



हमारा संदेश (Our Message)

जागृति (Awareness),
मैत्री (Universal Brotherhood),
प्रगति (Progress)



[Estd. : 1946]

MAGADH MAHILA COLLEGE

Patna University, Patna

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JIGYASA

The Journal of Educational Research and Innovation
A Peer Reviewed Journal of CPE Project for All Subjects



[Estd. : 1946]

MAGADH MAHILA COLLEGE

PATNA UNIVERSITY

3rd Cycle NAAC Accredited 'B+' Grade
'College with Potential for Excellence' (CPE)
Status Accorded by UGC

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About The College

Magadh Mahila College, ISO 9001, 14001, 45001 and 21001 Certified, a premier Girls' Institution dedicated for enrichment of women, enlightening and empowering the society and above all humanity since 1946, needs no introduction. It laid the way to women education by its substantial contribution in the field of higher education for women. Nurturing and grooming up young girls into responsible young citizens to contribute greatly in the growth and development of nation has been its passion since inception. Presently it has more than 3500 students in various disciplines of conventional and professional courses who 'take education as passion'.

It has been festooned with several honours and awards like NAAC Accreditation, thrice, in 2004, 2012, 2019 respectively and CPE status, by virtue of imparting qualitative and quantitative education in amethodical manner. These may be considered as strong testimony to it.

There are several Cells, Societies and Clubs at College, which are managed by the college students and cater to all segments of life. The students' driven clubs, cells and societies catering to various interests including sports, performing arts, community services, social cultural engagements, youth-oriented activities, entrepreneurship, various events and fests, the college ensures all-inclusive development of the students to bring in substantial transformation in their personalities.

One of the ethos of MMC is to recognize and encourage the meritorious students. The College recognizes and encourages meritorious students by awarding merit scholarships. Our College also provide financial support to students who need financial assistance to meet part of their living expenditure throughout 'Earn While Learn' Programme. Towards that, College offers Merit Scholarships based on past academic record in Graduation to encourage quality students to take admission in MMC. The Merit Scholarship award based on rank secured in Patna University Under Graduate and Post Graduate final year Examination.

The MMC has state-of-the-art infrastructure and learning resources including ICT enabled Classrooms, Smart Classrooms are getting popular now-a-days and the college have an eye over the technology so that the students are benefited. The teaching - learning process is supported by the adequate infrastructure of the Institution. While the number of new infrastructural development has increased, the number of existing classrooms and seminar halls has been upgraded with new technology supported with ICT, LAN, LCDs, K-Yans, Smart Boards, CCTV Cameras, and Wi-Fi facilities. Equipment such as laptops, web cameras, printers, projectors, etc. should be accessible for students and should be given to them according to their needs. Training for the use of ICT devices and Digital library should also be provided by the college to students regarding newly launched products and give them hands on training. This will give an edge over others when it comes to placement and higher studies.

As a prime learning resource, the College Central Library namely '**Medha Knowledge Centre**' is automated with all its subsystems like LAN connectivity and Wi-Fi. Library Management Software system is incorporated with latest technologies that enables library to serve its users more effectively.

The Central Library is well-stocked and has a wide collection of Books, Reference Books, Rare Books, Journals, Periodicals, Newspaper, Previous Year Question Papers, Photo coping facility, e-journals, Audio-Video Materials etc. A specialized service provided by the library includes INFLIBNET facility with Network Centre for access and download the e-resources with KOHA software and OPAC (Online Public Access Catalogue) facility for searching the library resources. Barcode online circulation system is in practice in the library. The digitalization of library through OPAC has resulted in the easy access of information from any computer within the campus. The College library has linked with National Digital Library and OPAC helps the students to search the available reading materials easily. A special software is available in the Central Library for visually challenged students.

The Placement Team positioned at the campus looks after the placement activities on a full-time and continuous basis. Staffed by senior professionals and placement executives, the placement team initiates and maintains the College-Industries dialogue and manages the summer internship program and final placement activities. The team evaluates student performance levels and ensures relevant preparation for their corporate placements. The College believes that the entire placement exercise is a collaborative effort. While it provides guidance and support through an extensive network with potential employers, the students have the responsibility of putting in maximum possible efforts to obtain suitable placements.

College has adopted a very systematic approach towards building the career of its students through a Career Management and Placement Cell that plans and implements the placement activities throughout the year. Key activities of Career Management and Counselling Cell (CMCC) are providing a strong foundation through pre-placement talks and workshops, personality development workshops, career counselling to students etc.

Keeping in view the health aspects of the students including those of hostels the institution has constructed canteen in the name '**Madalsa Student Cafeteria**'. The institution has also set up '**100 KWp Solar Power Plant**' to effectively utilize renewable source of energy.

Due to state-of-art infrastructure the College has received four **ISO Certification on 16th March, 2020** in four different categories- that are- **ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 and ISO 21001:2018** for Educational Organization Management System, Occupational Health and Safety Management System, Quality Management System and Environmental Management System, which are valid up to 13th to 15th March, 2023.

The MMC celebrating 75th year of its existence as Platinum Jubilee Year, we must salute the foresight of our founders. In the Academic Year 2020 the College has broad academic and infrastructure development agenda. In this regard a number of ICT based Faculty Development Programmes and Training Programmes for teaching faculty regarding the use of Smart Class, Online Classes and making of Digital Lectures will be organized in the new academic session.

Vision, Mission And Core Values

Magadh Mahila College is a premier institution of higher education for young women in Bihar and well known in the region for its value based education, quality teaching and discipline. This is the first girls' college in the state where teaching in science subjects started as early as 1947. Presently it is imparting education to more than 3800 students in 32 degree and diploma courses in the faculty of Arts, Humanities, Fine Arts, Social Sciences, Science, Commerce, Business Administration and Computer Applications at different levels.

The College Emblem comprising of three symbols conveys the message of Awareness, Brotherhood and Progress. The emblem represents the vision and mission of the esteemed women's institution. The holistic vision of college is committed to inculcate the pursuit of knowledge with preservation of our culture and traditional values leading to the empowerment of women and in particular, bringing about inclusive growth and qualitative changes in the society. The college directs its efforts to support the mission of Patna University and dedicates itself to promote an academic culture that provides opportunities to obtain the skill, knowledge and behaviour for empowering our students to be productive citizens. Our efforts focus to broaden their understanding of themselves and the world they live in, by developing strong communication and leadership skill, lifelong learning skill, profound social skill, appreciation for healthy environment and life style and commitment to the nation, society and humanity.

Our Vision

- To be leader in the field of education by providing innovative learning environment, women empowerment with traditional values to bring qualitative changes in the society
- To give direction to students to accomplish self-learning with Indian values, freedom and creativity to sustain themselves in the changing societal and economic environment
- On the bank of Holy Ganga, the College provides perennial flowing environment of self-learning, to become flexible to meet the women centric challenges by inculcating innovative educational methods
- Empowering girl students with knowledge and skills to enable them to cope up and compete with demands of modern age
- To develop leaders with new ideas and capacity to make difference in themselves and society by upholding values of respect and humanism
- To be the Centre of excellence in education, skill development and overall development

Our Mission

- A stimulating learning environment through new and innovative academic programmes
- Culturally rich environment linking education to the outside world
- To provide dedicated and responsive scholars as faculty

Our Core Values

- | | | |
|-------------------------------------|-----------------|-------------|
| ● Discipline | ● Dedication | ● Sincerity |
| ● Honesty | ● Inclusiveness | ● Humanity |
| ● Indian Values, ethics and culture | ● Team-works | |

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From the Principal's Desk

Dear Students !

It's my sincere pleasure to welcome you all on the platform of CPE Research Journal **JIGYASA-2020**. We feel proud and delighted to present you the **Volume VII of 'JIGYASA'**, CPE Research Journal of Magadh Mahila College for the Academic Year 2020-21. Our College believes in nurturing excellence in women from every walk of life. We all know that women are a great human resource and the role of women in the society is substantial variable for development of state and nation. We are absolutely dedicated to 'Women Empowerment' through education and are utterly devoted for maintaining excellent standards of education in all disciplines equally. As a result of which we have carved a niche in the field of higher education in the state and country too. Consequently, this college has been adjudged as one of the 'Best and Excellent Institution of Higher Education for Girls' in Bihar'.

JIGYASA-the Research Journal is a peer reviewed academic periodical on educational research and innovation to encourage and promote the research work of undergraduate and postgraduate students from all disciplines. JIGYASA contains original, peer reviewed academic articles dealing with issues which are relevant in educational research, innovation, theory, methodology and practice. It is a noble attempt to translate the classroom knowledge of students for research experiences. We intend to actively move away from text book learning to research based learning, including field work, case studies, project work etc.

The Journal is outcome of sincere efforts of our undergraduate and postgraduate students as research scholars. On the basis of empirical survey, primary data was collected; lab-work by a team of 2-3 students under the guidance of supervisor of various departments was done. The research paper findings were presented in power point format made by each peer team for publication in this journal. This kind of initiative grooms students towards enhancement of their reading and writing skills.

Research Journal **JIGYASA** is innovative effort, providing a venue for scholarly works that report on the integration of teaching, learning, outreach programme, community engagement and research work. It also serves as an effective instrument for knowledge building and efficient source of learning for the students. One of the main objectives of the CPE research is to understand human consciousness as well as study various methodologies which may increase our wellbeing.

We strongly believe that- "All odds, all challenges and all handicaps of life can be overcome with strong determination, persistent hard work, insurmountable patience and unshakeable tenacity". It is a matter of pride and enthusiasm that from the desk of Principal and Editor, I invite quality research papers from the students of all undergraduate and postgraduate disciplines.

We look forward to join this mission and continue an inspired journey called Research Journal **JIGYASA** including the quality research articles of the students. My best wishes and blessings to all the students studying here and the new students entering in the college family.

Wish you all a very successful new academic year ahead!!!

Shashi Sharma

Prof. (Dr.) Shashi Sharma

Principal-cum-Editor

Magadh Mahila College

Patna University, Patna



All of us do not have equal talent.
But, all of us have an equal opportunity to
develop our talents.

—A. P. J. Abdul Kalam



English

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SILENCING SHE AND ARTICULATING HER : WOMEN IN THE WORKS OF SHASHI DESHPANDE

* Jyotsana Jha

* Afshan Muskan

* Vidushi Roy

Presentation : 17 / 01 / 2020

Supervisor : **Dr. Khushboo**

ABSTRACT

The present study is a vibrant me. The project will offer an overview of theoretical and methodological approaches in general and cultural studies in particular. I believe the need of cultural discourse and exchange is significant as it

will fill an empty space in the domain of woman studies. The project offers an overview of theoretical and methodological approaches to humanities in general and cultural studies in particular. The study is relevant to the present day problems. This study provides theoretical acumen, refinement of skills in cultural awareness and interpretations. The She in Deshpande's text is image of female drawn since existence by family, traditions, culture and society. Human existence has built over the decades that her works embrace; the women of her stories have come to stand out as self assured, self-empowered, articulate personalities. They leave behind limits and stereotypes, hurting themselves against cross barriers and conventional norms. They show how traditional Indian Society is biased against women, and that it is very often women who oppress their own gender. Thoroughly, we are characterizing the life and philosophy of a very important section of Indian society - the Urban Middle Class Educated Indian Women. Deshpande feels that women have not participated in the process of word-making; the stories, myths and legends in our Puranas, epics, and kathas, have been written by men. Much has been written about women. Yet, for the most part

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books about women sound a harsh metallic note. Here, Deshpande tries to voice the females and bring change for their own good. By articulating Her, she hardly bring a drastic social change but at least a revolution in individual family life. These pages concern themselves with the steps by which we are likely to reach to women. For bringing out the women from the identity crisis, from the pigeon holes of orthodoxy the feminist study becomes very significant. Only such kind of feminist study that strives for the liberation of women from the clutches of male domination can bring awareness in the society. This project aims at dismantling the flood of misinformation, misrepresentation, and outright falsehood about women. The significance of such kind of work lies in 'discovering' the debris of winds, floods and a mound of silence.

Key word : She, Women, Feminist studies, Oppression, Male Dominance, Family, Traditions, Culture, Society, Shashi Deshpande, A Liberated Woman Stone Women, Why a Robin, Silence, Articulating Her, The

INTRODUCTION

Born in 1938, in Dharwad, Shashi Deshpande is the younger daughter of the Sanskrit scholar, novelist, actor and dramatist - R.V. Jagirdar and his wife Sharda Arya. Deshpande grew up in a family that belonged to the upper middle class, which had a harmonious mixture of languages. Her father taught Sanskrit in a college and wrote in Kannada but opted to send his daughters to study in an English-medium Convent school. Deshpande recalls a childhood reciting poems about strange things like tuffets and muffins and daffodils and daisies, and at home, learning Amarkosa by heart. She read Jane Austen, Dickens, the Bronte sisters, George Eliot and Hardy, but Kalidasa, Bhavabhuti, Shivram Karanth and Masti Venkatesh Iyenagar were also as familiar to her as Ibsen and Shaw. She moved on to Bombay University and studied Economics and Political Science, and took a second degree in Law in Bangalore. Her first job was with a lawyer, then a law reporter. After her marriage, she added

a degree in Journalism as well. In 1962, she married Dharendra H. Deshpande, a medical doctor and settled in Bombay. In 1968, the couple went to stay in London for a year, but however moved to settle in Bangalore in 1970. Writing did not come to Deshpande as a conscious decision. She had two children and no career. She got restless with being just a housewife and mother. In England she felt isolated with no friends and her husband away all day. On their return to India her husband encouraged her to write about this experience and 1972 saw her first short story - The Legacy. When Deshpande started writing, she felt a sense of isolation, of writing in a vacuum, since she did not feel a sense of literary kinship with writers or a literary tradition. She speaks of a physical isolation as well. She had no room of her own and wrote when her husband left for the hospital, either at the dining or kitchen table, in between meals or when her boys were in school.

Deshpande's stories usually have the heroine as the protagonist and narrator and employ a kind of stream of consciousness technique. The narrative goes back and forth in time, so that the narrator can describe events with the benefit of hindsight. In her works we find an authentic recreation of India which is far from the sensational or exotic representation which is often used in fiction. She writes about emotional deprivation. Women deprived of love, understanding, and companionship, is the centre of her works. Her novels are about women trying to understand themselves, their history, their roles, their place in the society, and above all their relationships with others. Her works are explorations of the untouched chapters of the life of modern Indian women. They confront the readers with discoveries which make them re-think the ideas that have been long engraved in the common mindset of the people. However, it would not be correct to term her as a feminist because there is nothing doctrinaire about her works. She simply

portrays the meaning of being a woman in Modern India, in a very deep and practical sense. Though no writer in India can get away from the idea of social commitment or social responsibility, through her works, Shashi Deshpande has specifically tried to break the long silence of women in our country. The web of her main text is woven around the lives of Indian women, their day to day living, deeply impregnated by religious, social and political traditions, and gender relations determined by male power structures. Her works rest on the complexities of tradition and modernity, questioning them and leaving the answer for the readers to ponder upon.

Till date, she has published eleven novels, children's books, two long stories and many short stories. With her first published novel - *The Dark Holds No Terrors* (1986), she introduces the painful topic of marital rape, which followed in her other stories like - *The Intrusion*, *The Binding Vine* (1992), and *Shadow Play* (2013). Her novel - *That Long Silence* (1988), is considered as her most autobiographical one, makes silencing by the family and society, as its central theme. Her other works are - *A Matter of Time* (1999), *Small Remedies* (2000), *Moving On* (2004), *Strangers to Ourselves* (2015), and *In the Country of Deceit* (2008).

