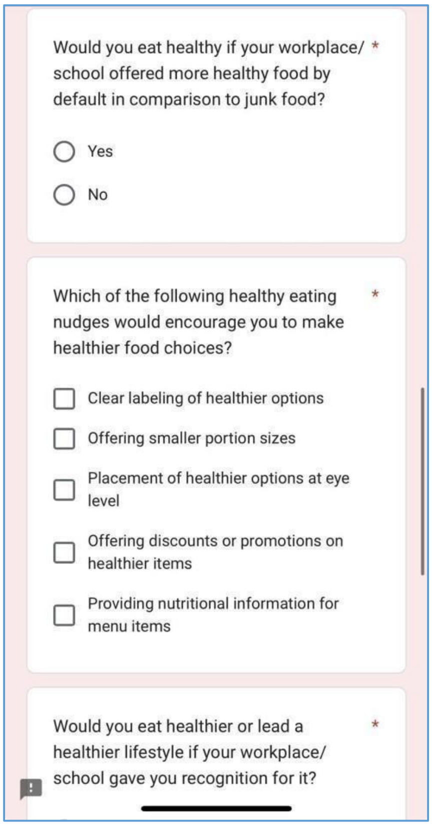
What factors influence your food choices in the canteen? *

- Price
- Taste
- Convenience
- Healthiness
- Variety

Have you noticed any efforts in the canteen to promote healthy eating? (e.g., signage, healthier options highlighted, etc.) *

- Yes
- No

Would you eat healthy if your workplace/ school offered more healthy food by *



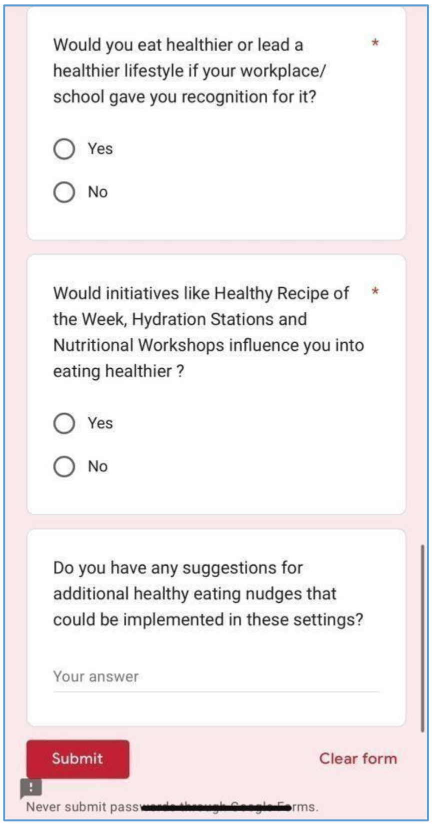
Would you eat healthy if your workplace/ school offered more healthy food by default in comparison to junk food? *

- Yes
- No

Which of the following healthy eating nudges would encourage you to make healthier food choices? *

- Clear labeling of healthier options
- Offering smaller portion sizes
- Placement of healthier options at eye level
- Offering discounts or promotions on healthier items
- Providing nutritional information for menu items

Would you eat healthier or lead a healthier lifestyle if your workplace/ school gave you recognition for it? *



Would you eat healthier or lead a healthier lifestyle if your workplace/ school gave you recognition for it? *

- Yes
- No

Would initiatives like Healthy Recipe of the Week, Hydration Stations and Nutritional Workshops influence you into eating healthier ? *

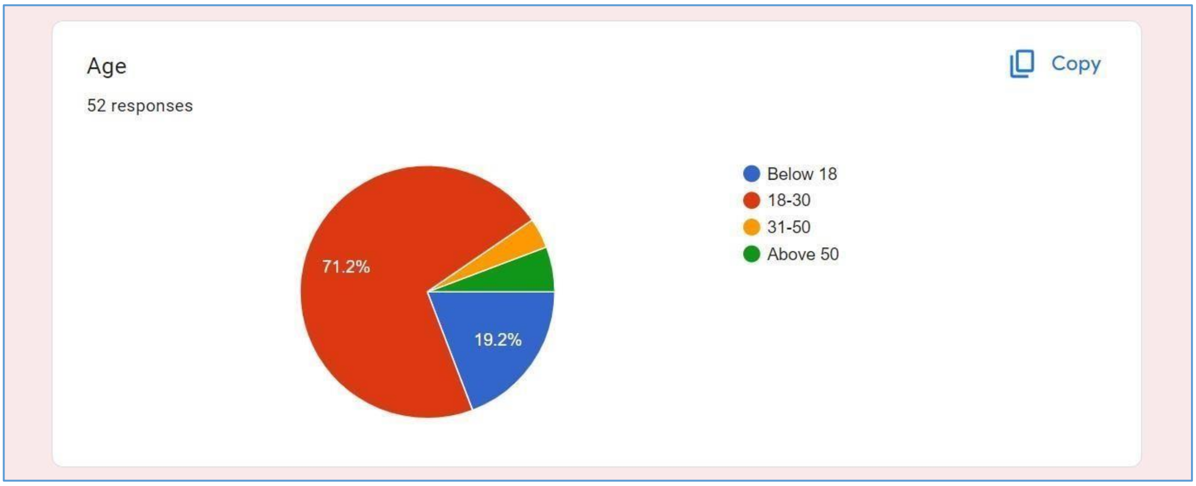
- Yes
- No

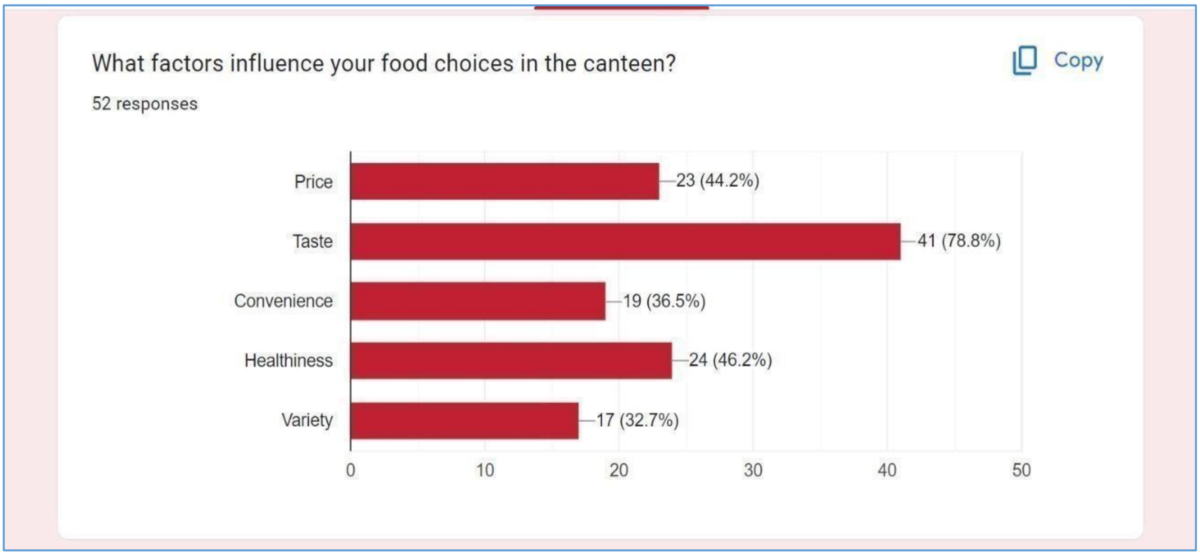
Do you have any suggestions for additional healthy eating nudges that could be implemented in these settings?

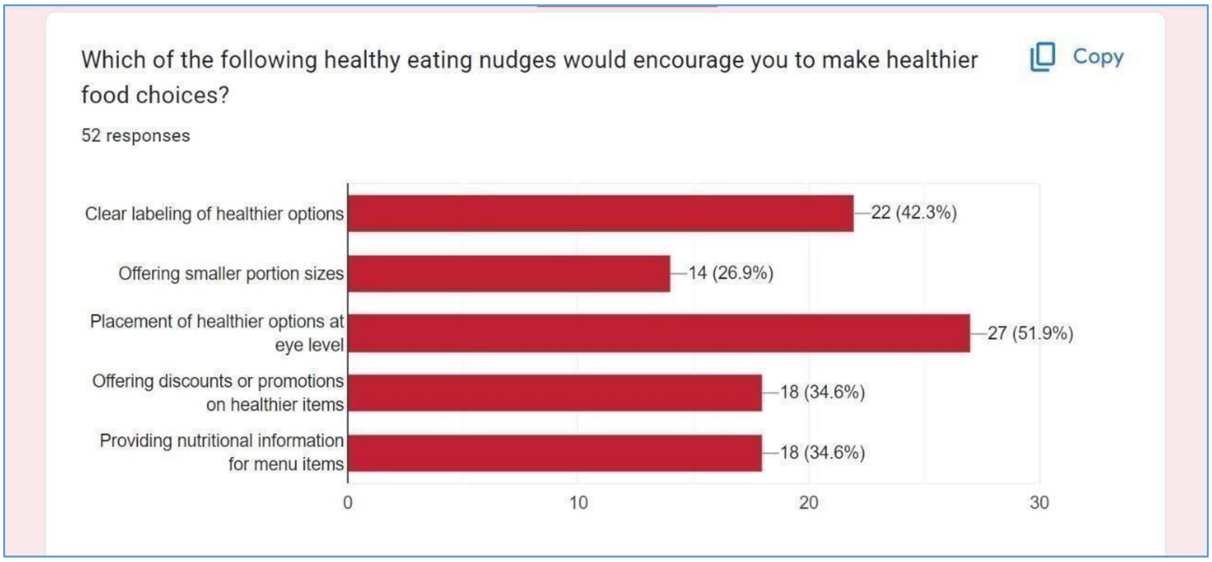
Your answer

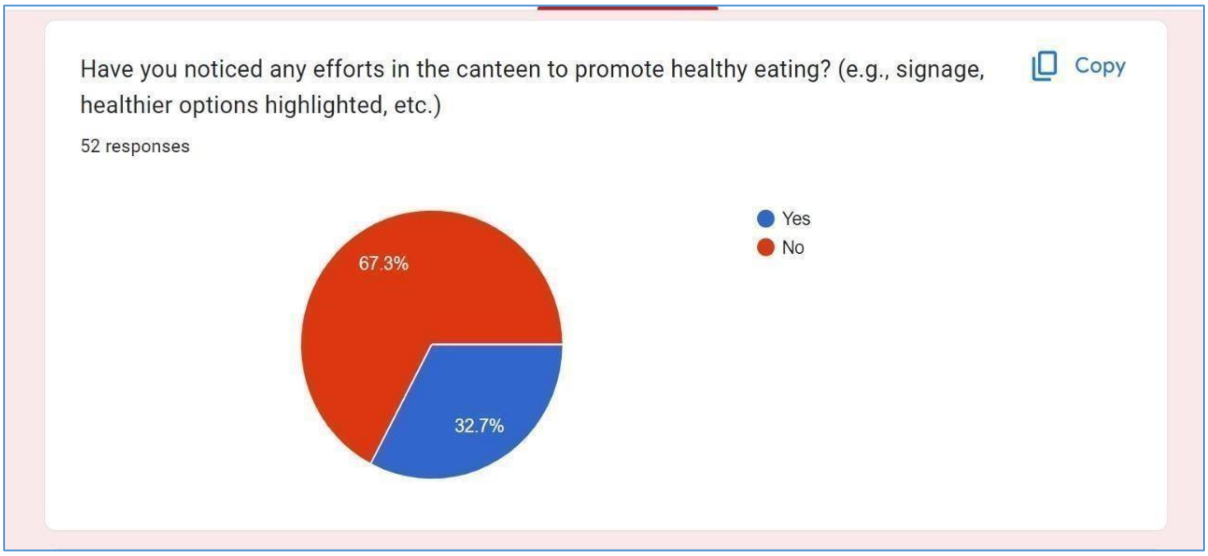
Submit Clear form

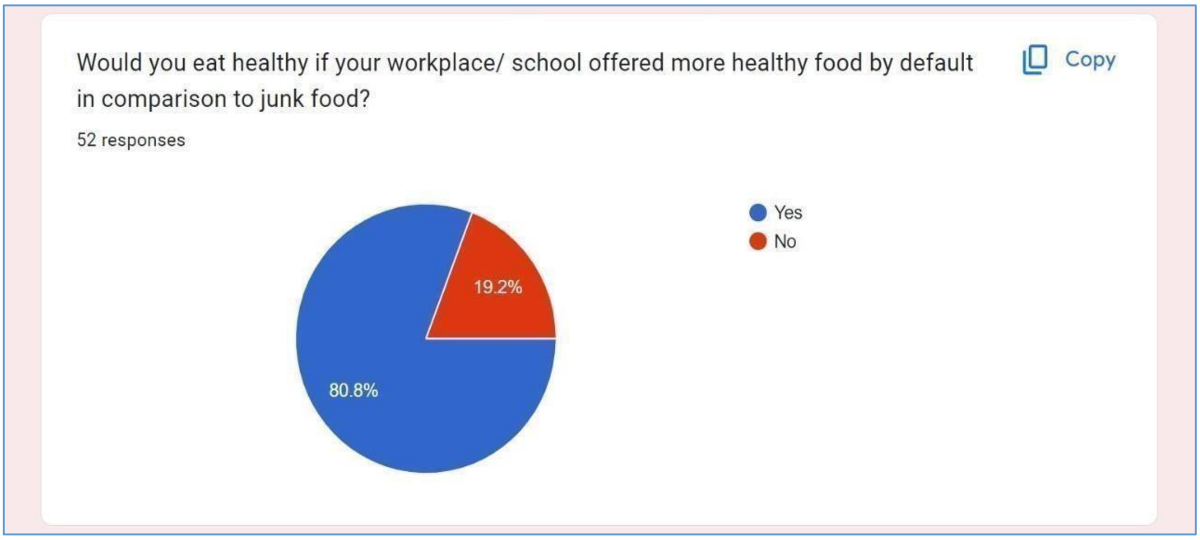
Never submit passwords through Google Forms.

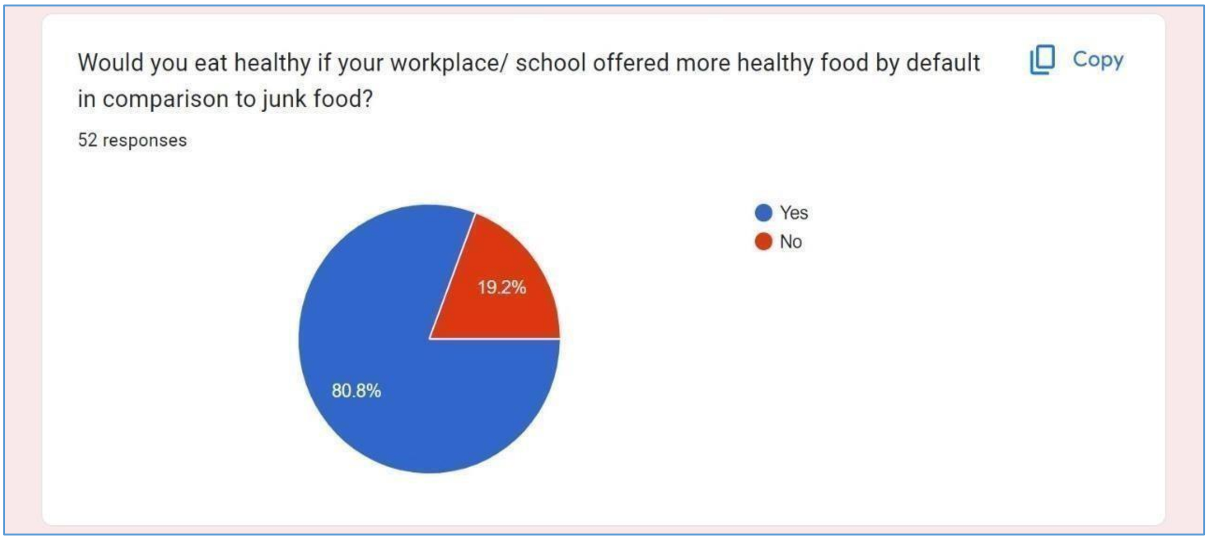

Age
52 responses
Copy
Below 18
18-30
31-50
Above 50
71.2%
19.2%

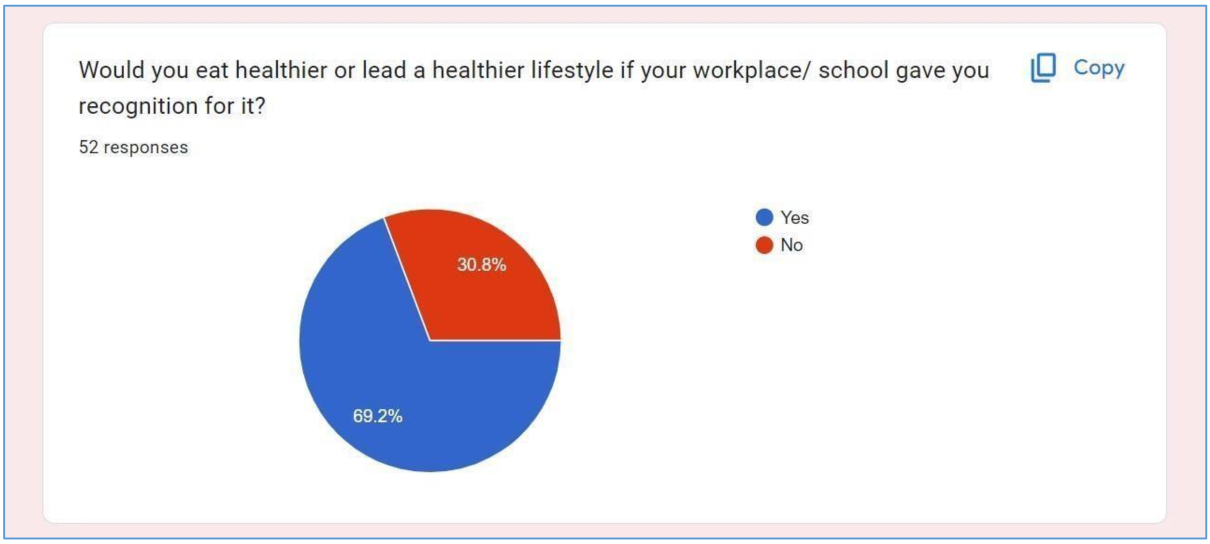

What factors influence your food choices in the canteen?
52 responses
Copy
Price
Taste
Convenience
Healthiness
Variety
23 (44.2%)
41 (78.8%)
19 (36.5%)
24 (46.2%)
17 (32.7%)
0
10
20
30
40
50

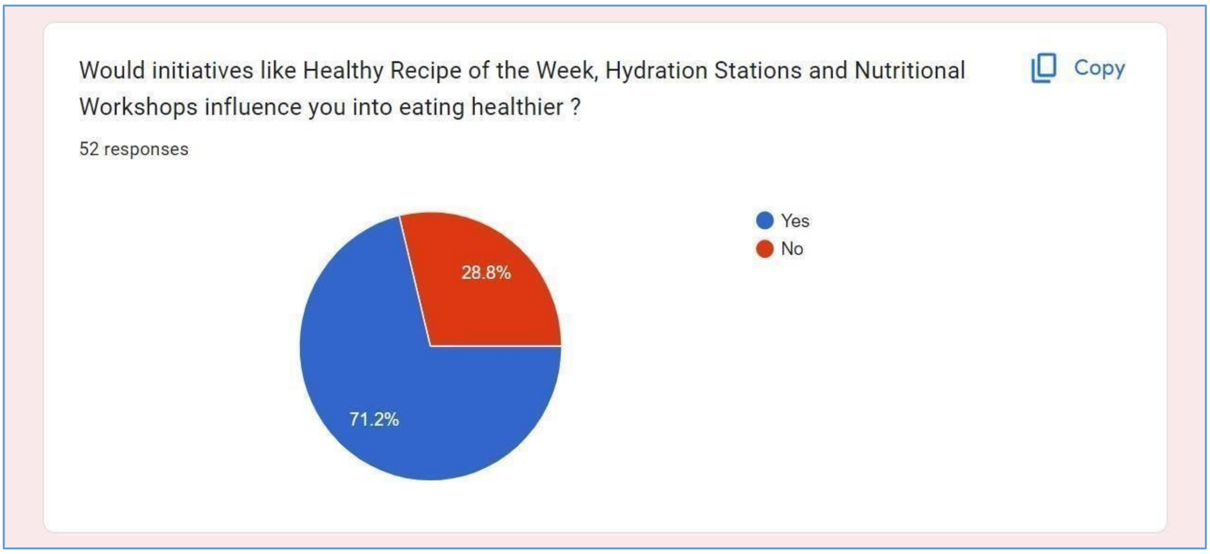

Which of the following healthy eating nudges would encourage you to make healthier food choices?
52 responses
Copy
Clear labeling of healthier options
Offering smaller portion sizes
Placement of healthier options at eye level
Offering discounts or promotions on healthier items
Providing nutritional information for menu items
22 (42.3%)
14 (26.9%)
27 (51.9%)
18 (34.6%)
18 (34.6%)
0
10
20
30


Have you noticed any efforts in the canteen to promote healthy eating? (e.g., signage, healthier options highlighted, etc.)
Copy
52 responses
Yes
No
67.3%
32.7%


Would you eat healthy if your workplace/ school offered more healthy food by default in comparison to junk food?
Copy
52 responses
Yes
No
19.2%
80.8%


Would you eat healthy if your workplace/ school offered more healthy food by default in comparison to junk food?
Copy
52 responses
Yes
No
19.2%
80.8%





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Nudges For Mitigating Academic Procrastination

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Introduction:

The Nobel Prize-winning behavioral economists Richard Thaler and Cass Sunstein popularizedthe idea of nudge theory, which examines how minor adjustments to the way options are presented can have a big impact on how people make decisions. The word "nudge" describes these small interventions that help people make better decisions without limiting their freedomof choice. Fundamentally, nudge theory rests on the knowledge that human decision-making isfrequently biased and impacted by heuristics and biases. These findings can be used to create nudges that promote healthier choices, more money savings, or more efficient task completion—behaviors that result in better outcomes. All things considered, nudge theory provides a useful and successful method for creating treatments that support positive behavior change while upholding personal autonomy. It has been widely used to handle complex social concerns and enhance decision-making outcomes in a variety of fields, including public policy, healthcare, academic performance and consumer behavior.

The act of delaying or postponing chores or activities even if one is aware that doing so couldhave unfavorable effects is known as procrastination. It is a complicated phenomenon that canbe caused by a number of things, such as perfectionism, a fear of failing, a lack of drive, or trouble managing one's time.

A person's general quality of life, productivity, and well-being can all suffer from procrastination. Increased tension, worry, and guilt or humiliation may result from it. Missed opportunities, poorer performance in school or the workplace, and damaged relationships are further consequences. People may enhance their time management, productivity, and general well-being by comprehending the root reasons of procrastination and creating workable solutions to overcome it.

These two ideas are related in that procrastination can be fought with the help of nudges. By facilitating better decision-making and action, nudges can assist people in overcoming procrastination. Setting deadlines or reminders, for instance, can act as nudges to encourage people to finish projects on time. Furthermore, dividing more difficult jobs into smaller, more doable steps might help them seem less intimidating and decrease the chance that they will be put off. Through a comprehension and application of the nudge theory, people can effectively counteract procrastination and enhance their overall productivity and well-being.

The act of delaying or postponing academic tasks, such as finishing assignments, writing papers, or preparing for tests, is known as academic procrastination. Students at all educationallevels frequently engage in it, and it can negatively impact mental health, general well-being, and academic achievement. Academic procrastination can be caused by a number of things, such as perfectionism, a fear of failing, a lack of desire, ineffective time management, and trouble focusing. Academic environments' formalities, such due dates and grading guidelines, can also contribute to procrastination. Academic procrastination can result in elevated levels of worry, tension, and shame or guilt. In addition, it may lead to missed assignments, poorer grades, and a decline in overall academic success. Procrastination in the classroom can occasionally lead to more significant issues, such procrastination disorder or chronic procrastination. Academic procrastination is a frequent practice that many students experience, despite its detrimental effects. Students can enhance their time management, productivity, andgeneral academic success by comprehending the root reasons of academic procrastination andcreating workable solutions to overcome it. Academic procrastination and the nudge theory have a complicated relationship. By facilitating greater decision-making and action, nudges can assist students in overcoming procrastination. One way to encourage students to finish assignments on time is by giving them deadlines or reminders. Furthermore, dividing more difficult jobs into smaller, more doable steps might help them seem less intimidating and decrease the chance that they will be placed aside.

Nudges can be useful in reducing academic procrastination, but their success is dependent on a number of variables, such as each student's drive, self-control, and capacity to block out distractions. Consequently, nudges are not a magic bullet and should be used in conjunction with other tactics like goal-setting, time management, and self-regulation approaches, even though they can be a helpful tool in the fight against academic procrastination.

Objectives:

1. To examine the Causes and Patterns of Procrastination
2. To assess Current Academic Portals and Suggest Nudge-Based Fixes
3. To evaluate the Effect of Nudge components on Student activity
4. To integrate Behavioral Economics Principles

Methodology:

Primary data: For primary data, an online survey open to a wide spectrum of people was used,yielding a sample size of 51 participants. The survey aims to capture the thoughts and attitudes of students aged 13 to 40. This technique enabled a thorough investigation of procrastination patterns and variables, as well as insights on the efficacy of proposed nudges.

Secondary data: In addition to primary data, substantial web research was done to collect secondary data. The goal was to identify nudge policy frameworks that have been established and implemented in academic institutions throughout the world. This secondary data aided thecreation of effective nudge-based solutions, guaranteeing consistency with successful approaches used in a variety of educational contexts. A comprehensive literature evaluation was carried out on academic procrastination, behavioural economics, and nudge therapies. Existing academic portals were examined for user engagement metrics and comments.

Hypothesis:

H0 : The implementation of nudges will have no effect on early task completion.
H1: The implementation of nudges will result in greater levels of early task completion than when no nudges are given.

H0: The impact of nudges on academic procrastination are not influenced by individual variation but externally.
H2: The impact of nudges on academic procrastination are influenced by individual variation such as motivation, self-regulation, and discipline.

Suggestions for Nudges to Mitigate ProcrastinationAcademic Portal:

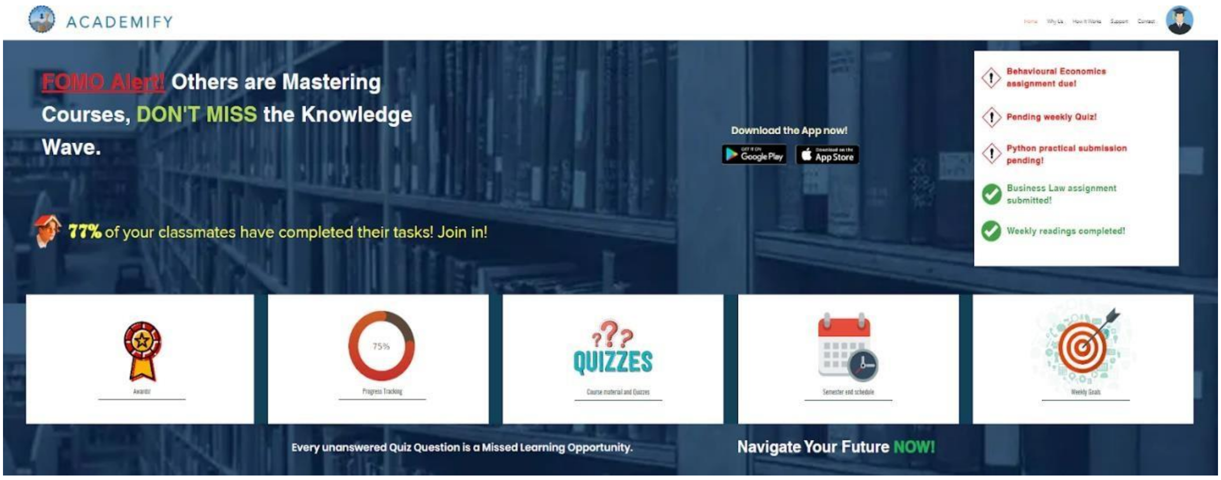
In the age where the education landscape is rapidly evolving by the usage of technology. A persistent problem still remains, procrastination among college students before or during preparation for the exams. Students usually wait until the last moment to start their preparation, thinking they will be able to handle it. In the process, they deal with unprecedented stress at the last moment. Recognizing this issue, we propose a fitting solution- Academify Portal. Theportal is designed to engage students with their academic material on a regular basis by fostering a sense of accountability and healthy competition with their peers.

Our research suggests implementing an academic Portal - Academify as a proactive measure to combat student procrastination. While every college offers its own portal, it's crucial to continually optimize it. In this case, the aim is to design a user-friendly interface that nudges students towards prolonged engagement. Academify's features, including weekly quizzes, class materials, progress tracking, end-semester schedules, and rewards, should be seamlessly integrated to encourage students to explore and utilize them to their fullest potential.

An integral feature of the portal is its personalized planning tool, akin to health-tracking apps, which initiates by asking students a series of questions. These questions delve into essential aspects such as course details, batch information, existing commitments including professionalcourses or involvement in campus festivities, and productivity behaviour inquiries. By inquiring about study habits and potential distractions, the portal tailors its recommendations to suit individual needs, fostering a more effective and efficient academic journey.

The initial page of the website, crafted using Wix, serves as an embodiment of strategic nudges aimed at fostering student engagement. With meticulous attention to detail, we integrated various psychological nudges seamlessly into the design, encouraging users to delve deeper into the website's offerings. Additionally, the colour psychology principles were meticulously applied throughout the design process to evoke desired emotional responses and enhance userexperience.

Figure 1: Academify Landing Page



The headline, "FOMO Alert: Others are mastering the course, don’t miss out on the Knowledge wave," strategically leverages psychological principles to enhance student engagement. By highlighting that peers are excelling in the course, it invokes a sense of social pressure and urgency, prompting individuals to align their actions with those of their peers. Additionally, the phrase "don't miss out" taps into the principle of loss aversion, amplifying motivation by emphasising the potential loss of valuable knowledge and opportunities. Together, these elements work synergistically to inspire proactive participation and foster a commitment to academic excellence.

The subsequent line, "77% of your classmates have completed the task, join in," strategically employs the principle of social proof. By highlighting the significant portion of classmates who have already completed the task, it creates a compelling normative influence, leading individuals to mirror and align the behaviour of their peers. This nudge leverages the innate human tendency to conform to group behaviour.

The statement, "Every unanswered quiz question is a missed learning opportunity," strategically taps into the principle of loss aversion while emphasising the scarcity of quiz questions as valuable resources for gaining knowledge. By framing unanswered quiz questions as missed learning opportunities, it accentuates the potential losses associated with not engaging with the content. Additionally, referring to quiz questions as scarce resources underscores their value and highlights the importance of seizing each chance to acquire knowledge.

The nudge "Navigate your future NOW" strategically combines urgency with the priming effect to prompt immediate action and forward-thinking. By priming individuals to contemplate their future, it sets the stage for proactive decision-making and goal-oriented behaviour. The inclusion of "NOW" adds a sense of urgency, compelling individuals to act promptly and take tangible steps towards shaping their future.

One of the major reasons why students procrastinate proactively is when they have too much work to do and navigating the work is difficult. The portal organises everything in one place and definitely makes the daunting task of students easier.

Characteristics of the Portal:

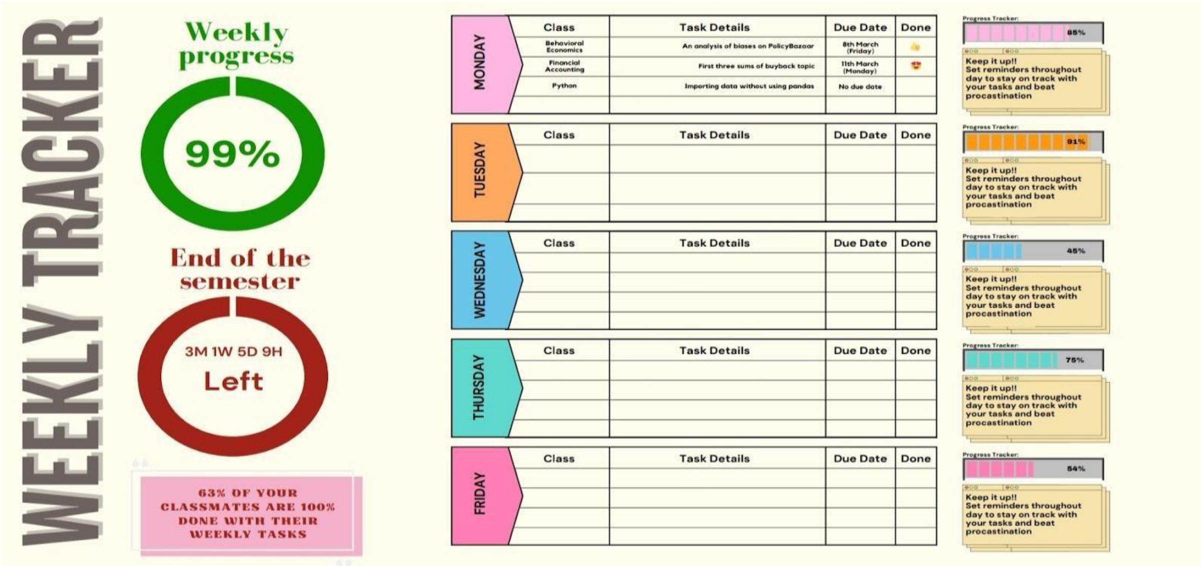
Weekly Tracker

The weekly tracker would not only enable the students to track their weekly progress, but wouldalso provide a visual indicating the number of days left until the semester ends. Using certain design elements would enable the college management to optimise the portal tomitigate academic procrastination among students. Colour coding fonts and visuals primarily align with the concept of association of emotions. Generally, the colour ‘green’ is associated with progress and positivity, while the colour ‘red’ signals complusion and time constraints. This plays into the psychological impact of colours on emotions and motivation. Furthermore,priming this page with words such as "Time Left" would also trigger a sense of urgency. It employs the affect heuristic, where individuals make decisions based on emotional responses.

Statements such as "63% of your classmates are 100% done with their weekly tasks", leveragesthe concept of social proof. People are more likely to adopt a behaviour if they believe it is endorsed or practised by others, especially their peers. This motivates individuals to align theirbehaviour with what is perceived as socially accepted. Loss aversion suggests that people are more motivated to avoid losses than to acquire equivalent gains. The statement implies that notbeing 100% done with weekly tasks represents a potential loss or lagging behind the majorityof classmates. This plays into the nudge policy of creating a fear of missing out

(FOMO) or not keeping up with peers. By emphasising that a significant portion (63%) of classmates havealready completed their tasks, the planner nudges individuals to avoid the "loss" of not being in line with the majority.

Figure 2: Weekly Tracker



Moreover, breaking down tasks into smaller, manageable steps makes them less overwhelmingand more achievable The progress tracker acts as a form of visual feedback. The act of markingtasks as completed provides a sense of accomplishment, activating positive reinforcement andencouraging users to continue completing tasks. The phrase "Keep It Up" is a form of positivefeedback that reinforces the desired behaviour.

Quarterly plan (Semester length):

While preparing the quarterly plan, the portal takes into account the student's professional course exam dates & any on-campus related activities which were asked at the start to the students while signing in. The quarterly plan incorporates colour coding which is purple for on-campus days, yellow for CFA exams, and red for end sem exams, triggering emotional responses and guiding perceptions. This aligns with the affect heuristic, nudging individuals tofeel differently about each event. The graphics of "tick" & "wrong" on the calendar visualizeswhether the student completed their daily goal or not. The plan personalizes the estimated timeto be spent on studying their course material as well as quizzes in order to finish their studies before the end semester exam as portrayed on the calendar with the colour red.