"Shashi Deshpande did not write with a specific reader in mind, nor were her works slanted to an International marketplace. Her writing is not labored and there is an ease and a lack of self consciousness because her intent is not to present India or Indians. She writes about people and the reality of their lives. For all these reasons, Deshpande's stories hold an appeal for every reader. Refreshing in their simplicity, intense and concentrated, yet suggestive of deeper and myriad emotions in the lives of ordinary people, they are imbued with the moral vision of the 'storyteller'."¹

- Amrita Bhalla

The She

The status of women in India has been subject to many changes over the span of recorded Indian History. Practices such as female infanticide, dowry, child marriage, and the taboo on widow remarriage have had a long duration in India. Violence against women, especially sexual violence, has also been on the rise in India. The status of women in India is strongly connected to family relations. In India, family is seen as crucially important, and mostly the family unit is patriarchal, with men having authority over women. India has various statutes governing the rights of women. In 2018, the Supreme Court of India lifted a centuries old ban prohibiting women between the ages of 10 and 50 from entering Sabrimala Temple in Kerala. In 2019, two women entered the temple under police protection. The two women had to go into hiding after entering the temple and were granted 24 hour police protection. One of the women was locked out of her home by her husband and had to move in to a shelter. Dozens of women seeking entry to the temple have since been turned back by demonstrators. In recent years, however, more women have started to challenge such social norms. For instance, women in rural India are increasingly rejecting the *ghunghat*. The concept of family honor or *Izzat* is especially prevalent in Northern India. It applies to both sexes but in different ways. Women must uphold the family honor by being chaste, submissive and passive, while men must be strong, brave and willing and able to control the women of their families. The rural areas surrounding Delhi are among the most conservative in India: it has been estimated that 30% of honor killings in India take place in Western Uttar Pradesh, while Haryana has been described as one of the most conservative when it comes to caste, marriage and the role of women.

The cultural history of India reveals that women enjoyed the status of Devi (Goddess), yet the position of women has been a very complicated one because of the paradoxical statements in different religious scriptures and sometimes in the same text at different places. Though women enjoyed the theoretical importance which these texts outline for the wife, who was defined as Ardhagini (better half), but in practice she had a subservient position than men. It was generally seen and believed that women had lower status with reference to power and influence than men in all spheres of lives - family, community, religion and politics. It was held that up to marriage, she is protected by her parents, during married life she is looked after by her husband, and after the death of her husband, she was to spend the remaining years of her life under the roof of her children, without any will or desire and rights in the family. She was not allowed to decide how money would be spent or invested and had no personality of her own independent existence.

Through 'The She', we are characterizing the life and philosophy of a very important section of Indian society - the Urban Middle Class Educated Indian Women. There are some typical features of Modern Indian history, which affects the life of women in the cities. The most striking among them is the conflict caused by the rather difficult transition from tradition to modernity. As a result of the circumstances faced by a female, she either becomes timid or turns into a rebellious person. It is not uncommon to come across cases, where the sheer weight of customs and conventions smothers all ambition and all their youthful resolutions into despair. The life of this modern woman is strained between her domestic duties and the demands of her profession and physical constraints and psychological tensions add to the ordeal faced by her.

The She, as the pronoun suggests, represents the female identity of the human world that has been reduced to a silent mirror that shows what their male counterparts want to see. No doubt, this 'she' has been greatly neglected under the Gender-exclusive language or the Exclusive He, which has always been over shadowing the identity of the She. The use of masculine pronouns like himself instead of oneself is specifically gendered. Similarly, words like policeman, sportsman, and chairman are more popularly used which causes women to feel less motivated and neglected in important professional environments.

The She in Deshpande's texts are not simply victims of circumstances, but of family, traditions, and society. Over the decades that that her works embrace, the women of her stories have come to stand out as self assured, self-empowered, articulate personalities. They leave behind limits and stereotypes, hurting themselves against cross barriers and conventional norms. They show how traditional Indian Society is biased against women, and that it is very often women who oppress their sisters. Deshpande feels that women have not participated in the process of word-making; the stories, myths and legends in our Puranas, epics, and kathas, have been written by men. Moreover, women have been conditioned to a great extent by myth:

"To be as pure as Sita, as loyal as Draupadi, as beautiful as Laxmi, as bountiful a provider as Annapoorna, as devoted as Savior, or as strong as Durga."²

Shashi Deshpande goes beyond and behind the façade of the myth of ideal women breaking the deeply engraved stereotypes, showing us the world through the perspective of the she, the side of the story that the men had never known.

The Three Gems of Deshpande

A Liberated Woman

The question of how far a woman is free to act on her own is the theme of the story *A Liberated Woman*, the title of which is ironic. A recurrent theme in Deshpande's work is a yearning for freedom and self realization. In *A Liberated Woman*, a less educated husband bullies his liberal, educated wife. It is a story of the catastrophic result of a marriage between a popular woman doctor and a mediocre college lecturer, because of the wounded male ego.

Through the conversation between a man and a woman who are good family friends and who have met after a lapse of twelve years, the author projects the picture of a woman who is fettered by her marriage to a sadist. Initially, theirs has been a love marriage and the person with whom the wife has a conversation is their college teacher. The wife's taking up a job as a doctor includes an inferiority complex in the husband.

The reversal of roles apparently is too much for the husband to accept. He gradually undergoes a change from that of a romantic hero quoting Shelly to his beloved, to a morose husband uncomfortable with his wife's social and financial status which grows far beyond that of him. She is a busy, successful doctor in contrast to her husband who is an underpaid lecturer in a second rate local college. She establishes herself as a career woman and her profession satisfies her ego, but this brings her no happiness at home. Her predicament is contrary to the assertion of most feminists that economic independence brings fulfillment to the woman. Shashi Deshpande, however, proves that in the institution of marriage, an economically independent woman is still bound in shackles and must forever live in fear of hurting the ego of her husband. The rift between the wife and her husband gradually grows wider, and one unfortunate incident blows the lid off the simmering

pot. It changes the husband into a wild animal at night when he begins to physically abuse her in the privacy of their room. A girl, who comes home to take the interview of the wife for a magazine, innocently asks the husband: "How does it feel when your wife provides not only the butter, but most of the bread as well?"³ That night the husband gives vent to his feelings by attacking her like a wild animal. The husband takes revenge for his humiliation of his inability to bear the financial burden of the family. He now turns a sadist, torturing her in bed at night in all possible ways and inflicting bruises upon her tender body. The situation seems all the more terrible for the wife because the husband presents that nothing has ever happened. He is perfectly normal in the mornings and goes about as if he was in total ignorance of his own actions. It is easy to identify the consequences of the shattering of the male ego. The story in reality presents a stark picture of the gross inequalities prevailing in our society: the superiority of the male in a marriage, if it must survive. The wife's bitter realization that a woman must necessarily remain a step behind her husband is revealed in her imaginary speech she wanted to give in a girl's college. Thus Shashi Deshpande tries to repudiate the myth that woman finds fulfillment only in marriage. She, however, does not go to the other extreme of proclaiming that all unmarried women are destined to be happy.

The wife in the story then prepares herself for leaving her job and remaining a mere housewife. But the husband would not allow it to happen as he got used to comfortable parasitic living. When she consults her elderly friend, he advises her to divorce her monstrous husband. But she refuses to do so for the sake of their children who will suffer, if they are separated. She even refuses the help of a psychiatrist who may cure her husband of his sadism. It is obvious that she is much too considerate to want to hurt his feelings.

Her friend is puzzled by her attitude in voluntarily denying herself a release from her intolerable situation. Later, he happens to read a magazine in which she has been interviewed; he is shocked not so much by the photograph showing her cool, poised face as by the title of the published article, *A Liberated Woman*. The title of the article is ironic in that she does not break away from her unbearable married life. The lady has obviously chosen to suffer rather than incur the abhorrence of society, in which respect she is more or less like the wife in *A Day like Any Other*. The interviewer calls her *A Liberated Woman*, but in reality she is totally helpless in the given situation. The analysis of this story shows that the marriage in male-oriented societies turns out to be for the female partner both physically and spiritually dissatisfying. It creates confusion in her whether to take up the path of submission or rejection because both end in discontentment. If viewed critically marriage is found to be degenerating in which there is no involvement except in sex and everything goes on mechanically to carry on life.

The Stone Women

In the story, *The Stone Women* the self-affirmation of the wife and her journey from the periphery to the centre, is very definite and apparent.

The young honeymooning wife in the story while sight-seeing finds the paintings of "lush-bodied, high breasted woman...leaning provocatively...looking the mirror, doing the hair, playing on musical instruments, dancing"⁴ on the wall. She ponders over the narcissistic existence of these women. For her they don't look real, a picture for removed from the picture one has of women's daily lives in this country. The sculptures of the figures of women in the panels on the wall of the temple are carved with astonishingly beautiful delicate details. Then she realizes that these women in stone are sculpted by men. They

don't look real because men shaped them from their imagination. The wife in the story realizes that they are projected thus to satisfy the animal feelings of males, and women through the ages have surrendered their dignity to ingratiate themselves with the men, their masters.

The wife in the story is overcome by a sudden fear as if she is becoming one of those stone women, a woman frozen for all time into a pose she has been willed into by her creator. Suddenly she becomes aware of her self. She recollects from her personal experience that she is forbidden to hum film jingles when she is thoughtful. Her husband never catches her. "You'll never win,"⁵ he says triumphantly. She is forced to put away her silver bracelet that was like a part of herself because it was ugly according to the husband. Her small possessions she had been surrendering slowly but definitely and moving towards the marginal position. She wonders if she too is like the painted female figures that exist only as sexually appealing objects to satisfy man's primitive desires. The protagonist of this story does not want to be carved according to the male fantasies. She has her own shape i.e. her identity and she is not ready to reshape it. She wants to preserve it. She returns to the hotel room, a changed woman. When her husband while nuzzling into her body comments "you're wearing something new, I don't like it. It hides you,"⁶ she refuses to concede and replies back, "It's comfortable, I like it. We go on talking but I can see a faint shadow on his face."⁷ Thus the wife in the story asserts herself but not at the cost of relationship. Slowly she melts into her husband's embrace indicating quite clearly that she will go through the husband-wife relationship on her own terms. Though she views her husband's displeasure, she decides to overlook it. The young wife is neither aggressive nor foolish enough to disturb the fragile peace of marital life but she is

strong enough to define herself and vindicate her stand.

Why A Robin?

Why a Robin ? is a highly sensitive story of a mother who feels isolated from her husband and only daughter, who has more in common with her father, because of her innocence and ignorance, and her less education. The mother is worried and perplexed since she cannot rise up to her daughter's expectations. The daughter remains estranged from her mother who wants to fondle her but is afraid of being rebuffed. She knows she would get no response. The mother suffers from a sense of guilt for being a total failure- as a wife, as a companion as mother. The mother longs for a better and a closer relationship with her daughter. At the same time there is a perfect understanding between the father and the daughter and the mother feels estranged from these. She is isolated since she is ignored by both her husband and her daughter: "I am conscious of an ache within me, an ache I cannot dignify with the name of grief."⁸ She finds it difficult to communicate with her daughter.

As a mother the protagonist feels herself to be helpless for she cannot cope with her daughter's fits of excitement, her questions, her rage, her tantrums and her ideas. Seeing the daughter fills her with the same delight she experienced on seeing the beautiful peacock. She then decides that bridges have to be built: "They do not come out of nothing, they have to be created."⁹ The symbol Peacock, that stands for antiquity and the past tradition brings out the plight of the traditionally educated or nurtured mother in the story, since Robin on which the daughter wants to write stands for modernity. The situation changes dramatically, however, when the daughter clings to her mother for comfort and security, on attaining puberty, thus giving a new meaning to the mother's life. This time it is the

mother she wants to comfort and nurse her. The womanhood brings them closer. Sudden flush of blood and abdominal pain frightens the woeful daughter who has suddenly grown to womanhood. The daughter's fears are allied by the mother who talks to her gently, trying to make her feel it is natural, a part of growing up, something to be welcomed and accepted. The bridge is built between the two due to the realization that both suffer similarly in life. The episode unites the daughter with her mother. The mother feels joyous and exalted at having found the key to her daughter's heart.

Apart from the sensitive portrayal of mother - daughter relationship, the story Why a Robin? presents the incompatible marital life due to the insensitivity of the husband. The wife feels totally alienated from her husband as she goes to the bed room: "Two single beds. Two islands that nothing can bridge."¹⁰ The husband seems to be incomprehensible to her. There is no bridge of passion which can unite them. The situation is nothing less than an insoluble puzzle for her: "Have they locked me out or I have locked myself in?"¹¹ Her efforts to partake in the husband's means of enjoyment (music, etc.) are withdrawn by the apprehensive and unanswerable retort: "What do you want?"¹² She is frightened at the thought that he may dismiss her from the place by asking her the above question. So she does not want to intrude into "his special place, his retreat, and the place where he can be most alone."¹³ Thus, due to the indifferent and the insensitive temperament of the husband, the wife feels isolated. She compares herself with the chameleons, which changes colors according to its surroundings. She too is different for different people. These words convey a pathetic situation the wife is in. She longs for their love but she is not given her identity. Moreover, she feels insulted and dwarfed by her in-laws because they can

never forget that their son has married below him. They behave indifferently towards her as if she has committed some great crime by marrying him. She tries her best to make everyone happy but in vain. Whenever her in-laws visit them she makes endless efforts to tidy the house which remains dull and dead despite all her hard work. She slogs in the kitchen and prepares many dishes to impress upon the in-laws to show them that their son is well looked after. However, she is completely ignored at the dining table: "The talk flows above and around me and leaves me inviolate...An outsider in my own home."¹⁴ In such a situation, the wife feels alienated from her husband.

"Men seek relief from their alienation through their relations with women; for women there is no relief. For these intimate relations are the very ones that are the essential structures of her oppression."¹⁵

Thus the recurring theme in the above discussed story of Deshpande is daughter's hostility/antagonism towards her mother and the normal position of an Indian wife who is ignored, insulted and dwarfed. But in the end the mother tries to forge a relationship with her impervious daughter who is reconciled to the situation. In *Why a Robin*, it is daughter's growth to womanhood which brings her closer to her mother.

Silencing She and Articulating Her

A society can never reach its full potential and progress without the lively participation of its female members along with their male counterparts. Regardless of the giant leaps that the mankind has taken in a plethora of fields, she is still struggling for the recognition that she is to be treated equal in all spheres of life. A woman is constantly defined in orientation to man and not vice versa. She is trained from childhood itself to be submissive, passive and always in need of others approval. Most of the oppression or

subjugation that a woman faces is approved under the name of morality, values, norms, customs, culture and tradition. Perhaps, the deplorable condition of women is one of the only consistent realities in most, if not every corner of the world. So deeply are the ingrained societal norms that even if the woman is educated, she is not free from the bondage of the societal pressures, demands and expectations. Despite the laws that have been formed in support of women, in order to protect them, the true and effective implementation is a rarity of the same.

A woman's identity exists primarily as being for others rather than being for herself and even the laws are far from uprooting this evil and the society is far from providing for she, accepting she and liberating she in the true sense.

Here, the role of writers like Shashi Deshpande surfaces, who is a contemptuous critique of Indian society and also society in general, and its standards that have always rendered only a second class status to its women, down the ages. In her literary works we find women in a state of instability going through mental conflicts, and in the process, striving to establish a new identity as strong self-reliant individuals.

In *A Liberated Women*, through the predicament of a well established career woman, Deshpande illustrates the irony in the lives of so called liberated women, who are economically sovereign and yet in chains. Deshpande paints the true picture of Indian society which places such a high significance on family relations and husband wife relations, that even if they are not happy with the relationship, they dare not show it and keep up the façade, especially the women. The protagonist of the story, a woman carries around the tag of a modern, educated, and liberated woman. Yet she cannot raise her voice against the sadistic attitude of her husband and the violence she goes through every night. Even

after the introspection of her life she, she dare not disclose the truth of the real life she leads and the mental conflicts she faces. This unfortunately is the truth of a lot of women in our modern society.

In *The Stone Women*, Deshpande points out the beliefs and expectations that the society since long has held, regarding women. From the physical aspects to the surrendering of her self, a woman walks on the thorny path of perfection defined by the society. The protagonist upon facing these conflicting ideas after looking at the sculptures of women realizes the futility of it all and takes the first step towards abandoning the burden of societal expectations and become herself, embracing her beliefs, her thoughts, her likes and dislikes and a rusty silver bracelet which she adored. This story finds relevance today when a woman is often objectified and treated as a commodity rather than a person.

Through *Why A Robin*, the author depicts a woman who lacked social skills- a woman who felt as if she is in her own house, confronted within closed rooms, which is the metaphor for her husband and daughter. This story targets the educated families, in which less educated woman becomes an outsider even when she is the string that keeps the family together. Respect is not given to a homemaker in today's world and her efforts remain unacknowledged. Deshpande articulates the plea of many such voiceless women in our society, who continue to be locked out of their own family, house and life.