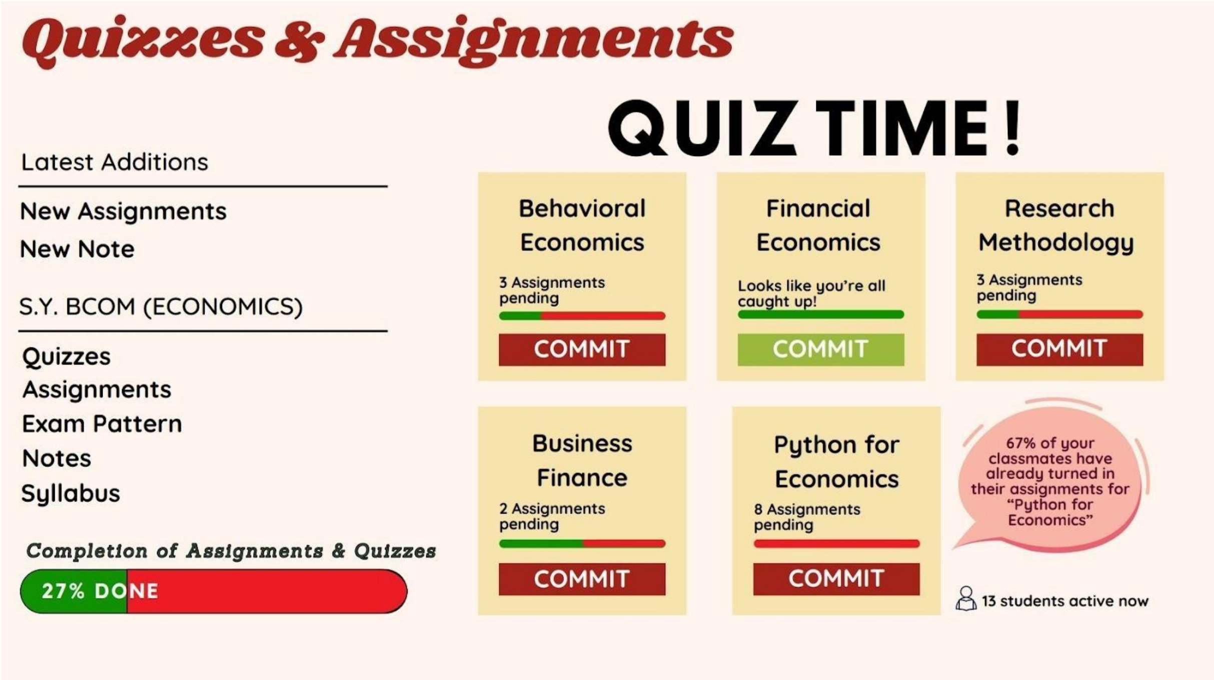
A moving clock with estimated hours and "Time Is Running Out" statement taps into scarcity,emphasizing the limited resource of time. Social proof and fear of missing out (FOMO) are utilised with a statement about classmates' compliance, inducing loss aversion and urgency. Finally, priming with capitalized "MISS OUT" and "NOW" prompts immediate action to avoid perceived negative outcomes.

Figure 3: Quarterly Plan

Quizzes & Assignments:

Another component that would be a part of this portal would be a page where professors can upload all their assignments & quizzes and students can track their progress in these assignments & quizzes. Although this is not a new concept, there are certain nudges that could be applied through simple additions or changes in the portal design. For example displaying the number of students who have already turned in their assignments or are currently active plays into herding effect, simple choice of words such as “commit” could also influence early assignment completion rates.

Figure 4: Quizzes & Assignments



Summary Report:

The Summary Report would contain the academic profile of each student. It would be designedin a way that would organise and structure learning experiences by navigating the curriculum through a repository of quizzes and readings, categorised into modules and chapters.

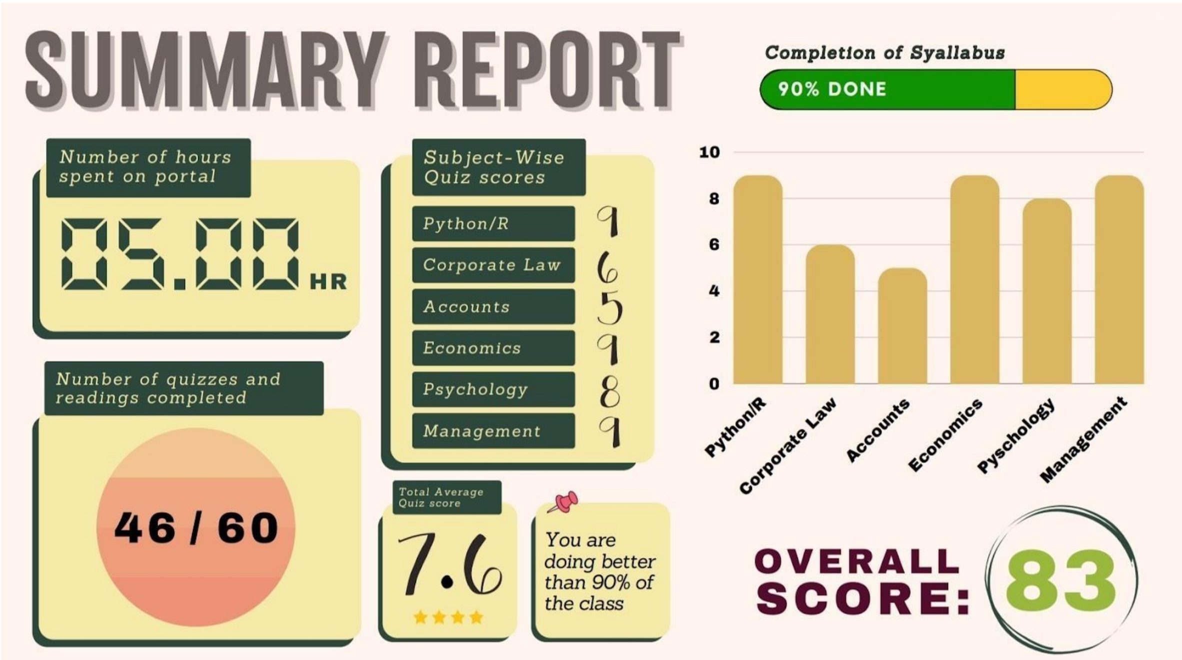
Depending upon the number of quizzes attempted, it would be able to track and present the student's progress as a visual aid that serves as a motivational tool to encourage students to strive for completion of their academic quizzes, assignments and projects. This would allow students to track their progress in every aspect.

The third essential feature would be using priming effects to alter the decisions of students to influence them to work on their assignments regularly for timely submissions. This would incorporate using words and phrases such as, "you are doing better…" and "...% of your classmates have already…", that would act as a performance comparison facilitating healthy competition among students, whilst providing insights into their performance relative to their classmates within the same classroom.

It will process a personalised summary report using AI, which would be mailed to students every week providing them their weekly average points. These weekly average points would be based on: the number of quizzes and suggested readings completed, the number of points scored on quizzes, the total time spent on the portal, compliance to daily to do list and overallstudy schedule and lastly assignments submitted within the deadline.

Using the monthly average points, our idea also works on dealing with academic procrastination at hand where top 10 students of the class with the highest monthly points will become student mentors and they will have a group of 5 mentees (fellow students under them). The student mentors will keep a check with the other mentees and advise them to work harder. All the students can discuss and inspire each other to work on their procrastination problems and help each other to stay motivated. The student mentors will change every month based on the highest points of that month so it will encourage the students to work harder every month to get the position of the mentor. There can also be rewards for the best performing mentor mentee group at the end of the month based on the entire group's average points.

Figure 5: Quarterly Plan



Altering Choice Architecture and Assignments Structures:

Altering the choice architecture in college assignments can help reduce procrastination by leveraging psychological and behavioural principles. Shorter deadlines instil a sense of urgency, encouraging students to work on assignments promptly. This reduces the risk of hasty or poor work and makes the task less stressful. Providing multiple smaller assignments instead of one major project can also help reduce procrastination and enhance students' time management abilities. This strategy draws on "present bias," which emphasises immediate rewards over long-term gains. Framing assignments into smaller tasks adheres to the theory of "chunking," making it easier to understand and act on. By completing smaller tasks in stages, students receive more regular feedback from professors, allowing them to recognize and resolve any mistakes early on. By modifying the way assignments are assigned, students can improve their academic performance and overall educational experience.

Rewards for timely submission of assignments:

This nudge policy is designed to reduce student academic procrastination by utilizing insightsfrom behavioral economics. Our Early Submission Bonus policy, which is based on the ideas of behavioral nudges, aims to change students' behavior by offering an alluring incentive program. We leverage the behavioral idea of hyperbolic discounting—which recognizes that people prioritize incentives over delayed time—by awarding more points for projects turned in before deadlines. This nudge is purposefully crafted to offset the cognitive tendency toward impulsivity and procrastination, motivating students to make decisions that will contribute to their long-term academic achievement.

The policy recognizes that students frequently struggle with delayed incentives and choose temporary comfort, which results in last-minute submissions, and it is in line with the idea of intertemporal choice. We want to change this decision-making dynamic by offering a concreteadvantage in the form of extra marks. The policy restructures the submission procedure by using the prospect theory—which holds that people are more driven by possible losses than gains—to turn the possibility of losing bonus marks into a strong incentive for taking early action.

Our nudge strategy also acknowledges the influence of societal norms on behavior. By makingthe policy generally known and visible, we leverage the influence of peers and the want to fit in with socially acceptable conduct to establish a normative expectation for timely submissions.This is consistent with the behavioral theory of social proof, which holds that people are moreinclined to engage in an activity if they believe it to be accepted by society.

Our nudge policy, in its simplest form, is a purposeful, behavioral economics-based strategic intervention meant to encourage students to engage in proactive, goal-oriented academic conduct. By using this creative strategy, there is hope to foster a culture of time management, regular participation, and general academic achievement in addition to lowering academic procrastination.

Behavioural economics ideas are utilised in the early submission incentive and late submissiondeduction programmes to successfully impact student behaviour.

Early submission incentives leverage positive reinforcement by giving extra points to reward initiative and promote timely assignment completion. By leveraging the notion that individuals are driven by rewards, this strategy promotes a positive societal norm around timeliness.

On the other hand, deductions for late submissions apply concepts such as temporal discountingand loss aversion. By penalising tardiness, this tactic highlights the immediate repercussions of procrastinating and fosters a dread of losing out. Further deterring delayed action is the unfavourable societal norm it develops around late submissions.

There is a noticeable effect on how students behave. Early submission bonuses encourage proactive time management and careful planning, which boost motivation, lower stress levels, and improve the calibre of work. On the other hand, deductions for late submissions cause students to prioritise meeting deadlines and averting possible penalties since they induce a fearof failing.

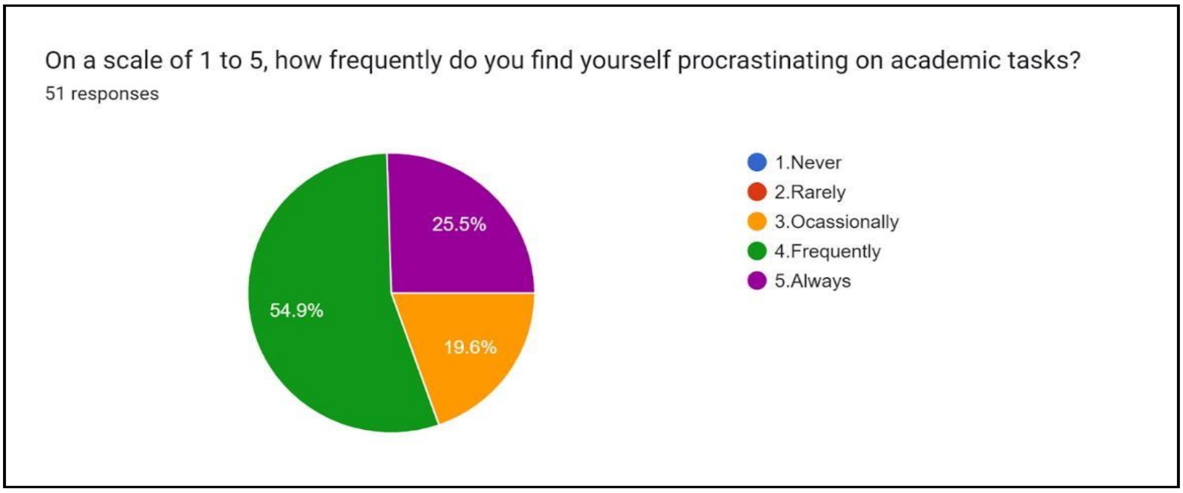
These methods vary from one another in terms of their psychological workings and general tones. Deductions for late submissions are based on fear of losing and impending penalties, whereas early submission bonuses emphasise positive reinforcement and rapid rewards. Both tactics seek to modify behaviour, but they address distinct psychological processes, and their applicability may vary based on the goals and ethos of the institution.

Observation & Analysis:

Based on the form responses, it's evident that 80.4% of the respondents are predominantly students aged between 17-20. These students are those who have just entered college or are about to complete their graduation.

Frequency of respondents procrastinating on academic tasks:

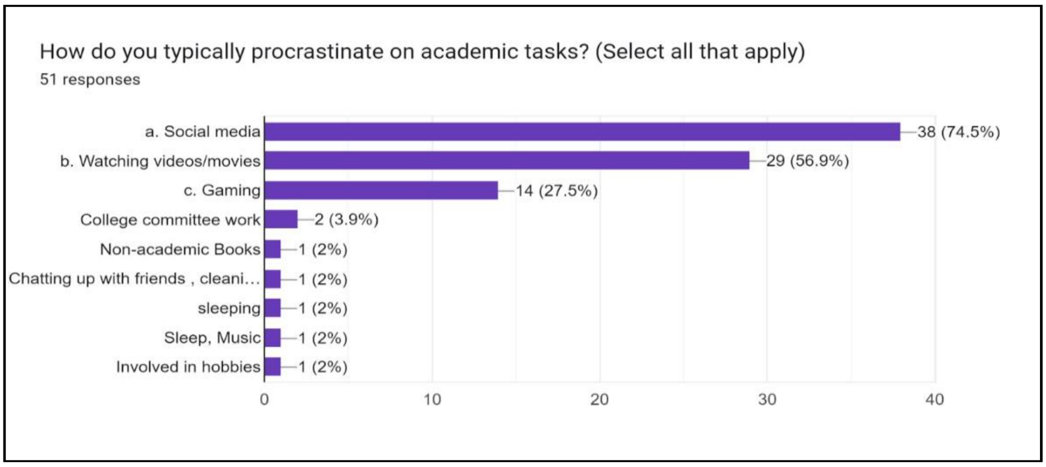
Figure 6



The second question delves into the degree of procrastination exhibited by respondents, revealing that no respondents reported zero procrastination. Instead, 19.6% procrastinate occasionally, 54.9% do so frequently, and 25.5% procrastinate always. The graph illustrates that each respondent is prone to delaying submission and other academic tasks to some extent.

Ways in which respondents typically procrastinate:

Figure 7

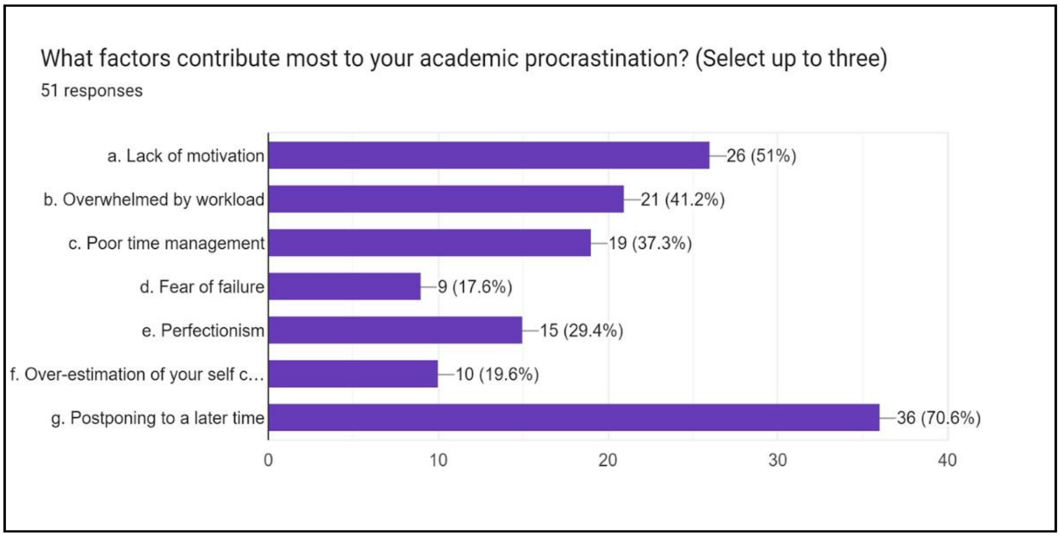


Each individual tends to procrastinate in their unique manner, as illustrated by this graph showcasing their preferred activities. Social media stands out as the most pervasive distraction, affecting 74.5% of respondents. Following closely, watching videos or movies distracts 56.9%

of participants, while gaming impacts 27.5%. These findings suggest that the majority gravitate towards less constructive pastimes, neglecting healthier habits like reading, socializing, and self-care.

Factors contributing to academic procrastination:

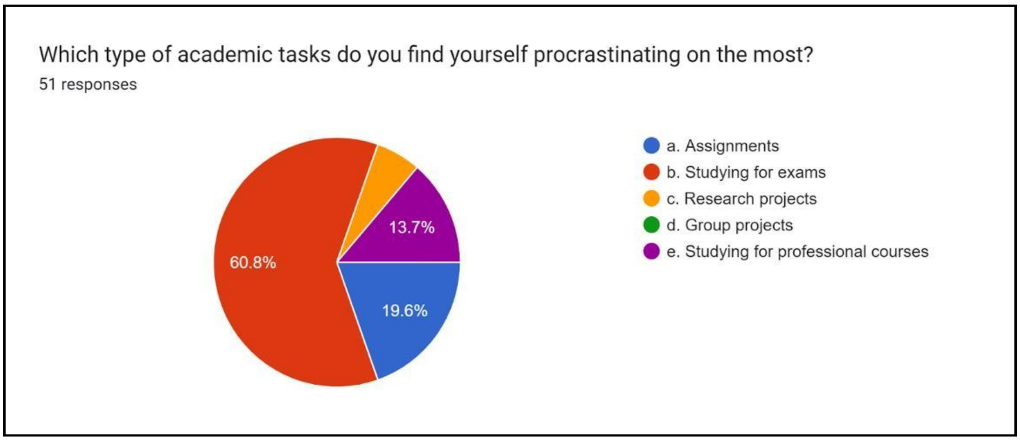
Figure 8



The previous question aimed to uncover respondents' views on factors influencing their academic performance, particularly regarding procrastination. It was found that 70.6% of participants tend to postpone academic tasks because they believe they can still complete them later. Meanwhile, lack of motivation is a reason for 51% to delay submissions or other academic responsibilities. Additionally, factors like workload and poor management contribute to hindering the academic performance of 19-21% of respondents.

Categories of academic tasks individuals typically procrastinate in the most:

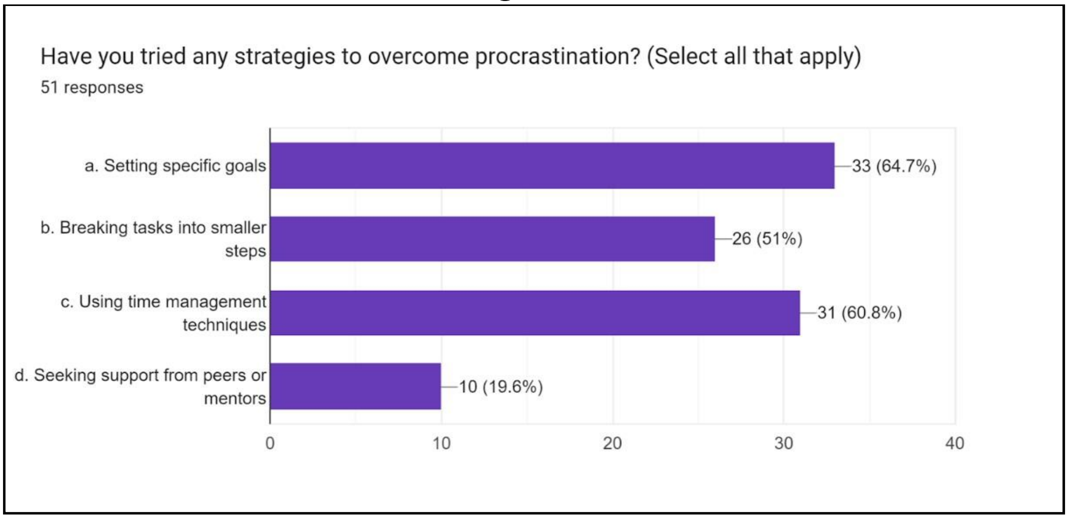
Figure 9



The type of academic work can vary, ranging from mundane to genuinely engaging, which affects how involved respondents are in these tasks depending on which type predominates. According to the graph, 60.8% of all respondents prefer to procrastinate exams the most. In contrast, 17.1% choose assignments, 14.3% select professional courses, and 8.6% pick research projects because they perceive them as less demanding and less pressured compared to exams.

Strategies used by respondents to overcome academic procrastination:

Figure 10

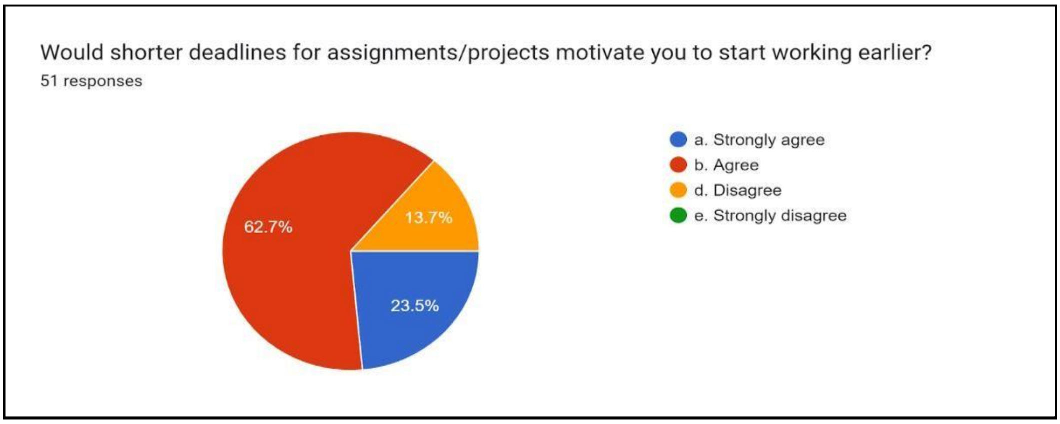


Given that procrastination significantly impacts academic achievement, it's essential for respondents to confront and overcome such challenges. 60.8-64.7% of all respondents have acknowledged the significance of implementing time management strategies and establishing clear goals. 51% of total respondents have recognized the importance of breaking tasks into smaller, more manageable steps. Additionally, 19.6% of all respondents depend on support and guidance from their peers and mentors.

Would shorter deadlines for assignments/projects motivate you to start working earlier:

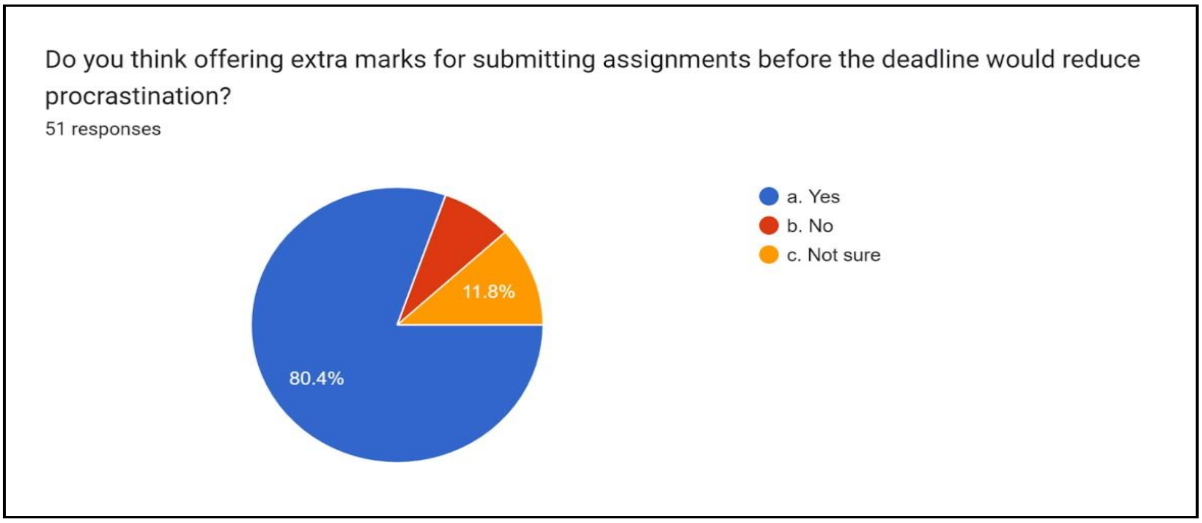
Based on our research findings, we've determined that shorter deadlines enhance productivity and advancement. This is evidenced by 23.5% of all respondents strongly agreeing with this idea, while 62.7% also express some level of agreement. Additionally, 13.7% of respondents show some disagreement, suggesting that there may be alternative strategies they believe couldbe more effective.

Figure 11



Do you think offering extra marks for submitting assignments before the deadline would reduce procrastination?

Figure 12

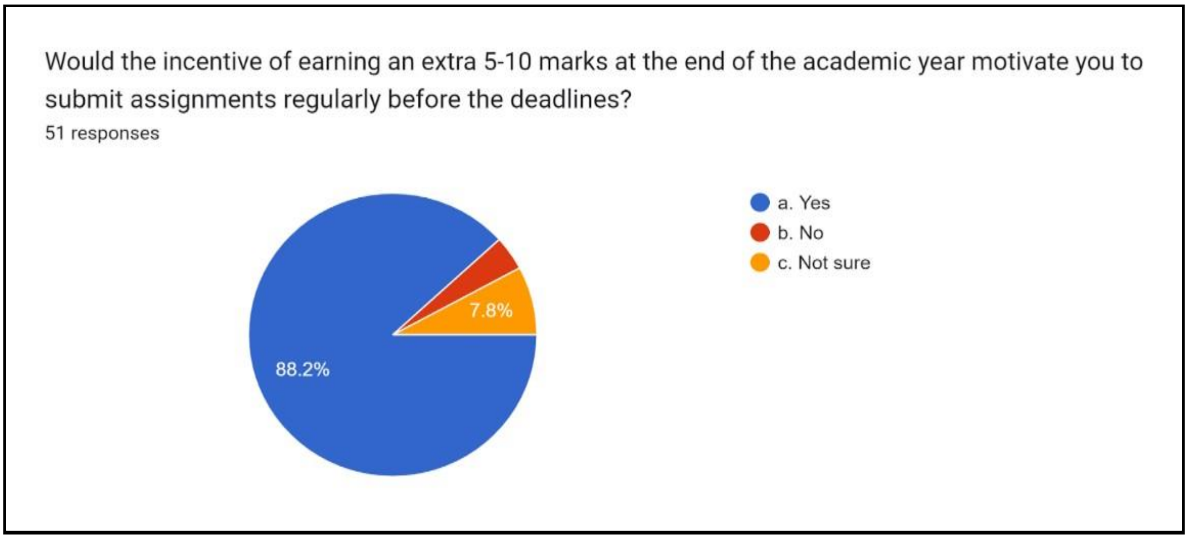


The survey asks respondents about the extent to which incentives, like extra marks, would reduce their tendency to delay academic tasks. A significant majority, 80.4% of all respondents,fully agree that extra marks would reduce their procrastination. However, a smaller portion, 11.8%, express uncertainty or disagreement for various reasons.

Would the incentive of earning an extra marks at the end of the academic year motivate you to submit assignments regularly before the deadlines:

The survey asks respondents about the extent to which incentives, like extra marks, would encourage them to complete academic tasks before the deadline. A significant majority, 88.2%

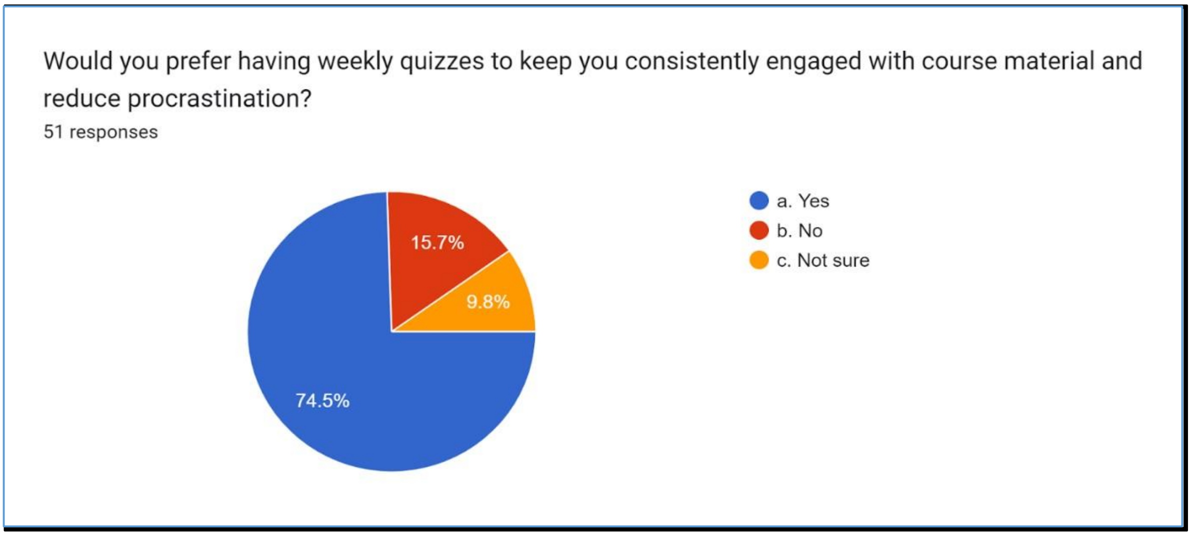
Figure 13



of all respondents, fully agree that extra marks would reduce their procrastination. However, a smaller portion, 7.8%, express uncertainty or disagreement for various reasons.

Would you prefer having weekly quizzes to keep you consistently engaged with course material and reduce procrastination:

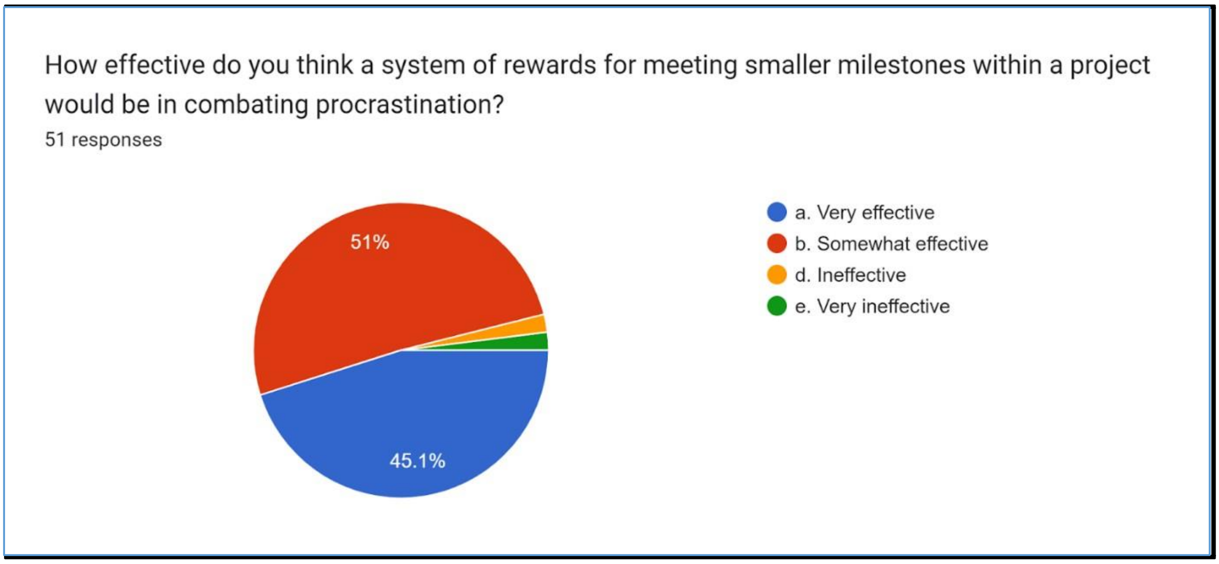
Figure 14



Our research proposes a solution to the primary issue, suggesting that implementing weekly quizzes serves as a prime example of a nudge design aimed at fostering healthier habits to enhance academic performance. A significant majority, 74.5% of all respondents, opt for the affirmative, believing that this nudge will effectively reduce procrastination. Conversely, 15.7% of total respondents choose the negative option for diverse reasons, while 9.8% express uncertainty regarding this approach.

How effective do you think a system of rewards for meeting smaller milestones within a project would be in combating procrastination:

Figure 14



Breaking down a project into smaller, manageable steps is crucial for its successful completion, as acknowledged by 45.1% of the total respondents who find this approach highly effective. Additionally, 51% of participants consider this strategy to be moderatelyeffective, underscoring its importance in achieving smaller milestones along the way

Conclusion:

In conclusion, our research was driven by clear objectives: designing effective nudges, understanding procrastination factors, and assessing nudge efficacy. The proposed nudges and strategies for mitigating procrastination among college students demonstrate a comprehensive understanding of behavioural economics principles and their application in educational contexts. By leveraging psychological insights, such as social proof, loss aversion, priming and positive reinforcement, alongside innovative approaches like early submission incentives and strategic assignment restructuring, the aim is to foster a culture of proactive engagement, healthy competition and academic achievement.

The academic portal represents a commendable innovation aligned with the National EducationPolicy (NEP), promoting continuous assessment and offering a seamless process for conducting quizzes and evaluating student progress through comprehensive summary reports.

This approach not only facilitates ongoing learning but also provides educators with valuable insights into student performance, enabling personalised support and intervention as needed. By embracing technology to streamline assessment practices, the portal contributes to the advancement of educational practices in line with the evolving needs of NEP students. These interventions hold promise in addressing the persistent challenge of procrastination and promoting student success in higher education.

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PDS In India: An Appraisal And Reforms

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Abstract:

India's Public Distribution System (PDS) stands as a pivotal institution in the nation's quest for food security, yet it grapples with persistent hurdles. This project offers a comprehensive analysis of the PDS, tracing its historical evolution, assessing its current state, and examining its impact on poverty alleviation and nutritional well-being. The study delves into critical challenges including leakages, targeting discrepancies, and the integration of Point-of-Sale technology, supplemented by insightful case studies spotlighting diverse reform initiatives across states. Drawing uponextensive research and stakeholder insights, the project puts forth evidence-based recommendations to bolster the effectiveness and inclusivity of the PDS. Proposed measures encompass policy refinement, operational streamlining, technological innovation, targeting mechanism enhancement, and community empowerment. By addressing these challenges and embracing the recommended reforms, India can progress towards a more resilient, equitable, and sustainable PDS, ensuring universal access to food security. This study contributes to the ongoing discourse on PDS reform, offering actionable insights to policymakers, practitioners, and stakeholders invested in advancing food security agendas in India and beyond. Through collaborative efforts and concertedaction, the nation can navigate the complexities of modernizing the PDS, realizing its potential as a transformative force in addressing hunger and promoting social justice.

Introduction:

India's Public Distribution System (PDS) stands as a crucial pillar in the nation's food security architecture. Established decades ago, to combat food scarcity, it currently aims to provide subsidized essential commodities like rice, wheat, and sugar to millions of beneficiaries categorized under various entitlements. While the PDS has undoubtedly contributed to improved food access, questions linger about its effectiveness, efficiency, andadaptability in a continuously evolving landscape.

Current State:

- **Evolution:** The PDS has transformed, transitioning from a universal scheme to a targeted one, focusing on Below Poverty Line (BPL) and Antyodaya Anna Yojana (AAY) households under the National Food Security Act (NFSA).
- **Challenges:** Leakages, targeting inaccuracies, operational inefficiencies, and limited reach continue to hamper optimal impact. Digital initiatives like Point-of-Sale (PoS) devices and Aadhaar integration aim to address these.
- **Debate:** While reforms strive for better targeting and transparency, debates remain on their efficacy, potential exclusion errors, and impact on marginalized communities.