"Women are born into social structures which they did not make, but from which they nevertheless benefit or suffer, and which place boundaries around them, making it hard to alter who and what they are, what they can say, what it is possible to think and do, or how they perceive ethical decisions."¹⁶

- Kate Fullbrook



This research project is an attempt to shed light upon the works of Shashi Deshpande, who holds the opinion that women writers in India only add new dimensions to conventionally accepted relationships, seeking not a reinterpretation, but making the attempt to make those relations more comfortable. Her short stories make us know the characters who remain in the system, trying not to make things fall apart, still remaining conscious of the labels that the society has imposed upon them and showing their perspective of the female existence and perfection against what the society has carved as idealistic for them. Through this attempt, we hope that Under-Graduate students will become more interested in taking up projects such as this and explore it and watch it through new lenses, which will inspire and create a change.

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A RESEARCH WORK ON A COMPARATIVE STUDY OF ARUNDHATI ROY'S NOVELS

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ABSTRACT

Arundhati Roy, an award winning , renowned Indian writer has penned down two unparalleled novels namely "The God Of Small Things"(1997) and "The Ministry Of Utmost Happiness"(2017). Both the novels cater to some

burning issues in the society. An illustration of realistic portrayal of the societal problems can be gleaned through both the novels. This paper is an attempt to study both the novels comparatively.

Key word : Indian writer, novel, social issues, comparative study.

INTRODUCTION

Suzanna Arundhati Roy (born 24 november 1961, Shillong) is an Indian author . She studied architecture in Delhi. Roy got married to Pradeep Krishan. Roy worked for T.V and movies and wrote screenplays for "In Which Annie Gives It Those Ones "(1992) and "Electric Moon" (1992) both in collaboration with her husband and won "National Film Award" for the same. She became financially secure with the success of her novel "The God of Small Things" (1997). The book is a semi-autobiographical novel and major parts capture her childhood experiences in Ayemenem. She won International fame and received Booker Prize for it. In early 2007, she stated that she was working on her second novel. In between she has

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written numerous essays on politics and culture which was collected by Penguin India in five Volumes . Penguin India and Hamish Hamilton UK announced that they will publish her second novel "The Ministry of Utmost Happiness". The novel was chosen for Man Booker Prize 2017 Longlist and this book also got nominated as a finalist for the National Book Critic Circle Award for fiction in 2018.

The God of Small Things is the debut novel of Indian writer Arundhati Roy . She began writing this novel in 1992 and completed it by 1996 and it was published in 1997. She received £ 500,000 in advance and rights to the book were sold in 21 countries . The publication of the novel catapulted Roy to international fame . The book received the 1997 "Booker Prize for Fiction" and was listed as one of the New York Times notable books of the year .The book is semi-autobiographical and a major part captures the author's childhood experiences in Ayemenem. The story of the book is about the childhood experiences of the fraternal twins or dizygotic twins whose lives are destroyed by the " Love Laws " that lay down who should be loved and how much.

The story is set in Ayemenem , Kottayam district in Kerala, India. The temporal shifts back and forth between 1969 . When fraternal twins Rahel (Girl) and Esthappen (Boy) are seven years old and then when the twins are reunited in 1993 . The other characters in the story are Ammu Ipe, mother of Rahel and Esthappen, Pappachi, Ammu Ipe's father, Mummachi, Ammu Ipe's, mother, Chacko, Ammu Ipe's Brother, Baby Kochamma, Pappachi's younger Sister. The story is written in a non-sequential narrative style as it is a patchwork of flashbacks and lengthy side tracks that weave together to tell the story of the Ipe family .The book is narrated in the third person . However , the reader sees everything extended to a period

through Rahel's eyes . The main events of the novel are traced back through the complex history of their causes and memories are revealed as they relate to one another thematically and as they might appear in Rahel's mind. Throughout, the book, there are various moments that intersect each other. In the beginning we see that Rahel has come back from London to Ayemenem after she gets a letter from her grand aunt Baby Kochamma saying that Esthappen has been sent back to Ayemenem by their father as he was going out of India for work and could not take Estha with him . Rahel visits the Ayemenem house and recalls the childhood memories that took place in that house and whatever happened in her and her brothers life and in the life of the other members of the family. Ammu Ipe mother of Rahel and Esthappen . In her young age was desperate to escape her ill-tempered father , Pappachi and bitter long-suffering mother, Mummachi. She somehow succeeds in convincing her parents to let her spend a summer with a distant aunt in Calcutta. To avoid returning to Ayemenem , she marries a man whom she met at a party in Calcutta . But later she finds out that his husband is an alcoholic , and his husband also used to physically abuse her , between all this she gave birth to Rahel and Estha .When his husband's behaviour grew extremely bad and along with Ammu he started treating the children badly .Ammu leaves her husband and returns to Ayemenem to live with her Parents in their home . But Baby Kochamma was not happy with Ammu's coming back. Baby Kochamma , Pappachi's sister whose real name was Navomi Ipe as a young girl fell in love with father Mulligan , a young Irish priest who had come to Ayemenem. To get closer to him, Baby Kochamma converted to Roman Catholicism and joined a convent against her father's wishes. After a few months in the convent, she realized that her vows brought her no closer to the man she loved. Her father eventually rescued her from the convent

and sent her to America. Because of her unrequited love for Father Mulligan, Baby Kochamma remained unmarried for rest of her life, becoming deeply embittered over time. Throughout the book, she delights in the misfortune of others and constantly manipulates events to bring calamity. In between these things ,Mummachi opens a new business of making jams and pickles of which Pappachi is jealous of and amidst all of this, their son Chacko returned to India from England after his divorce with Margaret Kochamma .

When Margaret Kochamma's second husband died at that time Chacko invites her and Sophie to spend the Christmas with them in Ayemenem . Everyone was very excited to meet Sophie . Baby Kochamma taught Rahel and Estha some English songs and told them to sing it while their way back to home En route to the airport to pickup Margaret and Sophie , the family visits a theatre .On the way to the theater, they encounter a group of communist protestors who surround the car and force Baby Kochamma to wave a red flag and chant a communist slogan , thus humiliating her . Rahel thinks she sees Velutha a servant who works for the family's pickle factory among the protestors. Later at the theatre , Estha is sexually molested by the " Orange drink Lemon drink Man " a vendor working in the snack counter . Estha's experience factors into the tragic events at the heart of the narrative; Pappachi dies. Rahel's assertion that she saw Velutha in the communist mob causes Baby Kochamma to associate Velutha with her humiliation at the protestors hands, and she begins to harbor enmity towards him. Velutha belongs to the dalit community (Lower caste in India).

Rahel and Estha form an unlikely bond with Velutha and come to love him despite his caste status . For Ammu her children's love for Velutha causes her to realise her own attraction towards

him and eventually a bond of emotional relationship grows between Velutha and Ammu.Ammu and Velutha begin a short-lived affair that culminates in tragedy for the family. When Ammu's relationship with Velutha is discovered by the family , Ammu is locked in her room and Velutha is banished . In her rage , Ammu blames the twins for her misfortune and calls them "Milestones around her neck".Distraught, Rahel and Estha decide to run away .Their cousin Sophie also joins them . During , the night, as they try to reach an abandoned house across the river , their boat capsizes and Sophie drowns.Chacko and Margaret return from the trip and find Sophie dead.The twins reveals the truth of Sophie Mol's death to the chief of police . He is alarmed . He knows that Velutha is a communist , and is afraid that if word gets out that the arrest and beating were wrongful , it will cause unrest among the local communists . He threatens to hold Baby Kochamma responsible for falsely accusing Velutha for the murder. To save herself ,Baby Kochamma tricks Rahel and Estha into believing that the two of them would be implicated as having murdered Sophie out of jealousy and were facing sure imprisonment for them and their Ammu . She thus convinces them to lie to the inspector that Velutha had kidnapped them and had murdered Sophie . Velutha dies of torturous injuries overnight at the police station. After Sophie Mol's funeral Ammu takes the twins to the Police station to change their statement and tell the truth of Sophie Mol's death but there she gets to know that Velutha has died .On the other hand Baby Kochamma convinces Chacko that Ammu and the twins are responsible for his daughter's death . Chacko forces Ammu to send Estha to live with his father and kicks Ammu out of the house. Estha never sees Ammu again . Ammu dies an embittered death all unaccompanied after a few years later at the age of 31.

Rahel goes to Delhi and studies Architecture, Chacko and Mummachi use to pay for her living but they never took any personal care of her. She occasionally wrote to Chacko and Mummachi but never returned to Ayemenem not even when Mummachi died nor when Chacko emigrated to Canada. In Delhi she meets an American Larry Mc Caslin, who was in Delhi collecting material for his doctoral thesis on Energy Efficiency in Vernacular Architecture. He starts liking Rahel and they both get married. After marriage Rahel goes to America. There she divorces her husband, and starts living alone working dead-end jobs. Estha, now 31, are reunited for the first time since they were children. They had been haunted by their guilt and their grief-ridden past. It becomes apparent that neither twin ever found another person who understood them in the way they understand each other.

In the entire narrative, we see that how small - small things affects a person's life and can change a person completely and that the effects can remain for the whole life. However we can analyse "The God of Small Things" from different angles. Seeing it from the angle of Marxist criticism or Socialism, we can say that the social hierarchy within South Indian community - The distinction between upper class and lower class people - Baby Kochamma (Upper class) and Velutha (Lower class) is clearly visible. The social structure in South Indian Community is clearly transparent as the upper class people like Baby Kochamma and the Police inspector oppress Velutha for just being a member of the lower strata of society. Seeing it through the angle of Feminism we find that three generations of women have been portrayed in the novel. Mummachi (Representative of first generation), Ammu (Second generation) and Rahel (Third generation). Women in South India are oppressed by Patriarchy and patriarchal dogma. Through

the lens of Psycho-Analysis we find certain characters like Baby Kochamma, Rahel and Estha and to a certain extent Ammu also emotionally and psychologically deprived.

Even many critics have studied *The God Of Small Things* analysing its sentence structure through the angle of structuralism.

"The Ministry of Utmost Happiness" (2017) the second novel, is valued for its vast range of characters. The protagonist Anjum, is a major character of the novel who is a muslim and transgender she is born Aftab the long awaited son of Jahanara begam and Mulqat Ali. Mulqat Ali is direct descendant of Mangol Emperor Changej Khan. Zainab is a three year old girl whom Anjum picks up on the steps of Jama Masjid. Zainab is brought up at Khwabgarh and later goes on to become of fashion designer who marries Saddam one of the guests of Jannat guest house wants to avenge his father's death by killing Sehrawat. S. Tilottama is a student at architecture school who is estranged from Syrian Christian Mother Mariyam Ipe. She becomes friend with Musa Yewsi, Nagaraj Hariharan and Biplab Dasgupta. Musa Yewsi is a reticent Kashmiri man who is a classmate with Tilo in architecture school and her boyfriend. Musa later returns to his homeland to become a militant and fight for freedom. Later on he married Arifa and become father of Miss Jebeen the first. Comrade Revathy is a maoist from Andhra Pradesh who is raped and tortured by policeman. She is the mother of Udaya and leaves Udaya at Jantan Mantar. Nagaraja Hariharan is casted as Norman in the play. He later becomes a top-notch journalist who works in Kashmir. Tilo marries Naga as suggested by Musa for strategic reasons and later abandons him. Biplab Dasgupta is to play the role of Gorson Hobart in the play of Norman. He secretly loves Tilo, rents her apartment after divorce with Naga. Major Amrik Singh is a military officer in

charge of counter-insurgency operation in Kashmir .Murderer of Jalib Qadri, a well-known lawyer and human right activist . Amrik Singh subsequently seeks asylum in the U.S claiming to be the victim of tortures, he has inflicted on others .

Aftab is a hermaphrodite born in Old Delhi and raised as a boy. However Aftab is never comfortable with this and when he reaches adulthood he opts for Anjum a glamorous woman whose affectionate outgoing manner quickly ingratiates her with many members of the community. Independent for the first time, Anjum finds a home with a residents of the place called Khwabgarh, meaning " HOUSE OF DREAMS". This is a community of non conformists many who are either intersects or transjenders like Anjum. Calling it home, she remains there for thirty years during which time she became a mother figure for a little girl named ZAINAB who was found at observatory JANTARMANTAR in Delhi and raised her to adulthood. However when she is fortysix, she survives a massacre in Ahmedabad and decided to leave KHWABGARH. She moves into a local symmetry transforming it into a guest house that she names JANNAT, or "PARADISE". She opens a funeral services company catering to marginalised and persecuted. One day a baby is found at an observatory in Delhi. Anjum takes child in, but she disappears. One day, Anjum tracks the baby down to the house at women who took her. The narrator then shifts to the story of S. TILOTTAMA called TILO for short, the woman who took the baby. The story flashes back to her college days, her narrative splice together with the stories of two men who loved her during these years. One is an old bureaucrats called GARSON HOBART and the other was a mainstream journalist named NAGA whom she eventually marries. Tilo, a dark skinned, smart woman who had been close to architecture student MUSA YESHWIN in university. After university

Musa and Tilo reconnected shortly after his wife died. However, Musa became involved with the Kashmiri separatist movement advocating for independence for the Muslim region at the border of Pakistan. Musa and his friend commander GULREJ, raise the attention of Indian bureaucrats led by ruthless Major Amrik Singh. Singh known for torturing his suspect brutally, captures Musa and Gulrej, Musa manages to escape but Gulrej is killed as Tilo watches shaken and realising how close she came to being caught up in an extremely dangerous plot. Tilo decides to play it safe and marry Naga. Fourteen years later, they divorce and Tilo rents an apartment from Garson Hobart. They reconnect but she soon disappears again with the baby from the observatory. She named the baby Ms. JUBEEN, the second, after Musa's daughter. Anjum find her and invites both of them to move into the Jannat guest house with her.

The narrator then flashes back to show how Ms. Jubben The First died. In the conflict of 1990s Kashmir she and Musa's wife Arifa are shot by soldiers on Major Singh's order. Although Major Singh later tries to make peace with Musa by paying off, Musa angrily rejects him and goes under cover. We also see more of the night Gulrej died and it is revealed that Tilo was pregnant, when she escaped Kashmir married Naga. However she choose to have an abortion. Back to the present, the residents of Jannat celebrate Zainab's wedding to fellow resident Saddam. One day they receive a letter written by Ms. Jubben the second mother. A member of the communist party, comrade Musa Revathy was raped, and although she could not care for her child. She reveals she named her UDAYA. The resident of Jannat agreed to name the child Ms. Udaya Jubben, to honour both parents wishes. The book ends as Garson Hobart reads through Tilo's documents realising that he now sides with her in

Kashmir with Musa saying that the conflict will make the country explode one day. Musa joins Tilo at Jannat for the night but leaves to rejoin the fight in Kashmir where he is killed. Anjum takes Ms. Udaya Jubben for walk around Delhi.

Various themes have immersed in Arundhati Roy's second novel like :

SEXUAL IDENTITY

Aftab is born as a hermaphrodite, but has inclination towards effeminate side of his personality. Since, he is the first 'boy' of the house, his parents decide to get him treated to prevent his female characteristics to take over. When he leaves their house to join the Gharans of Hijras, a band of transgender people notorious for extorting money in return for their blessings, his father ostracize him. He is ignored thereafter. After being accepted, he faces a humiliating prospect when he comes in his sleep soiling his sari. He is ashamed for having a penis and decides to have a surgery to get a vagina. A quack doctor performs the surgery to remove the penis, but the vagina he creates doesn't work, and Aftab, after becoming Anjum, realizes that can't orgasm anymore. Finally, she realizes that other people had been controlling her sexual identity which leads the inner conflict in her.

RELIGIOUS INTOLERANCE

The novel is based against a backdrop where different religions frequently clash against each other, particularly the 2002 Gujrat riots and the 1990 Kashmir insurgency. Arundhati Roy doesn't go into the detail of these events but focuses on the aftermath as if to point out that root of the problem doesn't negate the outcome, or vice versa. The religious tension becomes a key in many of the events that occur later in the book

STRUGGLE TO FIT THE NORMAL

All the major characters in the book, Anjum, Tilo, Musa, are trying to find a place where they

would be considered normal. Anjum, who is a transgender feels emotionally drained and conflicted due to lack of love in her life. Tilo feels slighted by her mother who refuses to acknowledge Tilo as her biological daughter, Musa tries to live life like a normal person but is conflicted due to empathy with Kashmiri terrorists. None of these characters feel that they belong in the world they live in and strive to find a place where they can be accepted and happy.