PDS: A Historical Journey Towards Inclusive Food Security

The story of India's Public Distribution System (PDS) is intricately woven with the nation's ongoing battle against food insecurity. Its roots lie in the devastating Bengal Famine of 1943,claiming an estimated 3 million lives. This stark reminder of vulnerability prompted the British Raj to introduce rationing measures during World War II, which laid the groundwork for the PDS established in 1964.

Initially, the PDS adopted a universal approach, distributing subsidized food grains through Fair Price Shops (FPS) in urban areas to combat food shortages fuelled by population growthand insufficient domestic production. While achieving some success in stabilizing urban prices, this approach faced limitations by the 1970s. Unsustainable costs, inefficiencies, and widespread leakages, estimated at around 10-20%, highlighted the need for reform.

Recognizing these challenges, the government-initiated policy shifts starting in the 1970s:

- **Targeting the Poor:** The focus gradually shifted towards the most vulnerable, culminating in the Targeted Public Distribution System (TPDS) launched in 1997. This scheme aimed to identify and deliver subsidized food grains to Below PovertyLine (BPL) families, estimated at around 40% of the population at the time.
- **Expanding Reach:** While originally urban-centric, the PDS progressively expandedits reach to rural areas with higher poverty rates and food insecurity concerns. Programs like the Antyodaya Anna Yojana (AAY) in 1997 specifically targeted the poorest 25% of rural households, estimated at around 81 million as of 2023.
- **Decentralization**: The role of state governments in PDS implementation increased, acknowledging regional variations in needs and allowing for tailored approaches.

The National Food Security Act (NFSA) of 2013 marked a significant milestone, enshrining food security as a legal right and expanding entitlements for specific categories like pregnantwomen and children. However, challenges remain, including leakages (now estimated at 3040%), targeting inaccuracies, and operational inefficiencies.

Exploring this historical journey reveals a system constantly evolving in response to changingneeds and realities. While early iterations aimed at broad price stabilization, the focus has shifted towards ensuring food security for the most vulnerable sections of society.

PDS in India: Navigating Challenges on theRoad to Food Security

While the Public Distribution System (PDS) stands as a vital pillar of India's food security architecture, its journey is marred by significant challenges that impede its effectiveness. Thissection delves into the major roadblocks the PDS faces, analyses their impact, and introducesthe key stakeholders involved in this complex ecosystem.

Leakages: Diverting Resources from the Needy

- **Leakages** – the siphoning off of subsidized food grains at various stages – represent a major challenge, with estimates ranging from 30% to 40%. A 2019 World Bank report suggests that leakages cost the government around $12 billion annually. These diversions occur at different points, including:
- **Procurement and storage:** Weak infrastructure and inadequate storage facilities leadto spoilage and pilferage.

- **Transportation:** Inefficient logistics and collusion between officials and transporters facilitate diversions.
- **Fair Price Shops (FPS**): Dishonest shopkeepers can adulterate, substitute, or sell subsidized grains on the open market at higher prices.

The impact of leakages is substantial. They reduce the amount of food reaching intended beneficiaries, exacerbating food insecurity and undermining the program's cost-effectiveness. Additionally, they erode public trust in the system and create disincentives for participating stakeholders.

Targeting Issues: Reaching the Right Hands?

Despite targeting reforms like the TPDS and NFSA, achieving accurate beneficiary identification remains a challenge. Exclusion errors, where eligible individuals are left out, can be as high as 20% in some states, according to a 2022 study by the International Food Policy Research Institute (IFPRI). Conversely, inclusion errors, where ineligible individualsreceive benefits, are estimated at 11%. These inaccuracies have several consequences:

- **Exclusion**: Vulnerable individuals, particularly marginalized groups like women and children, face increased food insecurity when excluded from benefits they are entitled to.
- **Inefficiency**: Resources are misallocated to ineligible individuals, reducing thesystem's impact on its intended target population.
- **Resentment**: Exclusion and inclusion errors can create social tensions and erodepublic faith in the PDS.

Key Stakeholders: Navigating a Complex Ecosystem

The PDS encompasses a diverse group of stakeholders with distinct roles and interests:

1) **Government**: Responsible for policy formulation, funding, and overall program oversight.
2) **Beneficiaries**: Eligible individuals entitled to receive subsidized food grains.
3) **Fair Price Shop (FPS) owners:** Act as retailers, distributing subsidized food grains to beneficiaries.
4) **Mills and traders:** Involved in food grain procurement, processing, andtransportation.
5) **Civil society organizations:** Play a crucial role in monitoring, advocacy, andcommunity engagement.

Understanding the complex interplay between these stakeholders is crucial for addressing thechallenges faced by the PDS. For example, government policies often have unintended consequences on shopkeepers' livelihoods, creating incentives for leakages. Conversely, active community participation can hold stakeholders accountable and improve transparency.

Measuring the Impact of the PDS: Food Access,Security, and Beyond

The Public Distribution System (PDS) serves as a critical instrument in India's quest for foodsecurity. Assessing its effectiveness, however, necessitates a nuanced approach that goes beyond simplistic metrics. This section delves into the PDS's impact on food access and security, analyzing quantitative data while acknowledging limitations and exploring alternative indicators.

Glimmers of Success: Quantitative Evidence

On the surface, the PDS appears to have contributed to improved food access and security.Data suggests:

- **Poverty Reduction:** Poverty rates in India have declined from 45.5% in 2004-05 to 27.9% in 2017-18, with the PDS credited as a contributing factor, especially in ruralareas.
- **Malnutrition Rates:** While malnutrition remains a concern, India has witnessed a gradual decline in child stunting rates from 48% in 2005-06 to 36% in 2019-20. ThePDS, along with other interventions, could have played a role in this improvement.
- **Food Availability:** PDS coverage expands access to essential food grains for millions, contributing to improved caloric intake, especially for vulnerable groups.

Beyond the Numbers: Limitations and Challenges

While these statistics portray a positive picture, relying solely on them presents limitations:

- **Correlation ≠ Causation:** Poverty reduction and malnutrition decline could be influenced by multiple factors, making it difficult to isolate the sole contribution ofthe PDS.
- **Incomplete Coverage:** Not all eligible individuals utilize the PDS effectively due to targeting inaccuracies, exclusion errors, and operational inefficiencies.
- **Quality and Nutrition:** The PDS primarily focuses on staple food grains, potentially neglecting dietary diversity and micronutrient needs.

Exploring Alternative Indicators: A Holistic View

Moving beyond traditional metrics, several alternative indicators can provide a more comprehensive understanding of the PDS's effectiveness:

1) **Program Utilization:** Analyzing the percentage of eligible individuals activelyutilizing the PDS and their satisfaction with service delivery.
2) **Gender Disparity**: Examining how the PDS addresses the specific needs of womenand girls regarding food security and malnutrition.
3) **Livelihood Impact:** Exploring the potential impact of the PDS on local agriculture, market dynamics, and smallholder farmers' livelihoods.

Considering these indicators alongside traditional metrics offers a more holistic and nuancedperspective on the PDS's effectiveness. This multi-dimensional approach is crucial for understanding the program's true impact on various aspects of food security and identifying areas for improvement.

Hitting the Mark? Assessing Targeting in India's PDS

Reaching the right beneficiaries is crucial for the Public Distribution System's (PDS) effectiveness. This section takes a critical look at the current targeting mechanisms – Above Poverty Line (APL), Below Poverty Line (BPL), and National Food Security Act (NFSA) categories – assessing their efficiency and highlighting potential shortcomings.

The Targeting Landscape:

- **APL & BPL:** Initially, the PDS adopted a universal approach, later transitioning to BPL targeting in the 1990s. This identified poor households based on socioeconomic parameters.
- **NFSA:** The 2013 Act expanded entitlements, creating new categories like Antyodaya Anna Yojana (AAY) households and pregnant/lactating women.

Assessing Effectiveness:

- **Exclusion Errors:** Despite aiming for precision, data reveals significant gaps. A 2022 International Food Policy Research Institute (IFPRI) study estimates exclusion errors at 20% in some states, leaving eligible individuals without access. This disproportionately impacts marginalized groups like women and children.

- **Inclusion Errors:** Conversely, 11% of ineligible individuals receive benefits,diverting resources from intended beneficiaries. This can occur due to faulty identification processes, corruption, or political manipulation.
- **Operational Challenges:** Complex procedures, lack of transparency, and outdated infrastructure further hinder effective targeting.

Case Studies and Data Points:

- **Chhattisgarh:** Despite boasting a well-functioning PDS, a 2018 study found 14% exclusion errors, highlighting the persistent challenge.
- **Tamil Nadu:** While lauded for its PDS reforms, a 2020 report revealed 12% inclusion errors, indicating potential leakages within the system.

Consequences of Inefficient Targeting:

- **Resource Misallocation:** Exclusion leaves vulnerable individuals' food insecure, while inclusion diverts resources from those truly in need, undermining program cost-effectiveness.
- **Eroding Faith:** Inefficiencies contribute to public dissatisfaction and mistrust in the system, potentially reducing program participation and effectiveness.
- **Social Inequity:** Exclusion of marginalized groups further widens existinginequalities and exacerbates their food insecurity vulnerability.

Refining the Targeting Mechanism

Current targeting mechanisms hold promise but face significant challenges. Addressing exclusion and inclusion errors, streamlining procedures, and enhancing transparency are crucial steps. Moving beyond traditional metrics to assess access, quality, and inclusivity willprovide a more holistic understanding of targeting effectiveness. Only then can the PDS trulyfulfil its objective of reaching the most vulnerable and contributing to a more equitable food security landscape in India.

Point-of-Sale Technology: Transforming thePDS, or Stumbling Block? (Case Studies)

The **Public Distribution System (PDS)** in India has embraced Point-of-Sale (PoS) technology, aiming to combat leakages and enhance transparency. While promising, its effectiveness varies across states, highlighting the challenges of infrastructure, capacity building, and digital literacy gaps.

Success Stories:

- **Kerala:** Equipped with robust IT infrastructure and trained personnel, Kerala's PoS system boasts significant achievements. Real-time data monitoring has minimized leakages and enabled targeted interventions.
- **Andhra Pradesh:** The "Mee Seva" initiative leverages PoS technology for PDS transactions, ensuring transparency and accountability. Biometric authenticationreduces duplicate entries and facilitates smoother operations.

Challenges and Concerns:

- **Infrastructure Deficits:** States like Bihar and Uttar Pradesh struggle with unreliable power supply and limited internet connectivity, hindering smooth PoS operation.
- **Capacity Building Gaps:** Insufficient training for FPS operators and officials on managing PoS systems creates operational bottlenecks and data inconsistencies.
- **Digital Literacy Divide:** Beneficiaries, particularly in rural areas, might lack theskills to navigate the PoS system, potentially leading to exclusion and frustration.

Bridging the Gaps: Finding Solutions

- **Targeted Infrastructure Upgrades:** Prioritizing internet connectivity and reliablepower supply in underserved areas is crucial for uninterrupted PoS operation.
- **Capacity Building Programs:** Investing in training and skill development for FPS operators and officials on using and maintaining PoS systems is essential.
- **Community Engagement and Literacy Initiatives:** Raising awareness and providing digital literacy training for beneficiaries, particularly in rural areas, canbridge the digital divide and ensure inclusive participation.

State-Level Variations in PDS Reform: Lessonsfrom Success Stories

India's Public Distribution System (PDS) operates as a patchwork quilt, with states implementing diverse reform initiatives that yield varied outcomes. Analyzing thesevariations offers valuable insights and best practices for broader improvement.

Chhattisgarh: Community-Owned Success

One standout example is Chhattisgarh, where reforms focused on devolving control to community-based organizations (CBOs) like panchayats and self-help groups (SHGs). This empowered local communities to manage Fair Price Shops (FPS), resulting in:

- **Reduced Leakages:** Ownership increased accountability, minimizing pilferage and diversion of food grains.
- **Improved Service Delivery:** Local management ensured better responsiveness to beneficiary needs and preferences.
- **Enhanced Transparency:** Community involvement fostered greater community-level monitoring and transparency.

Tamil Nadu: Universal PDS and Technology

Tamil Nadu adopted a different approach, implementing a **near-universal PDS** coveringalmost all households. Additionally, they:

- **Leveraged technology:** E-PDS with smart cards and biometric authentication streamlined operations and reduced leakages.
- **Focus on quality:** Providing fortified rice and millets improved nutritional content.
- **Decentralized procurement:** Empowering local bodies boosted farmer participationand market linkages.

Balancing Ambition with Reality: Sustainabilityand Emerging Challenges in PDS Reforms

While recent PDS reforms in India hold promise for improved efficiency and effectiveness,questions linger about their financial and operational sustainability. This section delves intopotential funding gaps, emerging challenges, and considerations for future reform efforts.

Operational Sustainability: Beyond Cost

- **Human Resource Challenges:** Shortage of trained personnel at FPS level can hinder smooth operations and efficient service delivery. A 2021 study by IFPRI reveals inadequate training and manpower as contributing factors to operational bottlenecks.
- **Infrastructure Gaps:** Reliable power supply, storage facilities, and robust IT

infrastructure are critical for effective implementation, but require sustained investment and maintenance. A 2022 report by the Government of India identifies infrastructure deficiencies as key hurdles to PDS efficiency.

- **Community Engagement:** Sustaining community ownership and participation requires ongoing capacity building, awareness campaigns, and grievance redressal mechanisms, posing additional resource demands.

Emerging Challenges: Adapting to a Changing Landscape

- **Climate Change:** Increasing weather variability and potential food insecurity necessitate adapting the PDS to ensure climate resilience and support vulnerable farmers.
- **Urban Food Security:** Growing urban populations demand innovative approaches to PDS access and delivery in cities, potentially requiring different models than rural areas.
- **Nutritional Security:** Addressing micronutrient deficiencies and promoting dietary diversity within the PDS framework requires exploring new partnerships and interventions.

Navigating the Path Forward:

- **Targeted Subsidies:** Exploring options like income-based targeting or subsidies linked to nutritional outcomes could balance costs with inclusivity.
- **Public-Private Partnerships:** Leveraging private sector expertise for infrastructure development, logistics, and technology solutions can potentially improve efficiency and reduce burdens on governments.
- **Community Partnerships:** Strengthening community engagement and empowering local stakeholders can enhance PDS ownership, accountability, and sustainability.
- **Data-Driven Reforms:** Regularly monitoring and analysing data on program performance, costs, and leakages can guide targeted interventions and optimize resource allocation.

Ensuring the long-term sustainability and effectiveness of PDS reforms demands a multipronged approach. Acknowledging financial and operational challenges, adapting to emerging issues like climate change and urban food security, and embracing innovative financing and partnerships are crucial for building a future PDS that is both sustainable and able to truly fulfil its goal of ensuring food security for all.

Recommendations For A More EffectiveAnd Equitable Pds:

- **Prioritize evidence-based policymaking:** Continuously monitor and evaluate program performance, utilizing data to guide targeted interventions and optimize resource allocation.
- **Strengthen targeting mechanisms:** Refine targeting approaches to minimize exclusion errors and ensure eligible individuals receive their entitlements, while upholding inclusivity and addressing concerns regarding data privacy and potentialdiscrimination.
- **Invest in operational efficiency:** Address infrastructure gaps, ensure reliable power supply, and build adequate storage facilities. Prioritize training and capacity buildingfor FPS operators and officials.
- **Embrace technology strategically:** Leverage technology like PoS and e-PDS with robust safeguards to enhance transparency and reduce leakages, while ensuring inclusivity and addressing digital literacy gaps.
- **Foster community ownership:** Empower local communities through partnerships with CBOs, increase transparency through community-level monitoring, and engage stakeholders in program design and implementation.
- **Explore innovative financing models:** Consider public-private partnerships, targeted subsidies linked to nutritional outcomes, and leveraging private sector expertise to enhance efficiency and sustainability.
- **Adapt to emerging challenges:** Address climate change vulnerabilities by promoting climate-resilient agriculture and PDS adaptation strategies. Develop innovative approaches to ensure food security in urban areas. Prioritize nutritional diversity and address micronutrient deficiencies within the PDS framework.

By implementing these recommendations, India can move towards a PDS that is more efficient, equitable, and resilient in the face of future challenges.

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Adoption And Prevalence Of Smart Home Appliance In Mumbai

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Abstract:

This study on ‘Adoption and Prevalence of Smart Home Appliance in Mumbai’ examines the changing ₹500 crores smart home appliance market in Mumbai, looking into adoption hurdles, socioeconomic impacts, and customer perceptions. Through the use of surveys and data analysis, the study dispels stereotypes and shows that, surprisingly, socioeconomic variables have very little of an impact on adoption, but consumer views have a considerable impact. Cost, awareness, and upkeep are among the obstacles that have been found; data privacy and energy efficiency stand out as essential components. Notwithstanding obstacles, the market favors affordable stand-alone solutions due to urbanization and economic expansion. Support from the government, affordability, and continued research are stressed in the recommendations for long-term growth. The smart home appliance industry in Mumbai has the potential to be revolutionary, but only if innovative policies are implemented together with flexible business plans.

Introduction:

Recently, the term "smart" is used to denote technology that has been upgraded with artificial intelligence and is capable of gathering data from its surroundings and responding intelligently. This has fueled the emergence of Smart Home Systems.

Smart home appliances are internet-connected equipment that provide remote control via mobile or connected devices, revolutionizing security, lighting, and entertainment. Rising earnings, urbanization, and a growing need for integrated smart home solutions are driving considerable development in Mumbai's emergent industry, which is presently estimated at ₹500 crores. This paper investigates smart home appliance adoption in Mumbai, analysing consumer viewpoints and social issues, as well as proposing measures for further acceptance. (Investopedia, n.d.) (Electric) (Smart Home Appliances Market: Exploring Growth Insight, Global Trends, and Key Company Statistics for 2023-2030, n.d.)

Objectives:

1. To examine consumer attitudes, preferences, and perceptions of smart home products.
2. To investigate how socio-economic aspects affect decision to adopt smart home technology of consumers in Mumbai.
3. To recommend the removal of adoption barriers and promote widespread usage of smart home appliances to manufacturers and other stakeholders.