IDENTITY CRISIS

Another theme in the book is the identity crisis that almost all characters feel in some way. Anjum is conflicted due to her status as a transgender which is not considered respectable in India. Musa becomes sympathetic towards the Kashmiri people fighting for freedom, which is branded as terrorism by the state government. He is named as a terrorist, but believes himself to be a freedom fighter. Tilo becomes embroiled with him as she is caught harboring an enemy of the state, which is technically a seditious activity.

FREEDOM

While the theme of freedom is more apparent in later part of novel, where Musa is literally fighting for freedom in Kashmir, it is also an important part of Anjum's life who wants to be free of Duniya's rules for being in world, which is the reason why she left her gharana of hijras, to live in a graveyard where wouldn't have to follow anyone's rules. Tilo strives to be free of a marriage of convenience which she agrees only to thwart suspicion for being friends with a terrorist.

CONCLUSION:

A comparative study of the two novels "The God Of Small Things"(1997) and "The Ministry Of Utmost Happiness"(2017) reveals Arundhati Roy's genius as a writer. She has touched upon various aspects of socio-cultural fabric of Indian society in both the novels. In "The

God Of Small Things" the author has embarked upon the social issues like patriarchal dominance, communism and socialism. Some characters in the novel are deeply motivated by psycho-social and cultural upsurge in Indian society. Whereas in "The Ministry of Utmost Happiness", writer has matured as a writer, giving insight into the so far untouched issue of transgender individuality. The Kashmir insurgency which has been the backdrop

of the second novel, provides a particular hue to this work. The taboo subject of Transgender issue has leapt up in the fiction and establishes it as a work of social activism. Readers empathy is build and rebuild through her writings, in her first fiction she gave voice to the subalterns whereas in her second she entreats Transgender individuality. Indian Writing in English came of age with the writings of author Arundhati Roy.





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THE ROLE OF GANDHIAN PHILOSOPHY ON ENVIRONMENTAL ETHICS

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ABSTRACT

The environmental concern as we understand today was not there at the time of Gandhi, but his ideas on development, technology, self sufficiency, village swaraj etc. disclose his environmental concern. Different streams

of environmental philosophy have paid their indebtedness to Gandhi.

Key word : environmental, concern, technology, streams

INTRODUCTION

One of the greatest problems that the world is facing today is that of environmental pollution, increasing with every passing year and causing irreparable damage to the earth. The problem of “environment degradation” and its concern is not something new to our society. There were people 100 yrs ago who too were very much concerned about the environment.

Mahatma Gandhi is known for nation building. He is usually not referred as environmentalist. His philosophy was based on human ethics for development of environment. The importance of Gandhian philosophy is well felt in present period in which lifestyle of human beings has been developed in a direction of high consumerism and generation of waste. Gandhi's ideas relating to Satyagraha based on truth and non-violence, simple lifestyle and development reveal how

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sustainable development is possible without doing any harm to the nature and our fellow beings.

Gandhi considered the earth a living organism. His ideas were expressed in terms of two fundamental laws. Cosmic law and the law of species. Cosmic law views the entire universe as a single entity. He believed that “the universe was structured and informed by the cosmic spirit, that all men, all life and indeed all creation were one.” Regarding the law of species Gandhi believed that without the cooperation and sacrifice of both human and non-human beings evolution is not possible. Gandhi evolved these principles from his vast readings and understandings of religious traditions of Hinduism, Jainism, Christianity and Islam.

Gandhi's Philosophy of Truth, Non-violence and Satyagraha at Public level

Truth and Non-violence are the fundamentals of Gandhian philosophy.

Truth—The meaning of truth is, of course obvious. It must be noted that truth has many sides and is ever changing. What appears true today may not be true tomorrow, or what appears true to us may not be same for others. We must develop the ability to look at everything from different perspectives.

Non-violence—Non-violence or Ahimsa means non-injury, but to Gandhi Nonviolence was much more than the absence of violence. He used to mean non-injury in thought, word and deed. It is used at public level to bring about positive changes. We should therefore aim at an A+ grade in our perception of nonviolence. Ahimsa, Satyagraha and Tapasya were the basic principles that guided his life.

Satyagraha—Satyagraha (Satya + Agraha) means firm adherence to truth as justice. Satyagraha has practically become synonymous with Gandhi. To an ordinary man, Satyagraha stands for Gandhi's way of fighting the British Raj.

It was another name for war with an alien government. Gandhi's philosophy of life and his method of opposing evil are both called 'Satyagraha' But Satyagraha viewed as a way of living, limits the broader technique of action.

Tapasya—Tapasya or self sacrifice is necessary to achieve the highest truth. It involves freedom from fear and a willingness to die. Gandhi believed that Satyagraha is nothing, but Tapasya for the truth. The suffering that has to be undergone in Satyagraha is Tapasya in its fullest form.

Sarvodaya—Sarvodaya means 'Universal Uplift' or 'Progress of All'. This term was coined by Gandhi as the title of his 1908 translation of John Ruskin's tract on political economy, "Unto This Last", and Gandhi came to use the term for the ideal of his own political philosophy. Later Gandhian, like the Indian nonviolence activist Vinoba Bhave, embraced the term as a name for the social movement in post-independence India which strove to ensure that self-determination and equality reached all strata of India society. Gandhi's ideals have lasted well beyond the achievement of one of his chief projects, Indian independence (Swaraj). His followers in India (notably, Vinoba Bhave) continued working to promote the kind of society that he envisioned, and their efforts have come to be known as Sarvodaya Movement.

Environmental Ethics and its importance

Environmental ethics is a part of philosophy which considers the ethical relationship between human beings and natural environment.

Equilibrium is maintained in natural ecosystems between different components through various processes including assimilation and recycling. But over exploitation of resources by growing human population has

upset the natural balance. The use of technology and economic growth has led to

ecological problems. The economic progress has been achieved at an enormous cost to the environment as manifested by growing pollution, loss of biodiversity and critical shortage of basic resources.

The role of ethics becomes important, therefore, as it helps to assess strengths and weaknesses of developmental activities such as deforestation, building a dam, mining, draining a wetland etc. There are many ethical decisions that humans need to make with respect to the environment.

Gandhian Environmental Ethics

Mahatma Gandhi has been acknowledged as the 'patron saint' of the Indian environmental movement.

All the international conferences such as the Stockholm conference of 1972 or the Rio earth summit of 1992 were convened much later than the concern raised by Gandhi about the environment and its effect. Even in India the major movements to protect environment such as Chipko Movement led by Chandi Prasad Bhatt and Sunderlal Bahuguna. The concern of Gandhi about the environment urbanization and mechanization was evident in his speeches, writing and his messages to the workers. It is apt to note that he was the "world's early environmentalist in vision and practice".

The Chipko movement (Chandi Prasad Bhatt and Sunderlal Bahuguna), Baba Amte and Medha Patkar (Narmada Bachao Andolan) all derive inspiration from Gandhi. Other groups like Sulabh International that work for uplifting the Harijans and sweepers, who once lifted night soil were also inspired by Gandhian thought. Gandhi was indeed an "Early environmentalist" who anticipated the environmental crisis of the modern industrial society. His writings in 'Hind Swaraj' published in 1999 explained how the current mode of development is "Exploitative of men by men and of nature by men".

Gandhi believed that as human beings, men can never reach the perfection of divine virtues. Still, they should strive with all their strength to follow the virtues of truth, love, non-violence, tolerance, fearlessness, charity and service to mankind. Population explosion, mass poverty, overutilization of renewable resources, overuse of fertilizers leading to water pollution, rapid industrialization, global warming, desert formation, deforestation, emission of harmful substances causing air pollution, industrial and synthetic wastes are its issues.

Gandhi's Critique of Modern Civilization

Modern Industrial Civilization has had a huge impact on the environment. It made a small part of the population wealthy at the cost of exploiting the world's natural resources. Gandhi believed that it propagates nothing other than the hunger for wealth and the greedy pursuit of worldly pleasures. *Hind Swaraj*, published in 1909, criticized the modern civilization as 'satanic'. He observed that 'machinery' is the chief symbol of modern civilization. It is machinery that impoverished India. The distinguishing characteristics of modern civilization are an indefinite multiplicity of wants, whereas ancient civilizations were marked by an imperative restriction upon, and a strict regulating of these wants. Gandhi believed that the ancient civilizations were religious in nature in which would surely limit worldly ambitions.

Conservation Movement and Public Participation.

- Government alone cannot take up the burden of creating awareness and ensuring a clean environment. There is a need for public participation at every step. If the common man is aware of what is going on at the local and national level, thus surely decision making by the authorities can be influenced.

- The Silent Valley project in the Western Ghats was abandoned due to protests, environmental activists and by public representation. It helped to save the rain forests of that area which is one of the hot spot of biodiversity in the world.
- A noted environmental activist and lawyer M.C. Mehta filed public interest litigation (PIL) against the Union, Government of India. His interest was to protect India's Taj Mahal from the effluents of the Mathura refinery. This landmark case created awareness about the right of every citizen to clear air, water and land. It also opened the doors for many other PILs and the judgment given by the court.
- Some such cases are those that caused the shifting of polluting industries from Delhi and NCR (National Capital Region); the compulsory use of CNG (Compressed Natural Gas) for buses in Delhi and NCR the use of the campaign, eGreen Fuel Clean Fuel led to the use of unleaded petrol for cars in Delhi (first time in India). Also these show that awareness or activism by individuals public organizations, NGOs etc. can definitely lead to a cleaner environment.
- The agitation against dams is a controversial issue, and the Narmada Bachao Andolan has been very actively pursuing the case of the Narmada Dam oustees (people displaced due to construction of the dam). Similar instances have arisen over the Tehri Dam.

Awareness in public domain also leads to positive and fruitful cooperation between the government and people of the area. Joint forest management practices have participation of the official machinery and local inhabitants in forest conservation, forestation, and wild life management and also other natural resources.

From a Gandhian perspective, the present environmental mess, ranging from deforestation, soil and biodiversity loss, to pollution and climate change, is not a disease but only a symptom. A good doctor treats the disease, not the symptoms. The disease is the very important concept and the pattern of growth and development that are being followed everywhere.

Conclusion

In conclusion, we can say that Gandhi's environmentalism fitted in with his overall vision for India and the world that sought to extract from nature, what is absolutely necessary for human sustenance, his ideas on environment are intimately linked with all his ideas relating to the polity, economy, health and development. His asceticism and simple living, a rural center civilization based on village autonomy and self reliance, handicrafts and craft centered education emphasis on manual labor and absence of exploitative relationships are infused with elements of an ecological vision.

It is therefore no wonder that Gandhi is a major inspiration for many environmental movements worldwide, particularly for those who link their movement with larger concern for human sustenance and development.

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आधुनिक संस्कृत में ऐतिहासिक काव्य-शिवराजविजय

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* ऋचाद्विवेदी

Presentation : 17 / 01 / 2020
Supervisor : डॉ. किरण माला

सारांश : संस्कृत भाषा का साहित्य संसार की अन्य भाषाओं की अपेक्षा अधिक व्यापक है, क्योंकि न्यूनतम चार सहस्र वर्षों का (2000 ई. पू. से आधुनिक युग अर्थात् बीसवीं शताब्दी तक का) साहित्य इसमें निहित है। इतने लम्बे काल के साहित्यिक क्रियाकलाप को समाविष्ट करना एक इतिहासकार के लिए कठिन कार्य है। इसलिए आज तक संस्कृत साहित्य के इतिहास का लेखन प्रायः दो वर्गों में इस दीर्घ कालावधि का विभाजन करके ही होता है।

शब्दकुंजी: सहस्र, साहित्यिक, दीर्घ कालावधि, समाविष्ट

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परिचय :

विश्व की समस्त प्राचीन भाषाओं और अनेक साहित्य में संस्कृत का अपना विशिष्ट महत्व है। यह महत्व अनेक कारणों और दृष्टियों से है। भारत के सांस्कृतिक, ऐतिहासिक, धार्मिक, आध्यात्मिक, दार्शनिक, सामाजिक और राजनीतिक जीवन एवं विकास के सोपानों की संपूर्ण व्याख्या संस्कृत वाङ्मय के माध्यम से आज उपलब्ध है। सहस्राब्दियों से इस भाषा और इसके वाङ्मय को भारत में सर्वाधिक प्रतिष्ठा प्राप्त रही है। सहस्राब्दियों तक समग्र भारत को सांस्कृतिक और भावात्मक एकता में आबद्ध रखने को इस भाषा ने महत्वपूर्ण कार्य किया है। इसी कारण भारतीय मनीषियों ने इस भाषा को अमरभाषा या देववाणी के नाम से सम्मानित किया है।

इस साहित्य को दो भागों में विभक्त किया गया है।

वैदिक साहित्य : वैदिक साहित्य भारतीय संस्कृत के प्राचीनतम स्वरूप पर प्रकाश डालने वाला तथा विश्व का प्राचीनतम साहित्य है। वैदिक साहित्य को श्रुति भी कहा जाता है, क्योंकि सृष्टिकर्ता ब्रह्मा ने विराट पुरुष भगवान की वेदध्वनि को सुनकर ही इसका ज्ञान प्राप्त किया है। अन्य ऋषियों ने भी इस साहित्य को श्रवण परंपरा से ही ग्रहण किया था। वेद के मुख्य मंत्रा भाग को संहिता कहते हैं। वैदिक साहित्य के अंतर्गत उपर

लिखे सभी वेदों में कई उपनिषद्, आरण्यक तथा उपवेद आदि भी आते हैं।

इन वर्गों में वैदिक साहित्य का इतिहास क्रमशः विभिन्न युगों में विकसित होने वाले साहित्यिक उद्गमन को आधार बनाकर लिखा गया है। वैदिक साहित्य को उपर्युक्त उपखण्डों में विभक्त किया गया है।

1. संहिता — काल
2. ब्राह्मण — काल
3. आरण्यक — काल
4. उपनिषद् — काल
5. सूत्र — काल (वेदाङ्ग)

लौकिक साहित्य : लौकिक साहित्य से अभिप्राय उस साहित्य से है जो लोक संवेदना से उपजकर उसका संवर्धन, संचयन और प्रकटीकरण करता है। इसके साथ ही वह लोक जीवन से अविच्छन्न रहकर लोक का कंठहार बना रहता है। इसके संरक्षण का दायित्व लोक द्वारा ही निभाया जाता है। लौकिक साहित्य का प्रारम्भ वैदिक साहित्य के पश्चात् होता है।

आदिकाव्य रामायण : वैदिक साहित्य के अवसान काल में लौकिक-संस्कृत का उपक्रम होने के समय ऐसे दो महान ग्रन्थों का उदय हुआ जिन्होंने भारतीय साहित्य तथा जन-जीवन को भी अत्यधिक प्रभावित किया।

भारतीय जन-मानस में मर्यादा पुरुषोत्तम के रूप में प्रतिष्ठित राम की कथा का सर्वप्रथम विवरण 'रामायण' में ही मिलता है। यह काव्य का आदिरूप है जिसकी रचना महर्षि वाल्मीकि ने की थी। वाल्मीकि को भी 'आदिकवि' कहा गया है।

ऐतिहासिक काव्य महाभारत : लौकिक संस्कृत साहित्य में महत्व की दृष्टि से रामायण के अनन्तर महाभारत का स्थान है। विश्व साहित्य का सबसे बड़ा ग्रन्थ महाभारत ही है। जिसमें एक लाख से कुछ अधिक श्लोक हैं। यह भारत के सांस्कृतिक विषयों का विराट् कोश तथा आचार संहिता है।

महाभारत के सूक्ष्म परीक्षण से यह ज्ञात होता है कि यह एक व्यक्ति द्वारा एक काल में की गयी रचना नहीं

है। महाभारत का विकास क्रमशः जय, भारत और महाभारत इस रूप में तीन विविध उद्देश्यों की पूर्ति के लिए पृथक-पृथक अवसरों पर हुआ।

महाभारत का उदय निश्चित रूप से युद्ध का वर्णन करने वाले वीररस पूर्ण-काव्य के रूप में हुआ था। किन्तु कालक्रम से यह भारतवर्ष की वैविध्यपूर्ण संस्कृति के विशाल दर्पण के रूप में परिवर्तित हो गया। आज महाभारत दर्शन के महाकोश के रूप में जाना जाता है। जिसमें वीररस की प्रधानता शान्त रस में परिणत हो गयी। महाभारत के सांस्कृतिक महत्व के अनेक पक्ष विचारणीय हैं। महाभारत को 14 पर्व में विभक्त किया गया है।

भगवद्गीता : यह भीष्मपर्व में श्रीमद्भगवद्गीता प्रारंभ नामक उपपर्व के रूप में 26 अध्यायों का ग्रन्थ है जो अपने आप में संस्कृत भाषा की सर्वाधिक लोकप्रिय रचना है। संसार की असंख्य भाषाओं में इसके रूपान्तर और विवेचन हुए हैं। इसे सभी उपनिषदों का सार कहा गया है। महाभारत युद्ध के आरम्भ में पाण्डव सेनापति अर्जुन को विषाद उत्पन्न होता है, उसे उत्साहित करने के लिए भगवान् कृष्ण कर्मयोग का उपदेश देते हैं। उपदेशों की शृंखला इस प्रकार चलती है कि जीवन की सभी समस्याओं पर प्रकाश डालते हुए आध्यात्मिक जीवन का उत्कर्ष दिखाया गया है, जिसमें कर्म, ज्ञान और भक्ति तीनों का समन्वय होता है। ये तीनों मोक्षमार्ग परस्पर विरोधी नहीं हैं अपितु परस्पर पूरक हैं। इसलिए इन्हें 'योग' कहा गया है। जहाँ दृष्टि की समता और कर्म में कुशलता रहती है समत्व योग उच्यते, "योगः कर्मसु कौशलम्। गीता में उन सभी संप्रदायों का संकलन या सामन्जस्य दिखाया गया है जो पवित्रता तथा दर्शन की उँचाई के कारण उपनिषदों की कोटि में आ चुके थे।

पुराण : पुराण शब्द प्राचीन धर्मिक साहित्य के अर्थ में वैदिक युग से ही प्रचलित है। यह एक विकासशील साहित्य है। वैदिक युग के अनन्तर ही पुराण-विध का आरम्भ हुआ तथा कालक्रम से इसमें विविध सामग्री जुड़ती गयी। व्यास ने आरम्भ में इस ज्ञान को क्रमबद्ध किया। उन्होंने अपने शिष्य लोमहर्षण को यह ज्ञान दिया।

पुराणों के राजवंश— वर्णनों में 600 ई.पू. तक के राजाओं का ही निरूपण हुआ है। इतिहास तथा पुराण का प्राचीन साहित्य में समान स्तर पर रखा गया है। वैदिक साहित्य के अतिरिक्त महाभारत में भी कहा गया है : “इतिहासपुराणाभ्यां वेदार्थमनुपबृध्येत।”

पुराण को 18 भागों में विभक्त किया गया है।

ब्रह्मपुराण पद्मपुराण, विष्णुपुराण, वायुपुराण भगवतपुराण नारदपुराण मार्कण्डेयपुराण अग्निपुराण भविष्यपुराण ब्रह्मवैवर्तपुराण लिङ्गपुराण वराहपुराण स्कन्दपुराण वामनपुराण कूर्मपुराण मत्स्यपुराण गरुडपुराण ब्रह्माण्डपुराण।

लौकिक संस्कृत साहित्य : ‘काव्य’ शब्द संस्कृत भाषा में बहुत प्राचीन है जिसे ‘कवि के कर्म’ के रूप में जाना जाता है— कवेः कर्म काव्यम् (कवि+ण्यत्) यह कवि शब्द ‘क’ अथवा ‘कव’ धतु से बना है जिसका अर्थ है— ध्वनि करना, विवरण देना, चित्रण करना इत्यादि। तदनुसार शब्दों के द्वारा किसी विषय का आकर्षक विवरण देना या चित्रण करना काव्य है। इस साहित्य—विधा का उद्भव वैदिक सूक्तों से ही मिलता है जिनमें देवताओं के वर्णनों का महत्व काव्यात्मक शैली लिए है। रामायण और महाभारत जैसे आर्ष काव्य इस साहित्य—विधा के भास्कर हैं जिन्होंने परवर्ती काव्यों को विषय—वस्तु, वर्णन—विधि तथा भाषा शैली भी दी है।

काव्य के भेद : काव्य के दो भेद होते हैं।

- श्रव्य काव्य
- दृश्य काव्य

श्रव्य काव्य— जिस काव्य का अभिनय नहीं होता है, केवल श्रवण किया जाता है उसे श्रव्य काव्य कहते हैं। इसके अन्तर्गत :

कथा—आख्यायिका, गीति काव्य चम्पूकाव्य, महाकाव्य कालिदास रचित रघुवंशम्, कुमारसंभवम्, अश्वघोष रचित—बुद्धचरितम्, सौन्दरानन्द, भारवि कृत—किरातार्जुनीयम्, माघ कृत—शिशुपालवाधम्, इत्यादि प्रसिद्ध महाकाव्य हैं। कालिदास के दो प्रचलित गीतिकाव्य हैं—ऋतुसंहार तथा मेघदूत।

दृश्य काव्य— जिस काव्य को श्रवण नहीं किया जाता, केवल अभिनय किया जाता है, उसे दृश्य काव्य कहते हैं।

इसके अंतर्गत:—नाटक आते हैं।

अभिज्ञानशाकुन्तलम् विश्व—साहित्य में विख्यात है इस नाटक में कालिदास ने अपने नाट्य—कौशल का प्रकर्ष दिखाया है। एक सामान्य कथानक को परिवर्तित करके कवि ने नाटकीय रूप प्रदान कर विश्व प्रसिद्ध बनाया है। स्वप्नवासवदत्त— भास के रूपको को संस्कृत भाषा के प्राचीनतम उपलब्ध रूपक की श्रेणी में रखा गया है। इसमें नाट्यकला— विकास के प्रारम्भिक रूप प्राप्त होते हैं।

मृच्छकटिक सामाजिक रूपक के रचयिता के रूप में शूद्रक संस्कृत जगत में विख्यात है मुद्राराक्षस— ‘विशाखदत्त’ कृत प्रसिद्ध राजनीति से प्रेरित नाटक है। रत्नावली यह रत्नावली रूपक हर्षवर्धन द्वारा रचित है। वेणीसंहार— इस नाटक के रचयिता भट्टनारायण है। यह नाटक इसलिए बहुत अधिक प्रचलित है क्योंकि इनकी कृति महाभारत— युग पर आश्रित वीररस— प्रधान नाटक है। उत्तररामचरित यह भवभूति के रूपको में श्रेष्ठ है, कवित्व तथा नाट्यकौशल दोनों का प्रकर्ष इसमें प्रकट किया गया है। मालतीमाधव भास कृत दूसरा प्रसिद्ध नाटक है। इसके अतिरिक्त संस्कृत साहित्य में नाटक के अन्तर्गत अनेक प्रसिद्ध नाटक आते हैं।

ऐतिहासिक काव्यों का संक्षिप्त परिचय

संसार की प्राचीनतम संस्कृति के धारक भारतवर्ष में आधुनिक दृष्टि पर खरा उतरने वाला एक भी ऐतिहासिक ग्रन्थ नहीं मिलता है, जिसमें तिथियों तथा घटनाओं का विश्वसनीय क्रमबद्ध विवरण हो। भारतवर्ष में इतिहास दृष्टि का रूप कुछ भिन्न रहा है। भारतीय इतिहासकारों ने क्रमिक तिथिक्रमों और घटनाचक्रों को उतना महत्व नहीं दिया है, जितना व्यक्तिगत जीवन के उत्कर्ष, नैतिक आदर्श तथा राष्ट्र के अभ्युदय से सम्बन्ध क्रिया—कलापों को उन्होंने महत्वपूर्ण समझा है।

हमारे प्राचीन ग्रन्थ रामायण महाभारत, पुराण आदि इतिहास है। इतिहास की भारतीय धरणा और पाश्चात्य

धरणा में अंतर स्पष्ट है तथाकथित ऐतिहासिक काव्य जो संस्कृत में मिलते हैं वे भारतीय धरणा के इतिहास को ही प्रस्तुत करते हैं।

ऐतिहासिक काव्य का उद्गम—अश्वघोषः—

ऐतिहासिक काव्यों का आरंभ वस्तुतः अश्वघोष से होता है, जिन्होंने गौतमबुद्ध के जीवन—चरित पर बुद्ध चरति नामक महाकाव्य 27 सर्गों में लिखा है। महाकवि बाणभट्ट ने हर्षचरित के रूप में 7 उच्छवासों की आख्यायिका (गद्यकाव्य) लिखी जो कई दृष्टियों से महत्वपूर्ण है। इसमें कवि की आत्मकथा हर्ष के पूर्वजों का इतिवृत्त तथा हर्ष के राज्यकाल की आरंभिक विपत्तियों का वर्णन है। पद्मगुप्तकृत नवसाहस्राष्ट्रचरित—बिल्हण का विक्रमाष्ट्रदेवचरित, कल्हण की राजतरङ्गिणी इत्यदि संस्कृत के कुछ प्रसिद्ध ऐतिहासिक काव्य हैं।

अन्य ऐतिहासिक काव्य

20 वी शताब्दी के पूर्वार्द्ध में जल्हण ने 'सोमपाल—विलास' नामक काव्य की रचना की थी। जयानल नामक कवि ने उत्तरी भारत के अन्तिम हिन्दू राजा पृथ्वीराज चौहान के जीवनवृत्ताश्रित 'पृथ्वीराजविजय' महाकाव्य लिखा इसकी शैली महाकाव्य की शैली के समान है।

शिवराजविजय ऐतिहासिककाव्य—शिवराजविजय की कथावस्तु ऐतिहासिक है। इसका कथानक इतिहास प्रसिद्ध महाराष्ट्र शिरोमणि शिवाजी की दस वर्षों की जीवनी पर आधारित है। इसका कथानक मातृभूमि के प्रति प्रेम राजा की प्रजावत्सलता प्रजा की राजभक्ति, धार्मिकता तथा राष्ट्रीय भावनाओं से ओत—प्रोत है। इन नवीन भावनाओं का प्राचीन संस्कृत साहित्य में नितान्त अभाव था। पं. अम्बिकादत्त व्यास ने ऐसे समय में शिवराजविजय लिखकर राष्ट्रीय प्रेम से परिपूर्ण महाराज शिवाजी का पावन आदर्श हमारे सम्मुख रखा था।

साहित्याचार्य पं. अम्बिकादत्त व्यास ने शिवराजविजय नामक गद्य काव्य की रचना की, जो काशी में 1950 ई. प्रकाशित हुआ। शिवराजविजय वीर रस प्रधान काव्य है। तथापि उपकारी रूप में रसों का चित्रण है। इस कृति में प्राचीन गौरव की भी घोषणा की गई है। 'अस्मिनेव' भारतवर्षे यायजूकैः राजसूयादियज्ञाः व्याजिषत। कदाचिदिदैव

वर्षावातातातपहिमसंहानि तथापि अतापिषत बाण के हर्षचरित की भांति शिवराजविजय का कथानक भी हमें समय की गतिविधि से परिचित कराता है।

लेखक का परिचय

आधुनिक संस्कृत—रचनाकारों में सर्वाधिक ख्यातिप्राप्त एवं अलौकिक प्रतिभा सम्पन्न साहित्याचार्य श्री अम्बिकादत्त व्यास ही हैं। व्यास जी का स्थितिकाल 1858—1900 ई. था। पं. अम्बिकादत्त व्यास के पिताजी का नाम दुर्गादत्त था। इनके पूर्वज जयपुर राज्य के निवासी थे। इनके पितामह काशी में आकर बस गये थे। संवत् 1937 में गर्वर्नमेंट संस्कृत कॉलेज से साहित्याचार्य की परीक्षा उत्तीर्ण करके 1940 में एक संस्कृत पाठशाला के प्राधानाचार्य के पद पर कार्य करने लगे। कुछ दिन बाद वहाँ से त्याग पत्र देकर मुजफ्फरपुर चले गये, जिला स्कूल के प्रधानपण्डित के पद पर कार्य करने लगे। व्यास जी अप्रतिम प्रतिभाशाली थे। व्यास जी हिन्दी, संस्कृत, अंग्रेजी और बांग्ला भाषा के ज्ञाता थे। न्याय व्याकरण, वेदान्त और दर्शन में इनकी अच्छी गति थी। कविता कला में इतने प्रवीण थे कि एक घड़ी में सौ श्लोकों की रचना कर सकते थे। सौ प्रश्नों का एक साथ सुनकर उन सभी का उत्तर उसी क्रम में देने की अद्भुत क्षमता थी। इसलिए इन्हें 'शता वधान' तथा 'घटिका शतक' की उपाधि मिली थी।

कथावस्तु — 'शिवराजविजय' का कथानक तीन विरामों में विभक्त है। प्रत्येक विराम में चार निःश्वास हैं। संक्षेप में कथानक इस प्रकार है। दक्षिण में मुसलमानों के अधिपत्य तथा अत्याचारों से खिन्न शिवाजी ने स्वतंत्रता के लिए संघर्ष प्रारंभ किया। उस काल में दो—दो कोस पर आश्रम बने हुए थे। जो मुसलमानों की गतिविधि का परिचय रखते थे। शिवाजी की निरन्तर विजयों से उद्विग्न हो बीजापुर—दरबार ने उनसे युद्ध करने के लिए अफजल ख़ाँ को भेजा। उस समय शिवाजी प्रताप दुर्ग में थे। अफजल ख़ाँ ने भी वही भीमा नदी के तट पर शिविर डाल दिया। बीजापुर के शासक संधि का धोखा करके शिवाजी को जीवित पकड़ना चाहते थे। किन्तु उनकी इस अभिसंधि का शिवाजी को पता लग गया। एक यवन

गुप्तचर बीजापुर दरबार का पत्र ले जा रहा था। मार्ग में उसने एक ब्राह्मण कन्या का अपहरण किया। किन्तु वह कन्या एक आश्रम के अध्यक्ष ब्रह्मचारी गुरु के शिष्यों—गौरसिंह और श्यामसिंह द्वारा बचा ली गई। यवन गुप्तचर गौरसिंह द्वारा मारा गया तथा बीजापुर का गुप्त संदेश उसके वस्त्रों में से गौरसिंह को प्राप्त हुआ।

इस गुप्त संदेश को जानकर शिवाजी ने स्वयं अफजल ख़ाँ को छलने की योजना बनाई। बीजापुर के दरबार से सन्धि प्रस्ताव लेकर भेजे गये, पं. गोपीनाथ द्वारा प्रताप दुर्ग की तलहरी में अफजल ख़ाँ से मिलने का शिवाजी ने प्रबन्ध किया। गौर सिंह भी गायक के वेश में अफजल ख़ाँ के शिविर में जाकर सम्पूर्ण षडयंत्र का भेद निकाल लाया। शिवाजी ने अपनी सेना चारों ओर जंगल में तथा अफजल ख़ाँ के शिविर के आस-पास छिपा दी। प्रातः काल अफजल ख़ाँ शिवाजी से मिलने आया। शिवाजी अपने कपड़ों के अन्दर कवच और हाथों में बाघनख नाम का हथियार पहन कर गये। परस्पर आलिंगन करने पर शिवाजी ने अफजल ख़ाँ के कन्धें और गर्दन को फाड़कर उसे पटक दिया तथा उनकी सेना ने मुसलमानी सेना को मार कर भागा दिया। गौर सिंह द्वारा जिस ब्राह्मण कन्या की रक्षा की गयी थी उसके संरक्षक एक वृद्ध ब्राह्मण थे। उनके आने पर रहस्योद्घाटन हुआ कि वह कन्या गौरसिंह और श्यामसिंह की बहन सौर्वणी है तथा वृद्ध उनके पुरोहित देव शर्मा हैं। तदन्तर ब्रह्मचारी गुरु के अनुरोध पर गौरसिंह ने अपना वृत्तान्त सुनाया। शाइस्ताख़ाँ पूना पर अधिकार करके वही शिवाजी के महलों में रहने लगा था। शिवाजी का उससे युद्ध अनिवार्य हो गया। शिवाजी ने सिंह दुर्ग में अपना एक संदेश रघुवीर सिंह द्वारा तोरण दुर्ग के अध्यक्ष के पास भेजा। एक बार शिवाजी पण्डित के वेश में माल्यश्रीक के साथ शाइस्ता ख़ाँ के निवास पूना जाकर गुप्त रूप से वहाँ का निरीक्षण कर आये और संन्देह करने पर पीछा करने वाला चाँद ख़ाँ, शिवाजी के द्वारा मारा गया। शिवाजी ने यशवन्त सिंह को पूना से दूर रहने के लिए अनुरोध करके कुछ चुने हुए साथियों के साथ बारात के बहाने पूना में प्रवेश किया। शाइस्ता ख़ाँ के निवास पर आक्रमण कर दिया। चाँद ख़ाँ और शाइस्ता ख़ाँ के पुत्र