Significance:

1. Insights from the study will help manufacturers cater to the preferences of the Mumbai smart home market.
2. The findings will help policymakers to enforce policies to encourage the use of smart home appliances.
3. The study will help consumers to make informed purchases by eliminating the misconceptions surrounding smart home appliances.

Importance:

The adoption and popularity of smart home appliances in Mumbai have significant consequences in an era of developing technology and altering consumer habits. It is critical to understand consumer attitudes, preferences, and perceptions about these items. This information enables customers to make more informed decisions, helps manufacturers connect their goods with cultural and social norms, and informs stakeholders about the impediments to adoption. The study encourages the widespread adoption of smart home appliances in Mumbai by overcoming this knowledge gap, fostering convenience, energy efficiency, and higher living standards.

Scope:

The study will look into household adoption rates and trends for a variety of smart home appliances in Mumbai region.

Limitations:

1. A small sample size resulting from practical limitations might not accurately reflect Mumbai's range of opinions.
2. Limited secondary data on Mumbai may make in-depth study difficult.
3. It is advised to exercise caution when extrapolating Mumbai's findings to other areas because local adoption trends may differ.

Research Methodology:

The research methodology of this study incorporates a comprehensive approach that combines primary and secondary data sources. The primary data collection consists of surveying 100 adult respondents through a filtered questionnaire distributed through Google forms. The collected data is then carefully formatted in Excel, using pie charts and other visualizations to draw meaningful conclusions.

We have used a twofold sampling method to ensure diversity: purposive sampling, chosen due to the study's specific focus on individuals who are aware of smart home products, and convenience sampling, which facilitates data collection if depending on respondent availability and willingness to participate.

The analysis is complemented by secondary data from research papers and companion articles as well as primary data. This blend of approaches ensures comprehensive insights into consumer behaviour, impacts on various social and cultural aspects, and formulation of recommendations to boost the adoption of smart home devices in India, especially in the data set up to August 2023.

Literature Review:

The literature review examines the global and regional smart home appliance market, projecting strong growth with a 7.9% Compound Annual Growth Rate(CAGR) from 2023 to 2033, resulting in a $80.71 billion market in 2033. Key trends include brand innovations, cost considerations, and growth catalysts like consumer interest and AI advancements. Challenges encompass awareness gaps, privacy concerns, integration issues, and costs. Market insights cover smart appliances, devices, and solutions, with a focus on emerging opportunities. North America and Asia Pacific, especially India, are prominent regions, with a 12.8% CAGR. The leading players include Whirlpool Corp, LG Electronics, and Samsung Electronics. India's market, with a CAGR exceeding 38%, thrives on IoT technology, serving residential, hospitality, and commercial sectors. (insights, 2023) (Smart appliances market by Home Appliances Type & Technology, n.d.) (Jai Krishna Mishra, 2018) (Syeda Ayesha Unisa, 2008)

Analysis and Interpretation:

An analysis technique known as the descriptive method of analysis can be used to examine the primary data obtained from the questionnaire survey.

Examining consumer attitudes, preferences, and perceptions of smart home products by testing the null hypothesis:

The adoption of smart home products are not significantly influenced by consumer attitudes, preferences and perceptions.

Awareness of smart home appliances

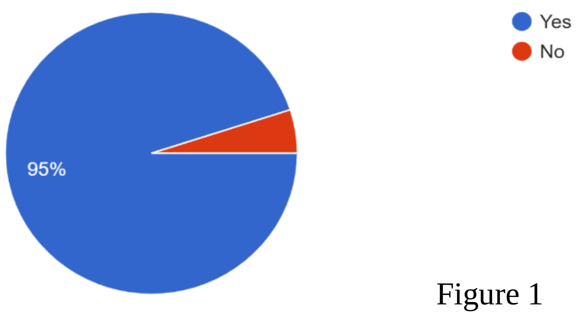

Figure 1

Figure 1 illustrates the responses of the respondents when they were asked if they knew what smart home appliances were. 95% of respondents were aware about what a smart home appliance is and 5% weren't.

Usage of Smart Home Appliances

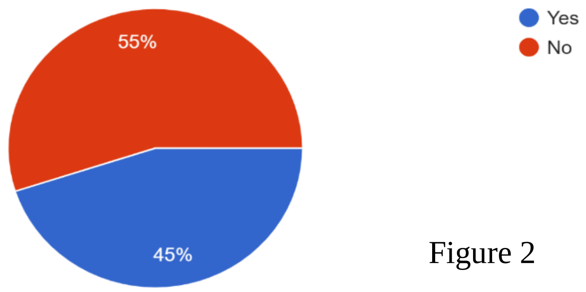

Figure 2

Figure 2 illustrates the responses of respondents when asked if they use smart home appliances. 55% attested to not having used whereas 45% used.

Reasons for not owning Smart Home Appliances

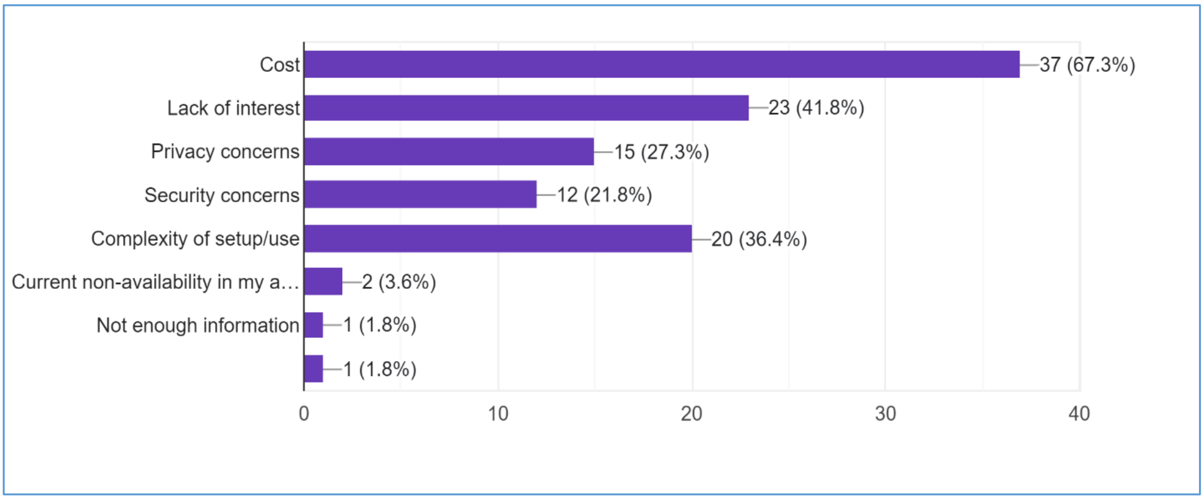

Figure 3

Reason that influenced their decision to purchase a smart home appliance

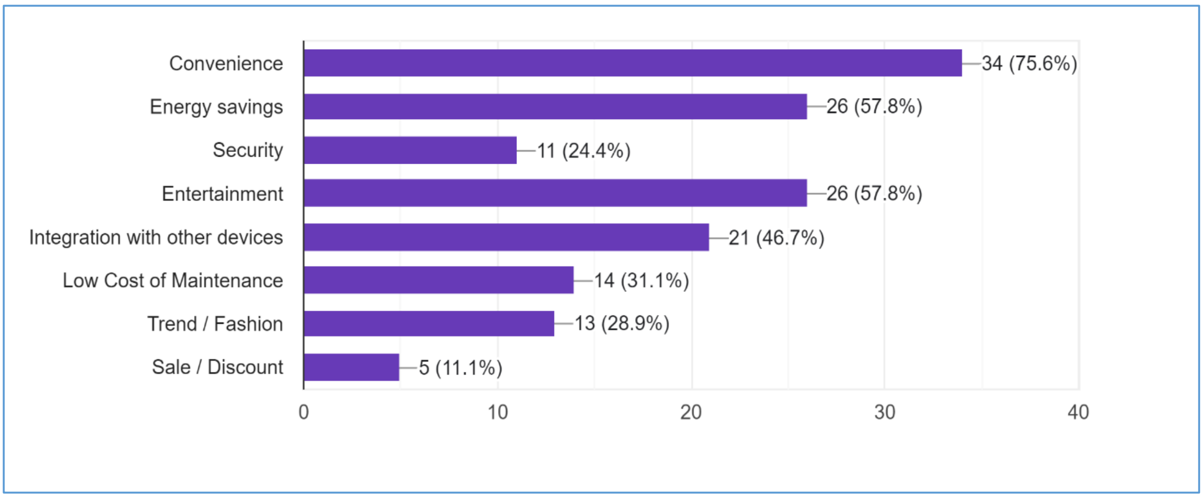

Figure 4

Influence of owning Smart Home Appliances on Daily Routine

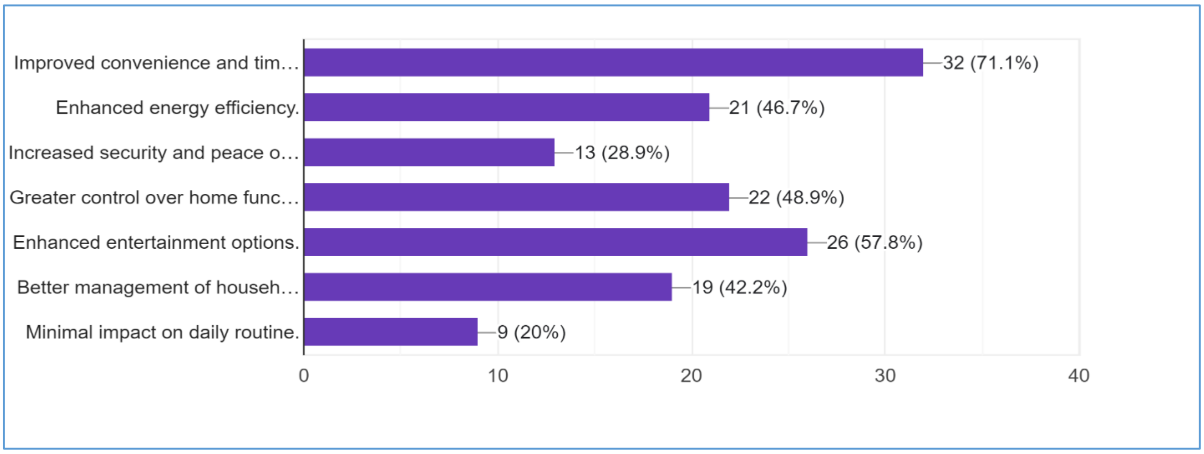

Figure 5

Observed reduction in reduction of utility bills after owning Smart Home Appliances

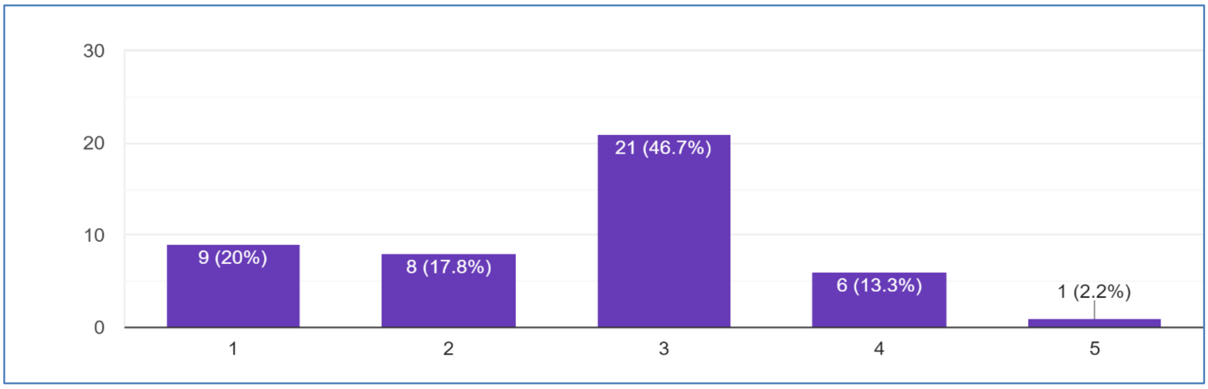

Figure 6

Annual savings noticed in utility bills

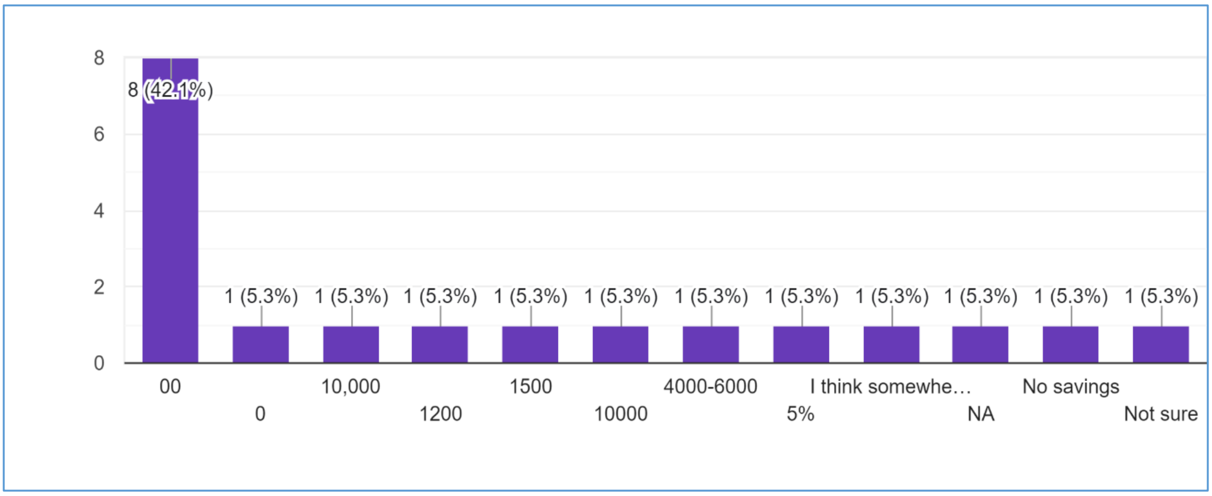

Figure 7

Since this is a filtered questionnaire, from Fig 3 and 4, we analysed that Cost and Lack of Interest were highlighted as the main causes for lack of adoption for these appliances. However, we also see that amongst the respondents who do own these appliances, Convenience, Energy Savings and Entertainment were the prime causes for their purchase. Owning these appliances also aided them by not only proving to be convenient and time saving but also enabled them to have a greater control over their home functions (Fig 5).

This also busts the misconception that smart home appliances do not save energy or increase user utility in terms of increased convenience while proving to be a source of entertainment at the same time. Our respondents have also claimed to save anywhere between 0 to 10,000 per year(Fig6 & 7), showing how smart home appliances can also help save money.

Investigating how socio-economic aspects affect the decision to adopt smart home technology for consumers in Mumbai by testing the Hypothesis:
Socio-economic aspects do not affect decision to purchase smart home appliances

For this hypothesis, we are running Chi-Square Test of Independence.
Here is the observed data:-

Income	Adoption Behaviour		Total
	Yes	No	
Less than Rs 1 Lakhs	9	8	17
Rs 1 Lakh - Rs 10 Lakh	13	16	29
Rs 11 Lakh to Rs 20 Lakh	8	12	20
Rs 21 Lakh to Rs 30 Lakh	9	8	17
More than Rs 30 Lakh	6	11	17
Total	45	55	100

According to the table above, Chi Cal (1.7152) < Chi Tab (9.488), we accept the null hypothesis and reject the alternate hypotheses at 5% level of significance. Therefore, we can conclude that Socio-economic aspects do not affect decision to purchase smart home appliances.

Recommending the removal of adoption barriers and promote widespread usage of smart home appliances to manufacturers and other stakeholders by testing the hypothesis:

Identifiable barriers (features, gimmicks, government policies, celebrity endorsements, etc.) do not affect the adoption of smart home appliances.

Influence of Gimmicks on purchase decision of Smart Home Appliances

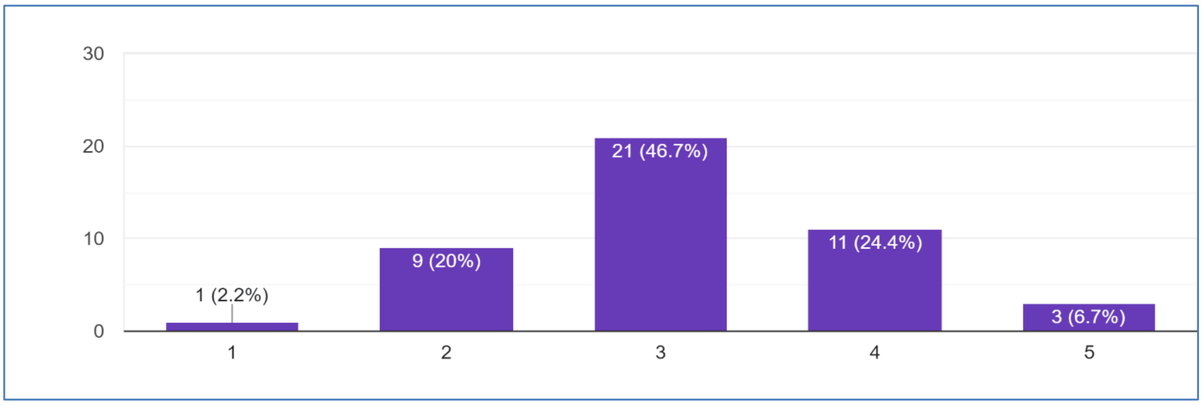

Figure 8

Improvements expected in Smart Home Appliances in the future

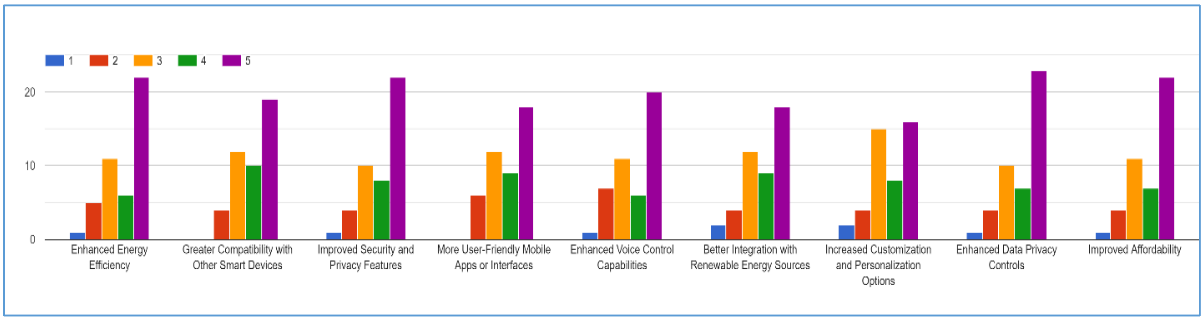

Figure 9

Factors influencing future purchase decision of Smart Home Appliances

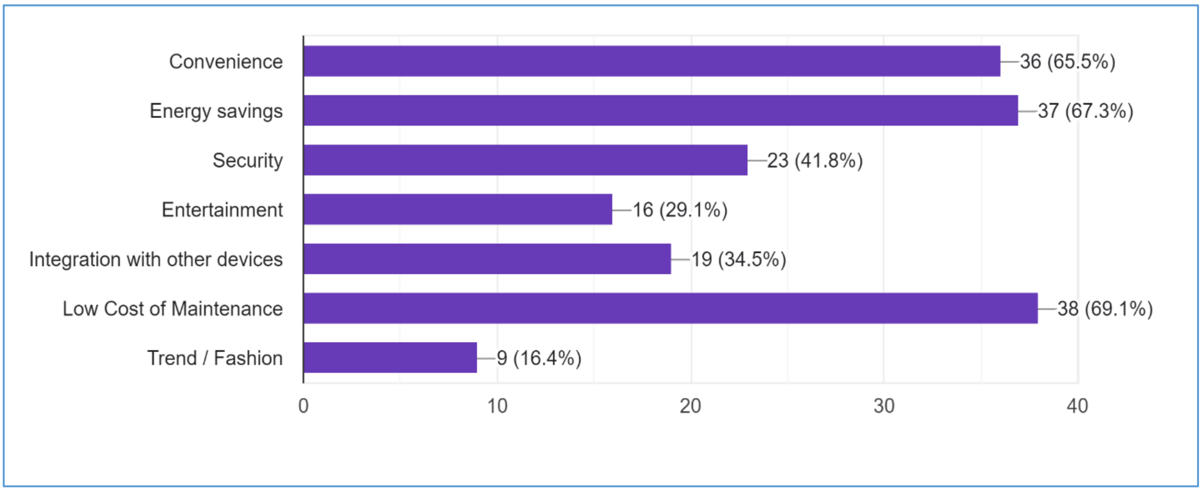

Figure 10

Importance of factors influencing purchase decision

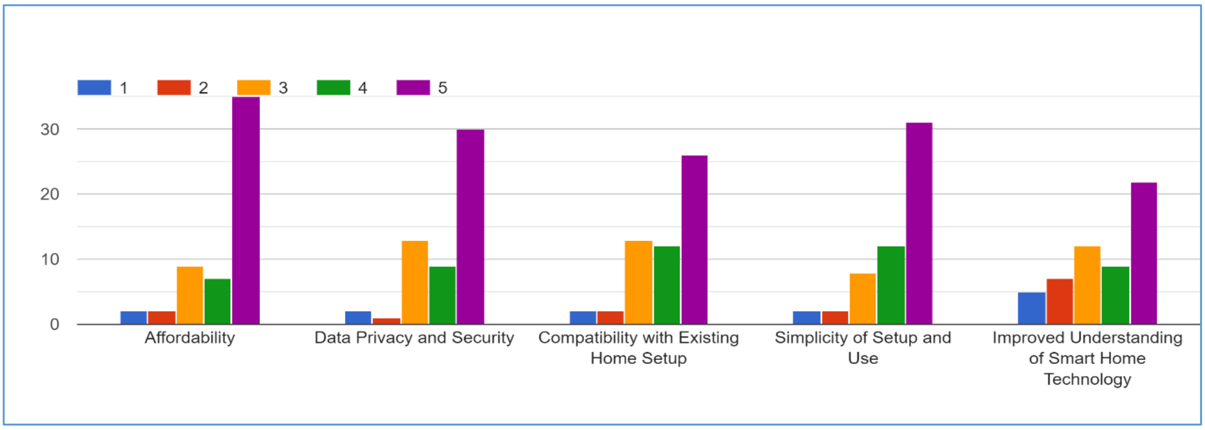

Figure 11

While Figure8 concludes that gimmicks don't drastically affect the adoption of these appliances, Figure9 further shows that *Enhanced Data Privacy control, Energy Efficiency & Voice Control* are a few features which existing users would want to see being incorporated in these appliances.

Further, data collected from non-users states that *Low Cost of Maintenance, Energy Savings & Convenience* are a few features they're looking for to be fulfilled by these appliances to get them to purchase them, while they're available at affordable prices (fig10 & 11).

Reasons for not purchasing Smart Home Appliances even after researching about it

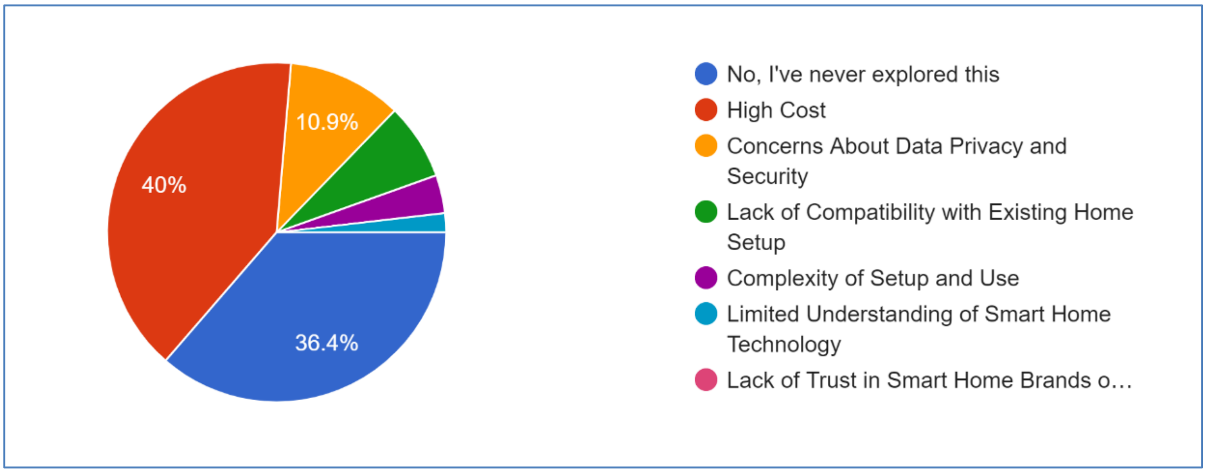

Figure 12

Awareness about government incentives or rebates

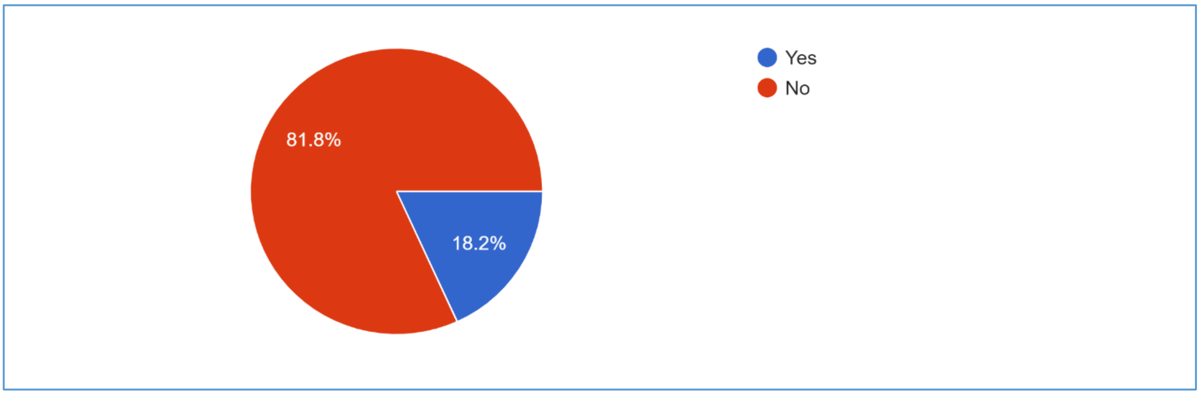

Figure 13

Influence of Celebrity Endorsements on Purchase Decision

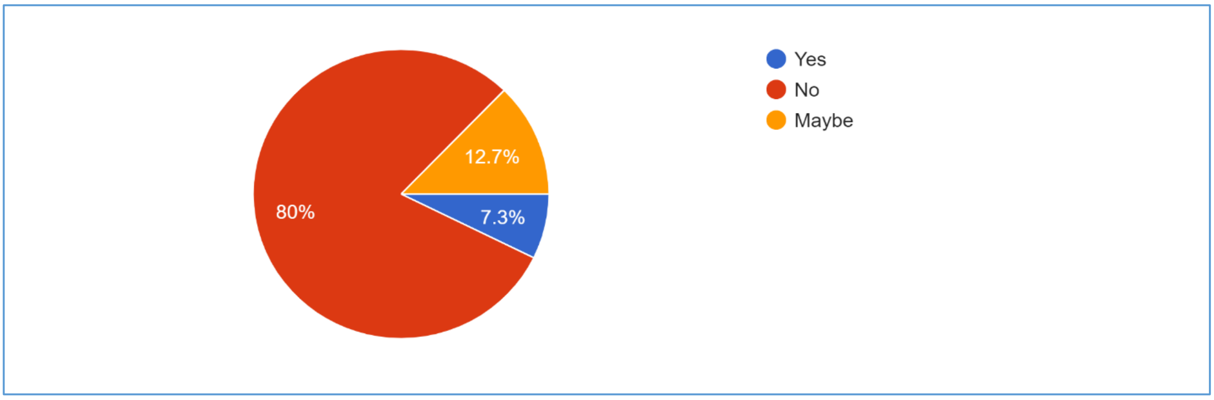

Figure 14

Figures 12, 13 &14 clearly indicate that High Cost, Lack of Interest and low awareness about Government incentives are prevalent factors for low adoption of these appliances. It is also evident that celebrity endorsements do not seem to have any effect on the purchase decisions.

Findings:

In the following decade, the worldwide smart home appliances market, a developing landscape of technical innovation and consumer demand, is expected to reach unparalleled heights. It is anticipated to be valued US$ 37.73 billion in 2023, and with a projected Compound Annual Growth Rate (CAGR) of 7.9%, analysts think it will be worth US$ 80.71 billion by 2033. In the midst of this global phenomena, Mumbai, India, offers a riveting microcosm of this transformational journey. Mumbai's local market, now valued at over 500 crores, is nothing short of a fledgling behemoth, exhibiting incredible development potential with an astounding forecasted CAGR of between 25-30%. With this high-octane development trajectory, the market's value might rise to anywhere between 2000 and 2500 crores by the end of the year 2025.

The elements driving Mumbai's remarkable growth are varied and reflect wider global trends. To begin with, the city's rapid economic development is being fueled by higher rates of urbanization, a rise in disposable income, and a greater awareness of the numerous benefits given by smart home technology. These dynamics reflect wider developments occurring in the Indian home automation business, which is rapidly expanding. Manufacturers are reacting to consumers' varying wants by providing a variety of smart goods that not only improve convenience but also fit a variety of economic limitations.

Mumbai's consumer choices have a tremendous impact on the market environment. Notably, the category catering to smart appliances priced under Rs. 15,000 has the largest market share in India. This preference reflects the customer desire for cost-effective solutions that provide good value for money. The industry is positioned for even more strong development as technology evolves and consumer awareness grows, stimulating innovation and ensuring that smart home technology continuously corresponds with increasing customer expectations.

Mumbai's market features show hopeful indicators of fast development, albeit at an early stage. Mumbai's technologically savvy populace, along with a growing middle class, is eagerly embracing the benefits of contemporary technology. Beyond basic comfort, there is an urgent need for energy-efficient solutions, especially in a highly populated metropolis like Mumbai, where energy conservation is critical.

In terms of product market distribution, the dominance of smart TVs is evident, driven in part by rising earnings and a growing hunger for internet-based entertainment. Voice-activated smart assistants are increasingly gaining market share, since they provide not only convenience but also a new type of entertainment. Furthermore, energy-efficient smart air conditioners and smart kitchen equipment have made their mark by addressing the city's growing sustainability standards.

Current trends in Mumbai's smart home appliance market show a clear preference for standalone items over integrated smart home solutions. While integrated solutions, which include smart lighting, security, and entertainment systems, account for less than 10% of overall sales, customer interest in integrated solutions is increasing. In fact, 46.7% of those polled expressed a desire for a more comprehensive smart home setup.

Surprisingly, the adoption of smart home technologies is greeted with high levels of user satisfaction. An amazing 35.6% of those who have integrated smart home technology into their life reported being extremely satisfied, while 48.9% reported being somewhat satisfied. It's also worth noting that none of the respondents claimed to be unsatisfied, and several were eager to promote smart home products to non-users.

However, it is critical to recognize the hurdles that await us on this exciting adventure. High prices connected with smart appliances, challenges linked to smooth entertainment integration, and compatibility concerns with other smart devices are all obstacles that manufacturers and other stakeholders must carefully negotiate.

One cannot not but be enthralled by the potential when considering the smart home appliances sector's future prospects in Mumbai. Mumbai's market provides a dramatic picture of the progression of urban life by embracing cutting-edge technology like voice control, artificial intelligence, and data analytics. Mumbai's local market is poised for transformational change against a backdrop of rising urbanisation and government programmes like the Smart City Mission. Mumbai's citizens might see a fundamental change in how they interact with their houses as a result of this change, making them smarter, more effective, and safer in a world that is becoming ever more linked. Mumbai's smart home appliance future is an exciting story of technical development, consumer empowerment, and urban development. (Insights, 2023) (Center, n.d.) (ltd, n.d.) (Tech-savvy consumers to drive the growth of Smart Home Appliances in India, 2022) (Smart home market in India poised for considerable growth till 2023, 2018) (India home automation market, size, forecast 2023-2030, industry trends, growth, share, outlook, impact of inflation, Opportunity Company analysis, n.d.)

Suggestions:

To ensure the continued relevance of the study, it's important to consider external factors like economic developments and policy changes. Government visibility and intervention are crucial for promoting smart home technology adoption through awareness campaigns, incentives, and robust policies.

Manufacturers aiming to excel in the Mumbai smart home appliance market should focus on affordability and innovation, providing better features and energy-efficient solutions. Collaborations with experts, and real estate developers can broaden market reach, however the strategy of getting a renowned influencer/ celebrity brand ambassador as a face of the brand might not help in driving sales as the data collected from our respondents evidently showcases how they are unaffected by celebrity endorsements.

Furthermore, ongoing research beyond the study's scope (up to August 2023) is necessary to track evolving trends in this dynamic field. By adhering to these recommendations and staying adaptable, the Mumbai smart home appliance market can thrive and enhance urban living significantly.

Conclusion:

This study provides insight into the "Adoption and Prevalence of Smart Home Appliances in Mumbai." It exposes key features of consumer attitudes as well as social and cultural factors, and it makes suggestions for stakeholders. The report emphasizes the expanding market in Mumbai, which is being fueled by urbanization, and a desire for contemporary amenities and energy efficiency. It highlights the prevalence of voice assistants, and smart TVs, and the possibilities for holistic solutions. Despite obstacles like high costs and integration problems, the market shows impressive customer satisfaction levels. The report concludes that Mumbai's smart home appliance market is primed for revolutionary development, altering urban life in a more connected and effective way, and upgrading the standard of living, with deliberate government backing, industry innovation, and continued research.

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Contingent Valuation Of A Market For Beach Sustainability

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Abstract:

This study delves into the dynamics of beach sustainability centered at Mumbai beaches, through the use of the Contingent Valuation of Stated Preference Method. With a diverse sample size of 200 individuals, including tourists, lifeguards, cleaners, residents, and extensive online surveys, the research aims to uncover pivotal insights into public attitudes towards beach cleanliness, environmental concerns, the determination of individual's willingness to pay (WTP) and further analyzing the market failures linked with beaches at Mumbai.

Key findings revealed significant disparities in WTP for sustainability measures among different income brackets demonstrated by the demand curves. Notably, individuals displayed a higher propensity to contribute financially when confronted with evident improvements in beach maintenance. Notably, the majority of the respondents expressed a willingness to financially support beach sustainability initiatives. Two primary causes of market failure are identified and analyzed in relation to Mumbai beaches: negative externalities and the local authorities' incapacity to provide a clean beach that visitors are willing to pay for.

This research advocates for the broader adoption of similar methodologies by activists and policymakers to understand individuals' WTP, enabling the effective imposition of fines, entry fees, or implementation of similar policies geared towards the improvement of beaches to internalize the externalities.

Keywords: Beach Sustainability, Willingness to Pay (WTP), Market Failure, Policy

Implications

Introduction:

Beaches are vital environmental assets that provide recreational, aesthetic, and economic value to coastal regions, particularly in Mumbai. However, the decline of these beaches is negatively impacting their appeal and failing to meet tourists' expectations. Dissatisfaction and negative feedback are increasing among visitors, highlighting the need for revitalization and sustainable management strategies. Mumbai's Juhu and Versova beaches are plagued by contamination, including plastic, household waste, and high levels of fecal matter. The Water Quality Index (WQI) in these areas indicates concerning levels, with Juhu at 43.72 and Versova at 37.72. A study by ReefWatch Marine Conservation found that on average, every 200 meters of these beaches accumulates half a ton of litter. These shores also hold significant importance for tourism, public health, natural ecosystems, and environmental well-being.

Objectives:

1. Determining the Willingness to Pay for maintaining clean beaches using Stated Preference Method.
2. To gauge public perception and capture a comprehensive understanding of individuals' attitudes towards the effectiveness of fines and entry fees in ensuring beach cleanliness.
3. To analyze the market failures linked to Mumbai beaches and devise effective solutions to mitigate these failures.

Review of Literature

The research by Hilu et al. (2005) focused on Pilikula Lake in India, aiming to determine its economic value and tourists' willingness to pay (WTP) for its recreational benefits. The study used Total Cost Management (TCM) and Cost Variable Modeling (CVM) techniques, finding that visitors were willing to pay for the lake's economic benefits, emphasizing the importance of considering personal and demographic variables.