रघुवीर सिंह द्वारा मारे गये। शाइस्ता ख़ाँ अपनी घायल उँगली के साथ खिड़की से कूदकर बाहर भाग गया। दूसरी ओर इसके पूर्व ही रघुवीर सिंह ने औरंगजेब की पुत्री रोशनआरा को गिरफ्तार कर लिया था। बाद में दरबार में उपस्थित होने के अनन्तर औरंगजेब ने शिवाजी को नजरबन्द करवा दिया और मकान के चारों ओर पहरा बैठा दिया। परन्तु स्वयं की योजना तथा रघुवीर सिंह के सहयोग से शिवाजी अपने साथियों के साथ भाग निकलने में सफल हो गये। बाद में शिवाजी सतारा नगरी को राजधानी बनाकर रहने लगे और धीरे-धीरे कुछ ही दिनों में सम्पूर्ण महाराष्ट्र पर शिवाजी का अधिकार हो गया तथा औरंगजेब द्वारा प्रेषित सेनापति मोहम्मद ख़ाँ भगा दिया गया।

काव्यगत विशेषताएँ

शिवराजविजय की औपन्यासिकता : संस्कृत में व्यास जी से पूर्व उपन्यास का प्रादुर्भाव नहीं हुआ था यद्यपि नाट्यशास्त्र आदि में उपन्यास शब्द का प्रयोग अवश्य मिलता है परन्तु इस अर्थ के लिए उसका प्रयोग नहीं हुआ है—

“वज्रम् पुष्पमुपन्यासः वर्णसंहार इत्यादि ।”¹

‘शिवराजविजय’ को स्वयं व्यास जी ने ऐतिहासिक उपन्यास कहा है क्योंकि ‘उपन्यास’ की पाश्चात्य विधा में यह ढला हुआ है। यह विधा व्यास जी को बंगला उपन्यासों से प्राप्त हुई थी।

भारतेन्दु हरिश्चन्द्र से उनका घनिष्ठ सम्पर्क था। व्यास जी की ‘गद्यकाव्य मीमांसा भाषा’ से यह प्रतीत होता है कि संस्कृत में उपन्यास के अभाव से वे दुखी थे और उसकी पूर्ति हेतु “शिवराजविजय” की रचना में प्रवृत्त हुए। इस प्रकार संस्कृत साहित्य की गद्य परम्परा में शिवराजविजय ने एक नवीन एवं आधुनिक काव्य-विधा का प्रारम्भ किया।

कथानक—कथानक उपन्यास का आधार स्तम्भ है। अन्य तत्व इसी के आश्रित होते हैं। व्यास जी ने अपनी काव्य-रचना के लिए ऐसी कथा का चयन किया जो भारतीय हिन्दू जन के लिए अत्यन्त हृदयग्राही था और

उसके नायक शिवाजी देश, जाति एवं धर्म के उद्धारक के रूप में समाद्यत थे।

देशकाल— प्रत्येक कथानक के पात्रों की क्रियायें तथा संवाद आदि किसी स्थान विशेष तथा देश में घटित होते हैं। काव्य में इन्हें देशकाल कहा जाता है। ऐतिहासिक उपन्यासों में देशकाल की अपेक्षा तद्युगीन सांस्कृतिक एवं सामाजिक पृष्ठभूमि के चित्रण का महत्व अधिक होता है। व्यास जी ने इस बात का पूरी तरह से ध्यान रखा है।

पात्र—काव्यों में दो प्रकार के पात्रों की योजना उपलब्ध होती है। प्रति निधिपात्र, व्यक्तित्व प्रधान पात्र।

व्यास जी के सभी पात्र प्रायः प्रतिनिधि पात्र के रूप में चित्रित किये गये हैं। शिवाजी एवं उनके सभी साथी देश—प्रेम, जाति—प्रेम एवं धर्म—प्रेम से युक्त हैं। वे सभी एक प्रकार की भावना वाले वर्ग का प्रतिनिधित्व करते हैं।

रचना—शैली— व्यास जी ने शिवराजविजय में गद्य की प्राचीन परम्पराओं का पालन करते हुए उसकी अतिशयता से बचने की चेष्टा की है। वैदर्भी रीति का आश्रय लेते हुए अधिक समासों से उपन्यास को क्लिष्ट नहीं बनाया है। अलंकारों का भी प्रयोग उचित मात्रा में करके उससे काव्य को बोझिल नहीं बनाया है।

संवाद—प्राचीन गद्यकाव्यों में अथवा सम्पूर्ण श्रव्य काव्य में संवाद—योजना का कोई महत्व नहीं था। काव्यशास्त्रियों ने भी संवाद को काव्य के आवश्यक तत्व के रूप में स्वीकार नहीं किया है। परन्तु आधुनिक युग में उपन्यास आदि में संवादों का विशेष महत्व स्वीकार किया गया है। हडसन के अनुसार संवाद उपन्यास के सर्वाधिक आनन्ददायी तत्वों में से एक है।

व्यास जी ने शिवराजविजय में नाटकीय एवं प्रभावशाली संवादों की योजना करके संस्कृत गद्यकाव्य के लिए एक नई दिशा प्रदान की।

उद्देश्य— संस्कृत काव्य—शास्त्र के अनुसार काव्य के ये उद्देश्य माने गये हैं— “यशः प्राप्ति, धन प्राप्ति, व्यवहार ज्ञान, दुख विनाश, आनन्द प्राप्ति तथा उपदेश”। प्रायः इन्हीं उद्देश्यों के लिए काव्यों की रचना की जाती थी। काव्य—रचना उद्देश्य की दृष्टि से भी व्यास जी के

शिवराजविजय में कुछ नवीनता दृष्टिगोचर होती है। उन्होंने परम्परागत प्रयोजनों को रखते हुए भी देश, जाति और धर्म के गौरव की प्रतिष्ठा और इससे जनमानस को आप्लावित करना अपना मुख्य लक्ष्य निर्धारित किया।

व्यास जी का दूसरा उद्देश्य यह रहा कि संस्कृत साहित्य में नवीन, मनोरम तथा चमत्कार पूर्ण मार्गों का आगाज़ किया जाय। व्यास जी अपनी सशक्त लेखनी से शिवराजविजय उपन्यास विधा को स्त्रावित करके अपने उद्देश्यों में पूर्ण सफल हुए हैं।

कथावस्तु—संघटन

इस महामहिम ग्रन्थ ‘शिवराजविजय’ की कथावस्तु में पाश्चात्य एवं पौरस्त्य शिल्प का समन्वय किया है। शिवराजविजय में दो स्वतंत्र काव्यधारायें एक दूसरे के समानान्तर चलती हैं, अम्बिकादत्त व्यास ने अपने ग्रन्थ में कल्पना तथा इतिहास, आदर्श तथा यथार्थ दोनों का उचित तथा सुन्दर निर्वाह किया है।

भाषा शैली— भाषा की दृष्टि से शिवराजविजय अत्यन्त आकर्षक कृति है। इसमें संस्कृत भाषा का वास्तविक रूप प्रस्फुटित हुआ है। मधुर पद विन्यास से तथा क्लिष्टता और कृत्रिमता के सर्वथा अभाव से शिवराजविजय स्वाभाविक तथा सहज सुन्दर है, सर्वत्र सरल तथा प्रसादयुक्त है। शिवराजविजय में ओज, प्रसाद एवं माधुर्य— इन तीनों गुणों का समुचित समन्वय हुआ है।

वर्णन कौशल—व्यास जी वर्णनों का सेतु बाँधकर कथा की स्वाभाविक धारा को रोक देने के पक्षपाती नहीं है अतः उनकी वर्णन शैली बड़ी ही अद्भुत है, शान्त गौरव से ओत—प्रोत एवं आकर्षक है। व्यास जी का सम्पूर्ण ग्रन्थ प्रौढ़ एवं उदात्त वर्णन—शैली का उत्कृष्ट उदाहरण है। कदली दल कुन्जायितस्य एतत्कुटीरस्य समन्तात् पुष्पवाटिका, पूर्वतः परमपवित्रपानीयं, (परस्सहस्त्रपुण्डरीक पटप परिलसितं, पतत्रि—कूलकूजित पूजितं), पयः पूरितं सर आसीत् ”।

संवाद—योजना

सर्वत्र सजीव, रोचक एवं स्वाभाविक तथा सरल भाषा में संवाद—विधान औपन्यासिक कथानक का प्राण हुआ

करता है। शिवराजविजय में संवादों की हृदयग्राहिता का यही रहस्य है। इसमें संवादों के अनावश्यक विस्तार का सर्वथा परित्याग किया गया है। संवादों में भाषा इतनी चुस्त तथा मुहावरेदार है कि वह विषय को अत्यन्त आकर्षक बना देती है।

यथा—

दौवारिकः — आम् ! अग्रे कथ्यताम् ।

संन्यासी — वयं च संन्यासिनो वनेषु
गिरिकन्दरेषु च विचरामः ।

दौवारिकः — स्यादेवम् ! अग्रे अग्रे! इत्यादि

अलंकार—योजन

पं. अम्बिकादत्त व्यास ने शिवराजविजय में अलंकारों का प्रयोग एक कलाकार की भाँति किया है। स्थान—स्थान पर अलंकारों की छटा के दर्शन होते हैं किन्तु अलंकारों का प्रयोग सर्वथा स्वाभाविक रूप में हुआ है।

अनुप्रास अलंकार का उदाहरण

“मुने! विलक्षणोऽयं भगवान् सकलकलाकलापकलनः सकलकालनःकरालः कालः”। उपमा अलंकार का प्रयोग भी व्यासजी ने बड़े सरल तथा स्वाभाविक ढंग से किया है—“सेयं वर्णेन सुवर्णम्, कलरवेण पुस्कोकिलान्, केशैरोलम्बकदम्बान्, लालटेन कलाधरकलाम्, लोचनाभ्याम् खन्जनान्, अधरेण बन्धुजीवम्, हासेन ज्योत्स्नाम्”। अतः अलङ्कारों के प्रयोग में व्यासजी ने अपनी सूक्ष्म मर्मज्ञता का परिचय दिया है।

रस—योजना—“वाक्यं रसात्मकं काव्यम्” के अनुसार रस ही काव्य की आत्मा है। यह सच है कि रसहीन काव्य नहीं हो सकता है। अतः काव्य में रस—योजना होती ही है। शिवराजविजय का प्रधान रस है ‘वीर’। प्रायः अन्य सभी रस इसमें उपकारी रूप में निहित हैं। उद्देश्य के अनुसार इसमें वीर रस का विशेष चित्रण किया गया है।

सामाजिक चित्रण— पं. अम्बिकादत्त व्यास ने अपने ग्रन्थ शिवराजविजय में तत्कालीन सामाजिक व्यवस्था

का सफल चित्रण किया है। हिन्दू जाति की दयनीय स्थिति, मुसलमानों के अत्याचारों, दमनकारी प्रवृत्तियों आदि का यथार्थ चित्रण हुआ है। अत्याचारों का एक उदाहरण—“अद्य हि वेदा विच्छिद्य वीथीषु विक्षिप्यन्ते, धर्मशास्त्रयुद्ध द्यूयध्वजेषु ध्मायन्ते, पुराणानि पिष्ट्वा पानीयेषु पात्यन्ते, इत्यादि”।

निष्कर्ष

शिवराजविजय का कथानक ऐतिहासिक है। इसमें महाराष्ट्रकेशरी वीर शिवाजी के चरित्र का कुशलतापूर्ण चित्रण है अतः इसे आख्यायिक कहा जा सकता है किन्तु शैली में यह हर्षचरित की अपेक्षा ‘कादम्बरी’ कथा के अधिक समीप है। वैसे लेखक ने इसे महाकाव्य ही कहा है क्योंकि यह गद्यकाव्य के समस्त गुणों से ओतप्रोत है। इसकी भाषा तथा शैली—प्रवाह रोचकता से परिपूर्ण है अतः इसे गद्यकाव्य के साथ—साथ ऐतिहासिक उपन्यास कहना भी समीचीन है।

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سر سید کی بسم اللہ کی تقریب حضرت شاہ غلام علی صاحب کے مبارک ہاتھوں سے عمل میں آئی۔ جیسے جیسے سر سید بڑے ہوئے ان کی تربیت ان کی والدہ کے ہاتھوں بڑی خوش اسلوبی سے انجام پائی۔ ان کی والدہ ایک نیک اور رحم دل خاتون تھیں یہی وجہ ہے کہ سر سید کی ابتدائی تعلیم و تربیت اور نشو و نما میں ان کی والدہ کا بہت اہم رول رہا ہے۔ سر سید کی والدہ کی نیک طبیعت و با اصول خاتون کا اندازہ اس بات سے ہوتا ہے کہ چھوٹی عمر میں سر سید سے گھر کے ایک شریف و غریب غلام کی شان میں کوئی گستاخی سرزد ہو گئی تھی، جس سے ناراض ہو کر ان کی والدہ نے ڈانٹ کر گھر سے نکال دیا تھا اور معصوم سر سید نے محلہ میں اپنی خالہ کے گھر جا کر پناہ لی تھی۔ بعد میں معافی طلبی پر ان کی گھر واپسی ہوئی تھی، غالباً اسی لئے یہ فقرہ مصلح قوم سر سید کی ایام طفلی پر بھی صادق آتا ہے کہ ’صبح کا بھولا شام کو گھر لوٹے تو اسے بھولا نہیں کہتے‘ سید احمد جب سن بلوغ کو پہنچے تو اپنے دور کے بڑے عالموں و دانشوروں سے کسب فیض کیا۔ اپنی ذہانت کی وجہ سے اکیس بائیس برس کے عمر میں ایسٹ انڈیا کمپنی کی ملازمت قبول کی اور بہت جلد ترقی کرتے ہوئے ’صدر الامین‘ کے عہدے تک پہنچے اور اسی ملازمت کے دوران سر سید نے ”آثارا لصناوید“ جیسی اہم و تاریخی دستاویزی کتاب لکھی، جس میں دہلی کی تاریخی عمارتوں اور ان سے متعلق کتبے و اس دور کے حالات کا بخوبی علم ہوتا ہے۔ جب ملازمت کے سلسلے میں ان کا قیام بجنور میں تھا تو اسی اثنا میں ۱۸۵۷ء کا مشہور بغاوت ہند جیسے سنگین واقعات رونما ہوئے جسے عرف عام میں ۱۸۵۷ء کا غدر بھی کہتے ہیں۔ اسی دوران سر سید نے اس ہنگامے کی آنکھوں دیکھی تفصیل کو اپنی دوسری دستاویزی نوعیت کی کتاب ”تاریخ سرکشی بجنور“ میں تفصیل سے رقم کی ہے۔ اس کے علاوہ ’سبب بغاوت ہند‘ لکھ کر انگریز حکمران اور افسران کو یہ باور کرانے کی کوشش کی کہ ۱۸۵۷ء انقلاب غدر نہیں تھا بلکہ ہندوستانی عوام کو آزادی دلانے کے لئے جہد مسلسل کی ایک کڑی تھی جسے انگریز حکمران ’غدر‘ کا نام دیتے تھے۔ اس کے علاوہ سر سید ہندوستانی اقوام کی اتحاد و سالمیت بلخصوص ہندو مسلم اتحاد کے لئے تاعمر کوشاں رہے یہی وجہ ہے کہ ان کا یہ قول بہت مشہور ہے کہ ’ہندوستان ایک دلہن ہے اور ہندو مسلمان اس کی دو آنکھیں ہیں‘۔ بعد ازاں قومی یکجہتی کو فروغ دینے کے لئے ان کا یہ قول بھی سنہرے حروف میں لکھنے کے لائق ہے کہ ’ہندو ہونا یا مسلمان ہونا انسان کا اندرونی خیال یا عقیدہ ہے جس کا بیرونی معاملات اور آپس کے برتاؤ سے کچھ تعلق نہیں‘ دراصل ان کے دونوں بیانات خالص مصلحانہ تھے جو انگریز افسران کی غلط پالیسیوں کے سبب ہندو مسلم کے مابین ایک خلیج پیدا کرنے کی کوشش کے سبب پیدا ہو گئے تھے۔ مذکورہ بیان نے ہندو مسلم کے درمیان پل کا کام کیا۔ شاید اسی لئے علامہ اقبال نے ۱۹۰۵ء میں سر سید کی تربت پر جو صدا سنی تھی ان کو منظوم کلام میں یوں پیش کیا ہے:

وانہ گرنا فرقہ بندی کے لئے اپنی زباں چھپ کے ہے بیٹھا ہوا ہنگامہ محشر یہاں

سرسید کی تحریروں کی یہ اسلوبیاتی خصوصیت تھی کہ وہ آسان الفاظ و بیان کے ذریعہ اپنی نثر کو سجاتے تھے جس کی وجہ سے ان کی عبارت تکلف و تصنع سے پاک تھی۔ شاید یہی وجہ ہے کہ ان کی تحریریں مطالعہ کے دوران قاری کے دلوں پر ویر پائثر کرتی ہیں اور گویا ایسا گماں گزرتا ہے کہ یہ باتیں بھی میرے دل میں ہیں۔ غالباً سرسید کی انہی آسان طرز نگارش و انداز بیان نے اردو نثر کے ارتقاء میں بھی اہم خدمات انجام دی۔ حالانکہ اس سے قبل بھی فورٹ ولیم کالج کے مصنفین و مترجمین کے ذریعے بھی اردو نثر کی خدمات پیش کی جا رہی تھیں لیکن باضابطہ غالب کے خطوط و مکاتیب اور سرسید کی نثر نے اردو زبان و ادب میں سہل پسندی اور آسان اسالیب کو اختیار کر کے انیسویں صدی کی اردو نثر کے ارتقاء میں اضافی خدمات بہم پہنچائی جسے فراموش نہیں کیا جاسکتا ہے۔ سرسید کے علاوہ ان کے معاصرین و رفقاء نے بھی اردو نثر کے فروغ میں اہم خدمات انجام دی ہیں۔

ان کے رفقاء میں محسن الملک، چراغ علی، نواب وقار الملک، حالی، شبلی، ڈپٹی نذیر احمد اور مولوی ذکا اللہ وغیرہ کا نام قابل ذکر ہے۔ یہ فہرست مکمل نہیں ہیں البتہ طوالت کے خوف کے باعث چند مخصوص نام ہی پیش کئے گئے ہیں۔ سرسید کے انہی معاصرین و رفقاء کی شمولیت و شرکت ہی نے علیگڑھ تحریک کا رخ علمی، ادبی و سماجی رجحانات کی جانب مرکوز کیا۔ دراصل یہ تحریک ۱۸۵۷ء کے بعد شروع ہوئی اس کے ذریعہ ہندوستانی عوام میں سماجی، تعلیمی و ادبی بیداری لانے کی جانب ایک مؤثر قدم تھا۔ کیونکہ ۱۸۵۷ء کے بعد انگریز حکمرانوں و افسران معاشی و سماجی طور پر بد حال ہندوستانی عوام کو غلامی کی زنجیروں میں جکڑنا چاہتے تھے۔ سرسید کو انگریزوں کی یہ حکمت عملی ناگوار گذری اور سرسید نے انگریزوں کے اس ناپاک منصوبوں کو بروقت بھانپ لیا اور مسیحا بن کر ابھرے، جس کے تحت علیگڑھ تحریک کا آغاز ہوا اور محمدن اینگلو اور نیشنل کالج کی بنیاد ڈالی اور یہیں سے علیگڑھ تحریک کی باضابطہ شروعات ہوئی اور اس کے بعد مختلف امور کے تحت تہذیب الاخلاق، جیسا مؤثر جریدہ اور سائنٹفک سوسائٹی کا وجود عمل میں آیا جس نے علیگڑھ تحریک کو اعتبار بخشا اور مزید اس میں توانائی آئی۔

سرسید اور سائنٹفک سوسائٹی:

سرسید کی سوچ اور سائنٹفک رجحانات دراصل دونوں لازم و ملزوم ہیں کیونکہ انیسویں صدی کے وسط میں سائنسی نظریات یا سائنٹفک سوچ کا رکھنا بھی کافی اہمیت کا حامل تھا۔ ۱۸۶۲ء میں جب سرسید غازی پور میں ملازم تھے اور اچھے عہدہ پر فائز تھے تو انھوں نے سائنٹفک سوسائٹی کی بنیاد رکھی۔ ۱۸۵۷ء کی تباہی و بربادی کے بعد ملک و عوام پر ایک مصیبت کی گھڑی آن پڑی تھی جس وجہ سے ہندوستانی عوام میں اعتماد بحال کرنے کے لئے ان کی سوچ و نظریات کو ایک مثبت رخ دینا ضروری تھا۔ غالباً اسی لئے سرسید اور ان کے رفقاء نے کرام و معاصرین نے ایک نئی فکر کے تحت عوام کو سائنٹفک سوسائٹی کی جانب راغب کیا تا کہ ان کی زندگی پر اس کے مثبت نتائج پیدا ہوں اور عملی طور پر عافیت محسوس کریں۔ اسی لئے ۱۸۵۷ء کے

بعد کیے بعد دیگر علیگڑھ گزٹ اور مؤثر رسالہ 'تہذیب الاخلاق' سے قوم کو متعارف کرایا تاکہ ہندوستانی عوام کو منفی رجحانات، توہم پرستی اور ذہنی جمود سے باہر نکالا جاسکے۔ شاید اسی لئے سائنٹفک سوسائٹی کا وجود عمل میں آیا اور اس سوسائٹی کے جو اغراض و مقاصد تھے وہ بنیادی طور پر حسب ذیل ہیں۔

(۱) مغربی علوم و فنون اور سائنٹفک نظریات کی کتابیں و رسالے (جو بیشتر انگریزی اور یورپی زبانوں میں تھیں) کا ہندوستانی زبانوں میں ترجمہ کر کے ان کا بحل استعمال:

(۲) ایشیاء کے قدیم و کلاسیکی مصنفوں کی نایاب و نفیس کتابوں کی حصولیابی اور ان کا آسان ہندوستانی زبانوں میں ترجمہ مقصود تھا:

مذکورہ سوسائٹی میں جن کتابوں و جرائد و رسائل میں اہم اور کارآمد باتیں مشترک تھیں انھیں ہندوستانیوں و پڑھے لکھے طبقوں کے لئے آسان زبان میں منتقل کی گئیں تاکہ ہندوستان کی عوام مغربی ممالک کی ترقی یافتہ دوڑ میں شانہ بہ شانہ شامل ہو سکیں اور سماجی، تعلیمی و تہذیبی طور پر ترقی کے مدارج طے کریں۔ شاید اسی لئے اس سوسائٹی کے اجلاس میں پہلی بار یہ باتیں بھی غور و خوض میں رکھی گئیں کہ عورتوں کی تعلیم و تربیت پر بھی توجہ مرکوز کی جائے کیونکہ کسی بھی ترقی یافتہ سماج و ملک کی عورتوں کا تعلیم سے آراستہ ہونا ضروری ہی نہیں بلکہ ناگزیر بھی ہے۔

پیشکش

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HYDROPONICS : A BETTER METHOD OF URBAN FARMING

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Presentation : 17 / 01 / 2020

Supervisor : **Dr. Pushpanjali Khare**

ABSTRACT

Angiosperms are a major division of plant life, which make up the majority of all plants on earth. Plant growth and geographic distribution are greatly affected by the environment. Soil is one of the important medium for plant

growth. In present scenario, flora and fauna of the environment are getting abolish due to increasing population, industrialization, climate change due to pollution and decreasing land area as loss of habitat. Hydroponic system is the latest best technique to grow plants without using the soil. The main objective of this work is to observe the rate of growth of different plants in water as well as in soil. Seeds of four different plants were germinated in different medium (water and soil) to observe growth in different parameters. Result showed that soil less plantation method or hydroponics can be a better option for growing plants in limited space and apartment culture of the society.

Key word : Hydroponics, seed germination, growth.

INTRODUCTION

Soil is usually the most available growing medium for plants. It provides anchorage, nutrients, water etc. for growth of plant. Angiospermic plants are able to grow in a variety of habitats as trees, shrubs, bushes, herbs and small flowering plants. The angiosperms dominate earth's surface and vegetation in more environments, particularly terrestrial habitats, than

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any other group of plants. Plant growth is greatly affected by geographic distribution as well as physiochemical factors which include light, temperature, water, humidity, and nutrition. Temperature influences most plant processes, such as; photosynthesis, transpiration, germination and flowering. Plant nutrition refers to a plants need for the use of basic chemical elements. Plants need micro and macro elements for normal growth. Out of which 3 elements are most important i.e. oxygen, carbon and hydrogen. However, at many times soils do pose serious limitations for plant growth. Presence of disease causing organisms and nematodes, unsuitable soil reaction, unfavorable soil compaction, poor drainage, degradation due to erosion etc. are some of them. This traditional crop growing in soil is difficult as it involves large space, lot of labor and large volume of water. Moreover, some places like cities and metropolitan areas; we find scarcity of fertile cultivable lands due to their unfavorable geographical or topographical conditions. Under such circumstances, soil less culture (Hydroponics) can be used successfully.

In 21st century, there are various methods of growing plants which is the advent of a new age of agriculture. Hydroponics is one of them. It is the practice of growing plants using nutrients, water and a growing medium .The practice of hydroponics has changed through the centuries , with a golden age dawning in the early to mid-1900's, bringing much experimentation and scientific intrigue to the field. Controlled environment can play a vital role in the success of a hydroponic endeavor. Hydroponic is a more eco-friendly, as water in a hydroponic system can be recycled. At its most efficient a hydroponic farm only uses 10 % of the water a normal farm uses. "Hydroponics" term is derived from a Greek word "hydro" means water and "ponos" means labour. It is a method of growing plants using

mineral nutrient solutions, without soil. Hydroponics is the technique of growing plants in soil less condition with their roots immersed in water or nutrient solution. The method of plant production by means of suspending the plant roots in a nutrient rich oxygenated water ,in which plants absorb sufficient oxygen and also able to take up the nutrients from water it all days. This system helps to face the challenges of climate change and also helps in production system management for efficient utilization of natural resources and mitigating malnutrition.

Soil is the rich source of nutrients as it is a mixture of organic matter, minerals, gases, liquids and organism that together supports the growth of plants.Plants growing in soil get the major nutrients from the soil. Soil is the important medium for plant growth.It provides a base which the roots hold on to, as the plant grows bigger. It also provides water and nutrients to the plants for healthy growth. Soil pH, Electrical-conductivity, NPK content are some of the most important aspects which affects the growth of plant. Bihar lies at Indo- Gangetic plain region and most commonly the type of soil is Gangetic alluvium soil. The most convenient type of water for plant is ground water. It is also beneficial for hydroponically grown plant. The PH of the water in Bihar ranged from 6.59 to 7.69 and TDS level is from 174mg/l to 1283.6 mg/l. Chlorine ranged from 2mg/l to 247.9mg/l. Calcium ranged from 44.2 mg/l to 212.6mg/l. Hydroponic technology, a niche method of food production that allows producers to grow plants without soil. A subset of hydro culture, this method uses mineral nutrient solutions to feed plants in water without the need for soil.

Keeping this in view, a study was conducted to observe the comparative effect of soil and soil less culture (Hydroponics) on fenugreek, green gram, wheat and gram seeds. The aim of the study is to observe the growth of fenugreek, green gram,

gram and plant separately in water as well as in soil by measuring the length of root, shoot and number of leaves after every 10 days. Total duration of the experiment is about 30 days.

The main objectives of present study are:
Comparative effect on

- Total Plant height
- Length of root
- Length of shoot
- Number of leaves

Materials and method-

Sample

Seeds of four different plants fenugreek (*Trigonella foenum-graecum*), green gram (*Vigna radiata*), wheat (*Triticum aestivum*) and gram (*Cicer arietinum*) were collected (purchased) from grocery shop, Daldali Road, Patna and brought to Magadh Mahila College, Botany laboratory.

Experimental set up

Materials for hydroponic system: Net bucket, container, tap water

Result-

OBSERVATION OF GROWTH OF FENU GREEK [IN WATER]

Days →	Day 10				Day 20				Day 30			
	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.
Total Height of Plant (In cm)	19	20	19	18.3	22	24	25	23.6	28	29	28.5	28.5
Length of Root (In cm)	15	16	15	15.3	17	18	18	17.6	20	21	20	20.3
Length of Shoot (In cm)	4	5	4	4.3	5	6	7	6	8	8	8.5	8.16
Number of Leaves	3	3	3	3	6	6	6	6	9	9	9	9

Table 1.1 Measurement of Fenugreek in water

Soil based system: pot and alluvial soil

Method

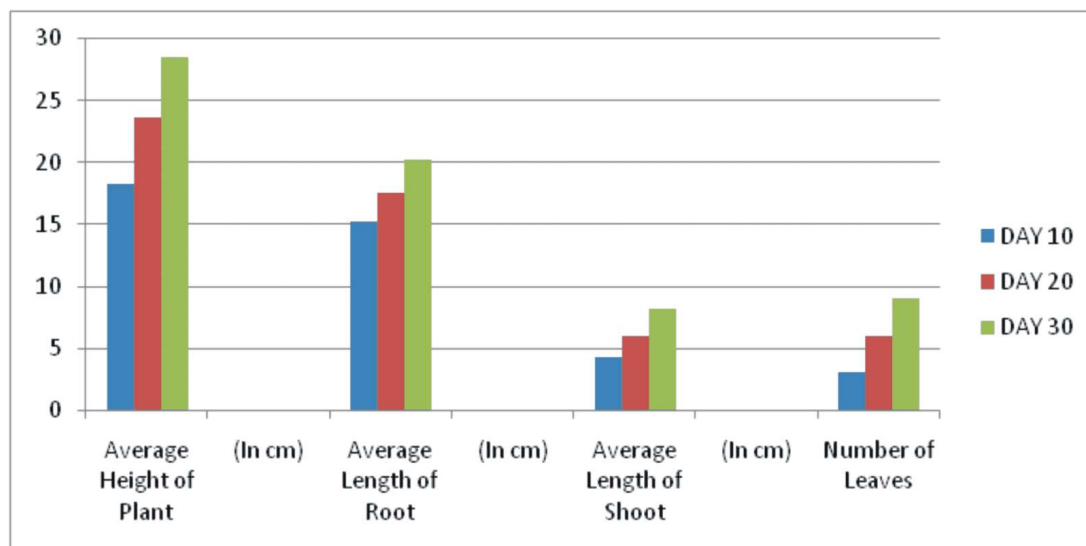
- First of all, seeds of fenugreek, green gram, wheat and gram were soaked.
- After 24 hour of soaking, 10 gm of these seeds transferred in a pot filled with soil. Sprinkled a few drops of water on them(Medium A)
- On the other hand, these soaked seeds were also transferred in a bucket which was placed over a container filled with water using deep water culture method.(Medium B)
- Sowed plant seeds of both medium were kept under sunlight. Sprinkled a few drops of water twice a day.
- Water of container had to be changed after every 2 days.
- Observe the growth of both media plant after 10th day, 20th day and 30th day by measuring the total length of plant, length of root, shoots and number of leaves.