The study (Hinlog et al., 2022) evaluates the maintenance and conservation status of

Diaz Beach and Banbanon Pebble Beach in Anao-aon using the Willingness to Pay (WTP) and Willingness to Accept (WTA) branches of the Contingent Valuation Method. The proposed entrance fee of Php 20 was rejected, but compensation for cellophane and plastic bottles could contribute to environmental services and maintenance. The study highlights the importance of water quality along with socio-demographic factors influencing beach preference.

Market failure hinders the achievement of Sustainable Development Goal 8 (SDG8), promoting economic growth, employment, and decent work. It perpetuates inequalities in work life, especially in developing countries. Addressing market failure requires strong leadership, empirical research, and a culture of honesty and accountability. Countries like Sierra Leone can overcome this by prioritizing SDGs in governance (Jackson et al., 2019).

The study explores factors influencing consumers' willingness to pay for environmental goods in East Malaysia, specifically Sabah and Sarawak. It suggests that attitudes and perceived behavioral control positively influence green product willingness. The study recommends public policies including environmental education, organizing seminars, workshops, and campaigns, and using social media for awareness. Future research should evaluate these factors (Liwan et al., 2020).

The literature review discusses contingent valuation (CV), a technique used to value nonmarket environmental goods like air and water quality. CV surveys estimate WTP and are used in policy evaluations. Debates revolve around passive-use values and economic criteria. CV has applications ranging from improving air and water quality to protecting wetlands and endangered species. Further research is needed to reduce costs and explore alternative survey designs (Carson, 2000).

The study (Chen et al., 2022) discusses the concept of our planet as an ecosystem, the finite nature of Earth's resources, and the relationship between ecosystem services and human well-being. It highlights the importance of conserving hillside forests for local residents' welfare and promotes sustainable agriculture and ecotourism. The review also emphasizes the need for better governance and policy implementation.

The New Juaben Municipality in Ghana faces environmental health issues and resource strain due to rapid population growth and urbanization. To address this, understanding households' demand for better solid waste disposal services is crucial. The contingent valuation method (CVM) assesses willingness to pay for improved services, with factors like environmental safety, satisfaction, education, household size, length of stay, walking time, and sex influencing the WTP. Future research should address knowledge gaps (Alhassan et al., 2013)

Gap Analysis:

There was a noticeable gap in research, particularly concerning beach sustainability, specifically focused on Mumbai. Policy makers and local authorities can utilize the research conducted to address concerns related to the valuation of environmental goods and the associated market failures.

Methodology:

The research methodology includes analysis of literature from various sources, conducting primary surveys and gathering secondary data.

Contingent Valuation Method

CVM is a technique used to evaluate economic values of various types of ecosystem and environmental services which are generally not traded in the market. Its simplicity and adaptability guide policymakers in understanding the economic implications of environmental conservation and associating a value to the environment. We seek to utilize the Contingent Valuation Method to estimate the willingness of individuals to contribute financially towards beach conservation efforts.

A] Data Collection

1. *Primary data:* The data was collected at Juhu Beach, Mumbai through personal interviews with a diverse group of participants, including tourists, local Mumbai residents, lifeguards, beach cleaners, and local businesses. The sample size for the personal interviews was 76. Moreover, creating and circulating an online survey,

accessible to a wide range of individuals, contributed to broadening the sample size by 124. The online survey enabled us to capture perspectives from a more extensive and diverse group of respondents residing in Mumbai.

Table 1: Classification of Respondents

Mode of Data Collection	Respondents	No. of responses	%
Personal Interview	Visitors	60	30
	Lifeguards & Beach Cleaners	6	3
	Local Businesses	10	5
Online	Online Survey	124	62
	Total	200	100

The introductory section placed at the onset of the questionnaire aimed to outline the prevalent issues at Juhu Beach in Mumbai, setting the stage to contextualize the decisions to be made. In the initial section of the contingent valuation survey, the primary objective was to construct a scenario that closely mirrors real-world situations, ensuring a more accurate representation of respondent decision-making processes.

To effectively determine people's WTP at different points of transformation of the state of cleanliness of the beach, pictures were used along with the questions, during both the personal interviews and online survey. Individuals were asked how much would they be willing to pay as a contribution to the efforts for transforming the state from the beach in the first image (an image of a dirty beach) to that of in the second image (an image of a relatively cleaner beach).

Four such scenarios were presented in the form of 4 questions starting with the image of an extremely dirty beach, with the state of the cleanliness of the beaches in each consecutive question having improved as each question progressed. The terms “Excellent”, “Good”, “Average”, and “Poor” were used to represent the 4 points of transformation in the level of beach cleanliness, plotted on the x-axis. The term “Poor” refers to the transformation of an extremely dirty beach to a comparatively slightly cleaner beach. The term “Average” refers to the transformation of a dirty beach to a moderately clean beach. Similarly, the term “Good” suggests a transformation to an even cleaner beach. Lastly, the term “Excellent” indicates the transformation of a slightly dirtier beach to a pristinely clean beach. These visual aids were instrumental in providing tangible context to the hypothetical questions, adding substantive value to the study.

2. *Secondary data:* Articles were utilized as secondary data sources to comprehend contingent valuation and various other aspects related to Mumbai beaches.

B] Data Findings

A total of 200 people were approached through personal interviews and online surveys. Out of the total 200 responses, 66.2% of respondents were female, while 33.8% were male. The mean age of the respondents was 30. Moreover, the average income level of all the respondents was Rs. 15,615.38.

The key findings from the data collected through personal interviews and questionnaires were:

a. 78.5% of the respondents expressed their willingness to pay a certain monetary amount monthly, whether through fines, or entrance fees for maintaining beach cleanliness and supporting sustainability efforts at Juhu Beach.

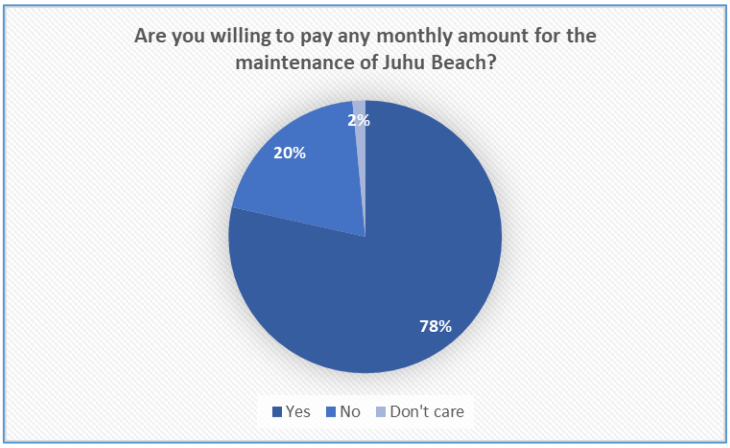

Figure 1: Respondent's Opinion on Price Mechanisms

b. 57.8% of the respondents are of the opinion that opting for fines and entrance fees would prove to be a more effective approach compared to relying solely on public awareness for achieving desired outcomes, while 28.9% believe in the effectiveness of both.

c. Respondents of the study are willing to pay more when there is evident improved transformation of the beach. Specifically, individuals are more inclined to pay a higher amount when the transformation involves improving beach cleanliness from a good to excellent quality of cleanliness, compared to a scenario where the transformation is from a poor to average level of cleanliness. This trend is evident from the downward sloping WTP curve.

d. It was observed that the WTP for respondents across income groups varied. The variation in the WTP for beach sustainability and treatment of waste can be seen in Figure 2. The yellow line represents the WTP of people with a monthly income of less than Rs. 5000, the red line represents people with a monthly income ranging between Rs. 5000 to Rs. 45,000, and lastly, the blue line represents that of people with a monthly income of greater than Rs. 45,000. The WTP of people is likely to be greater if they belong to a higher income group. Moreover, this pattern can also be observed in Figure 2, with the yellow line being lower than all of the other points of higher income groups, while the majority of the points of the blue line are higher than that of the lower income groups.

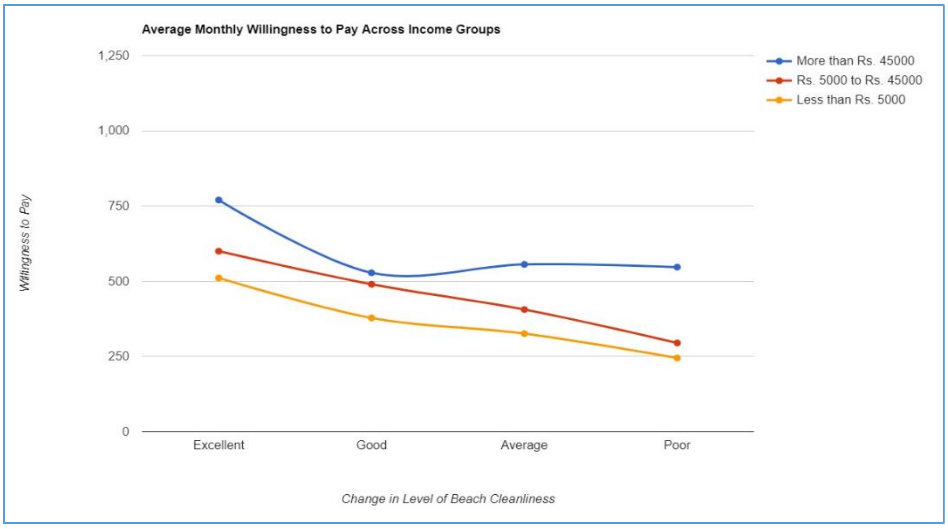

Figure 2: Average Monthly WTP Across Different Income Groups

e. 41% of the respondents were not satisfied with the local governments and the beach authority's efforts towards the maintenance and sustainability practices at Juhu Beach, while 54% of the respondents felt that more improvement is needed. However, only 5% of the respondents were satisfied with the authority's involvement in working towards beach sustainability at Juhu Beach.

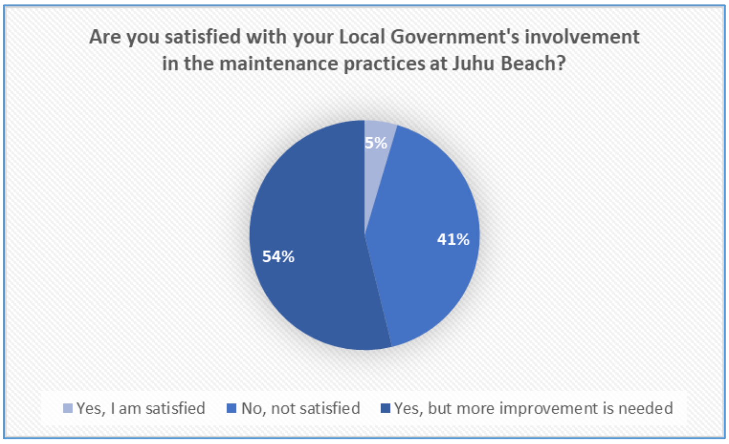

Figure 3: People's Satisfaction with the Local Government's involvement Maintenance and Sustainability Practices

Analysis:

Market Failure is a situation arising out of an economic transaction where resources are allocated inefficiently. Generally, cases of market failures can be observed within markets for public goods, such as public spaces including parks, beaches and environmental goods. In the case of public goods, due to their non-rival and non-excludable features, the market typically fails to produce an efficient outcome, which results in the individual's inability to incur the full benefit from a certain level of environmental quality.

Oftentimes, people tend to buy products or services that have an environmental component included in it to compensate for them not having the ability to directly buy an environmental good. This tendency indicates in what regard they hold the quality of the environment around them as well as public spaces. The Contingent Valuation Method allows us to place a monetary value on how much individuals value certain environmental goods or public spaces, by determining their WTP. The willingness to pay is the maximum amount that a person is willing to pay for a certain product or service.

In the case of Juhu Beach, a clean and well-maintained beach can be considered as an environmental good, with which two major market failures are associated. Firstly, the market failure in action is the negative externalities. Due to the visitor’s economic or recreational activities, a mammoth amount of waste is generated causing a major negative impact on the satisfaction of visitors, public health, local businesses, and tourism. These losses are not only borne by just an individual or supplier but also by the other visitors and the society as a whole which includes decrease in property value of that area, environment degradation and impact on future generations is generally ignored. Another market failure arises due to the local authorities' (BMC) inability to supply a cleaner beach at the desired level of cleanliness, for which the consumer is willing to pay, preventing the society from reaching the Pareto optimal point.

From our findings, we get to know that the visitors of the beach are willing to pay an amount as seen in Figure 4 to enjoy a cleaner beach when they visit. The graph depicts that the total WTP is highest when the beach is at an excellent level of cleanliness and gradually decreases when the level of the cleanliness depreciates. Moreover, the revenue that could be generated upon collection of this amount that the people are willing to pay can be utilized to maintain cleaner beaches.

Table 2: Average and Total WTP

	Poor	Average	Good	Excellent
Average Monthly WTP (Less than Rs. 5,000)	244,57	326,01	378,26	510,87
Average Monthly (Rs. 5,000- Rs. 45,000)	294,6	406,31	490,09	600
Average Monthly (More than Rs. 45,000)	546,51	555,81	527,91	769,77
Monthly Total WTP (200)	67450	84000	94500	123200
Daily Total WTP (200)	2248,33	2800	3150	4106,67

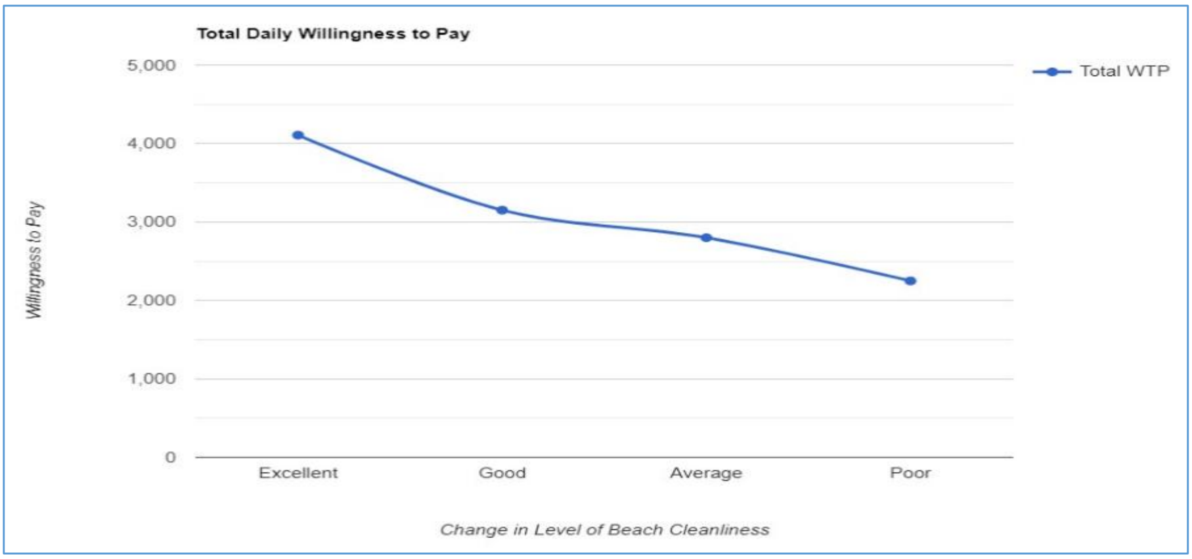

Figure 4: Total Willingness To Pay

Although there have been efforts from the government to clean beaches, it doesn't match the level of cleanliness desired by the visitors. Local authorities generally control the cost of maintaining the beach. It might be possible that the WTP of visitors is far more than what cost is incurred by BMC, which suggests that the resources and cost incurred by the local authorities are insufficient to maintain a certain level of cleanliness that the visitors want. Since we know that individuals are willing to pay an amount for service to keep the beach clean but there are no initiatives by the local authorities to utlize this source of revenue and the beach continues to not meet the quality desirable. This is a typical case of Market Failure in the case of Beaches.

These market failures at Juhu Beach can be corrected using policy measures enacted by the local government to change the behaviour of the visitors as well as the suppliers. Price mechanisms like tariffs and taxes contribute to building or augmenting exclusion. Excludability is crucial for a price system to function effectively.

Limitations:

The Contingent Valuation Method, though instrumental to determine the value of non-monetary goods, is prone to some biases, as it involves asking people questions based on hypothetical scenarios as opposed to actually observing their behaviour. This could mean that there is a possibility of a gap existing between the respondent's stated preference and the manner in which they would actually behave in certain scenarios.

Therefore, this study is prone to strategic, hypothetical and anchoring bias. These biases arise primarily due to individuals overbidding or overestimating their ability to pay, leading to large amounts heavily affecting the mean. Due to these biases, respondents may overbid when they are asked such hypothetical situations but may underbid when requested to make an actual payment. Moreover, the respondents didn’t have an anchor or a reference for a monetary value that they could base their responses off of, which could have resulted in an anchoring bias clouding their judgment in what amount they would really be willing to pay.

Recommendations:

The sustainability of beaches is of paramount importance; they not only serve as natural beauty but also as economic resources that provide services to people. This research proposes that the local government or beach authorities should create provisions for the imposition of entrance fees and fines to counter negative externalities at beaches. The imposition of such price mechanisms can aid in maintaining cleaner beaches, as creating excludability among individuals would decrease the frequency of disposal of waste among the same population of people, visiting beaches regularly. The overall impact of such measures would be a reduction in pollution levels, improvement in sanitation levels at shores, and more tourism, thereby internalizing the externalities. Additionally, levying fines would penalize those individuals who litter at the beach. Arranging public awareness programs alongside implementing price mechanisms is also essential, however imposing monetary charges would be more effective in achieving the same goal. Additionally, the revenue generated from fines and fees should be utilized to subsidize innovation of new, improved, sustainable beach infrastructure and maintaining public health and safety. Utilizing biodegradable materials for the construction of seating arrangements at the beach mitigates degradation of the beach. Alongside these measures, ensuring that dustbins are placed at regular intervals is pertinent. Coastal protection solutions such as the creation of artificial reefs and dune management could be put into action by availing the amount generated, as done by the Asian Development Bank at the coastal town of Ullal.

Implementing proactive measures and investing in sustainable beach management strategies can ensure long-term preservation of beaches for current and future generations.

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