OBSERVATION OF GROWTH OF FENUGREEK [IN SOIL]

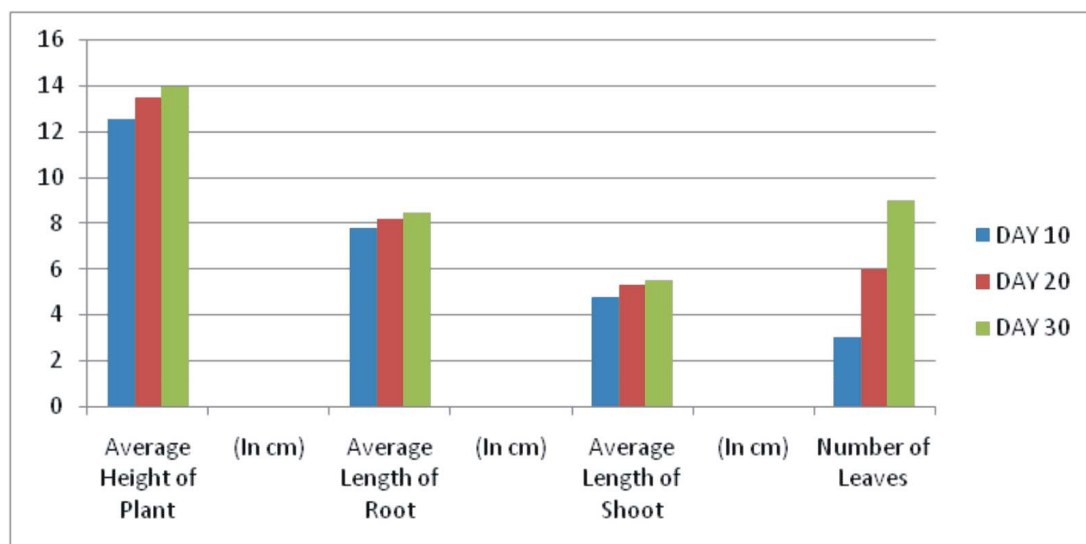
Days →	Day 10				Day 20				Day 30			
	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.	Fenugreek Sample 1	Fenugreek Sample 2	Fenugreek Sample 3	Avg.
Total Height of Plant (In cm)	13	12	13	12.6	13	14	13.5	13.5	13.5	14	14.5	14
Length of Root (In cm)	8	7	8.5	7.8	8	8.5	8	8.2	8.5	8.5	8.5	8.5
Length of Shoot (In cm)	5	5	4.5	4.8	5	5.5	5.5	5.3	5	5.5	6	5.5
Number of Leaves	3	3	3	3	6	6	6	6	9	9	9	9

Table 1.2 Measurement of fenugreek in soil

GRAPHICAL REPRESENTATION OF GROWTH IN FENUGREEK [IN WATER]



GRAPHICAL REPRESENTATION OF GROWTH IN FENUGREEK [IN SOIL]



OBSERVATION OF GROWTH OF GREEN GRAM [IN WATER]

Days →	Day 10				Day 20				Day 30			
	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.
Total Height of Plant (In cm)	18.4	21	21	20.1	29	27.3	26.5	27.6	30	21.5	33.5	28.3
Length of Root (In cm)	7	10	9	8.6	17	15	14	15.3	17	18	20	18.3
Length of Shoot (In cm)	11.4	11	12	11.4	12	12.3	12.5	13	13.5	13.5	13.3	13.2
Number of Leaves	2	2	2	2	5	5	5	5	5-8	5-8	5-8	5-8

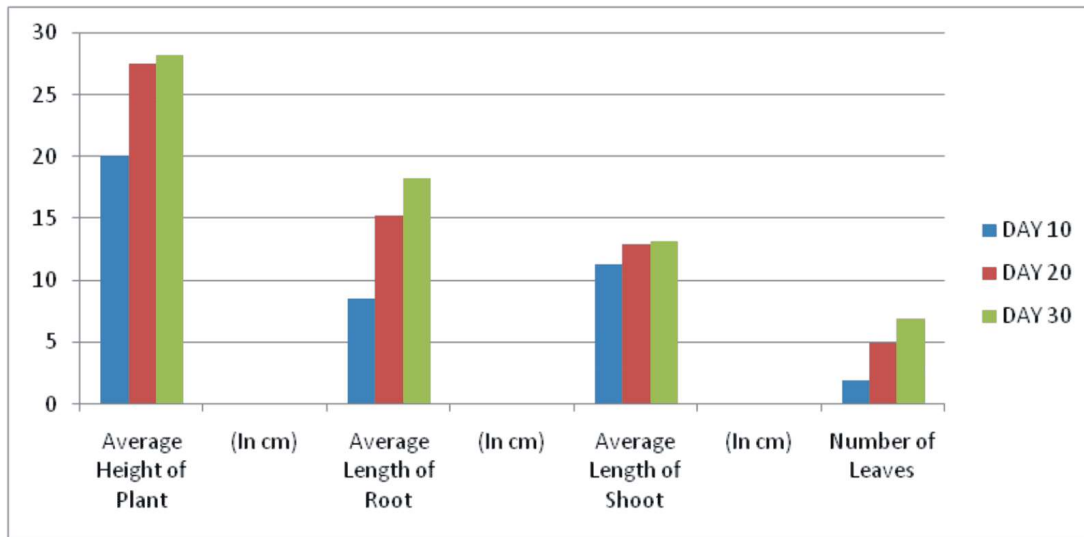
Table 2.1 Measurement of Green Gram in water

OBSERVATION OF GROWTH OF GREEN GRAM [IN SOIL]

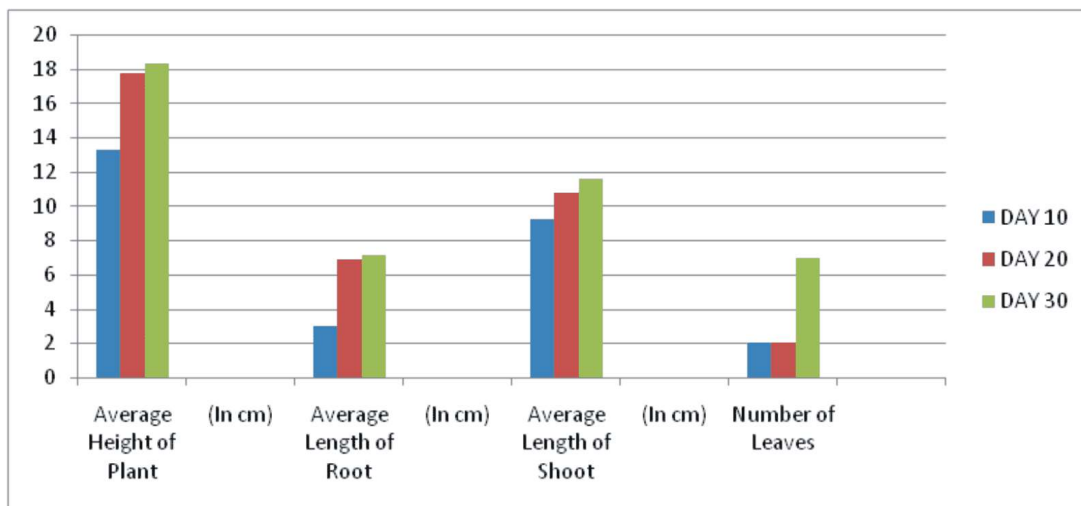
Days →	Day 10				Day 20				Day 30			
	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.	Green Gram Sample 1	Green Gram Sample 2	Green Gram Sample 3	Avg.
Total Height of Plant (In cm)	14	13	13	13.3	17.3	17.7	18.4	17.8	19	18	18.2	18.4
Length of Root (In cm)	5	3	4	3	6	6.8	8	6.9	7	6.2	8.2	7.13
Length of Shoot (In cm)	9	10	9	9.3	11.3	10.9	10.4	10.8	12	11.8	11	11.6
Number of Leaves	2	2	2	2	2	2	2	2	5-7	5-7	5-7	5-7

Table 2.2 Measurement of Green Gram

GRAPHICAL REPRESENTATION OF GROWTH IN GREEN GRAM [IN WATER]



GRAPHICAL REPRESENTATION OF GROWTH IN GREEN GRAM [IN SOIL]



OBSERVATION OF GROWTH IN GRAM [IN WATER]

Days →	Day 10				Day 20				Day 30			
	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.
Total Height of Plant (In cm)	12.5	13.9	15.5	13.9	23.5	26	28	25.8	28.2	29.8	30.5	29.5
Length of Root (In cm)	4	4.9	5	4.8	5.5	4	6	5.3	6.2	6.8	7	6.6
Length of Shoot (In cm)	8.5	9	10	9.1	18	21.5	22	20.5	22	23	23.5	22.8
Number of Leaves	4-5	4-5	4-5	4-5	9	9	9	9	11	11	11	11

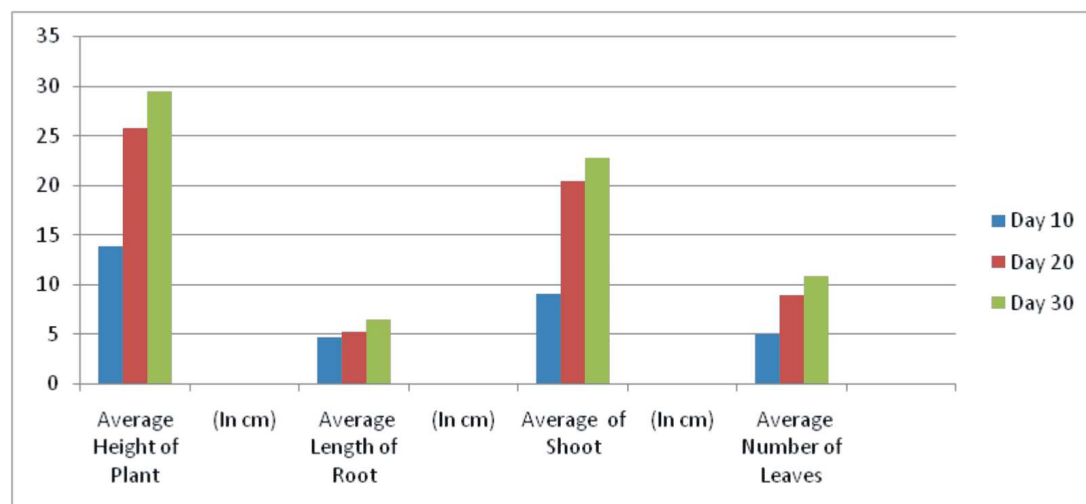
Table 3.1 Measurement of Gram in water

OBSERVATION OF GROWTH IN GRAM [IN SOIL]

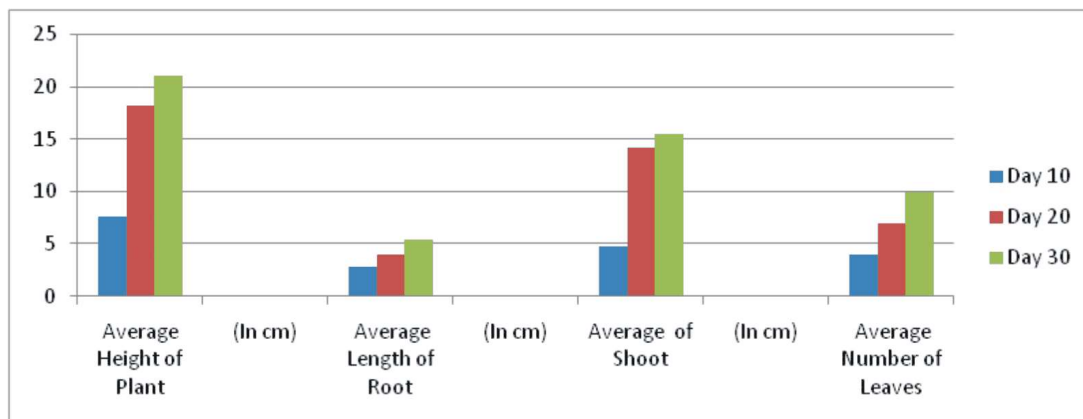
Days →	Day 10				Day 20				Day 30			
	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.	Gram Sample 1	Gram Sample 2	Gram Sample 3	Avg.
Total Height of Plant (In cm)	7	8	8	7.6	17.5	18.5	19	18.3	20.5	20.8	21.8	21.1
Length of Root (In cm)	3	2.5	3	2.8	4	4.5	4	4	5	5.5	6	5.5
Length of Shoot (In cm)	4	5	5.5	4.8	13.5	14	15	14.3	15.5	15.3	15.8	15.5
Number of Leaves	3-4	3-4	3-4	3-4	7-8	7-8	7-8	7-8	10	10	10	10

Table 3.2 Measurement of Gram

GRAPHICAL REPRESENTATION OF GROWTH IN GRAM [IN WATER]



GRAPHICAL REPRESENTATION OF GROWTH IN GRAM [IN SOIL]



OBSERVATION OF GROWTH IN WHEAT [IN WATER]

Days →	Day 10				Day 20				Day 30			
	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.
Total Height of Plant (ln cm)	7.5	8.2	7.6	7.7	12.1	13	12.4	12.4	23	20.4	21	21.4
Length of Root (ln cm)	4.9	5.1	4.7	4.9	7.5	8.2	7.9	7.8	16	13.5	14.2	14.5
Length of Shoot (ln cm)	2.6	3.1	2.9	2.8	4.6	4.8	4.5	4.6	7	6.9	6.8	6.9
Number of Leaves	2	2	2	2	3	3	3	3	5	5	5	5

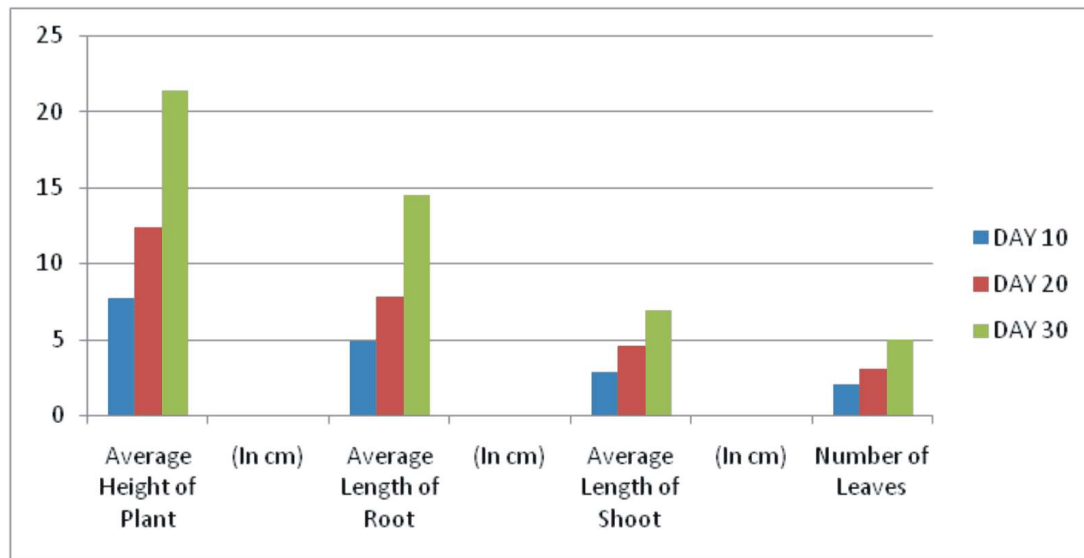
Table 4.1 Measurement of wheat in water

OBSERVATION OF GROWTH IN WHEAT (IN SOIL)

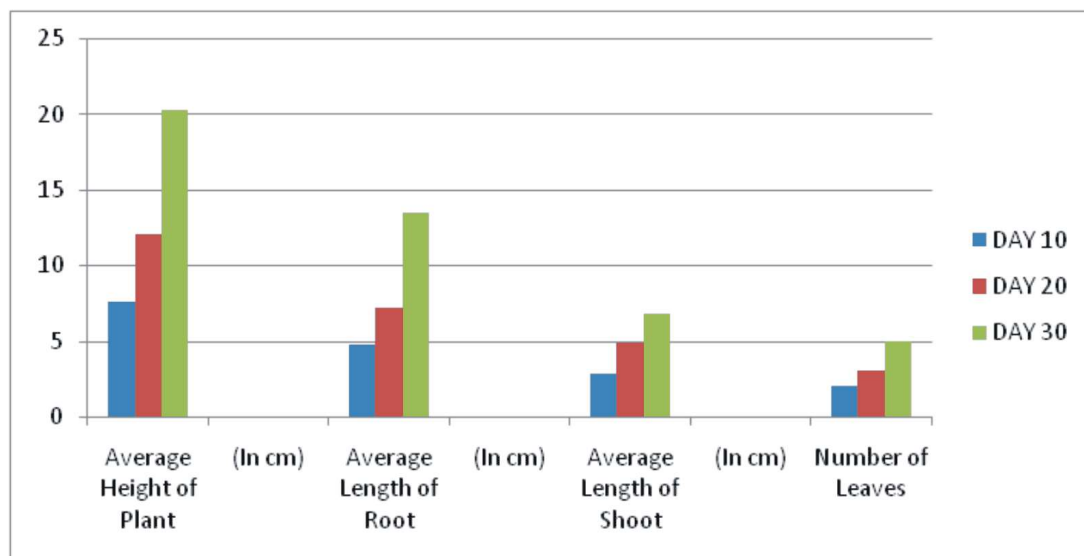
Days →	Day 10				Day 20				Day 30			
	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.	Wheat Sample 1	Wheat Sample 2	Wheat Sample 3	Avg.
Total Height of Plant (ln cm)	7.8	7.4	7.7	7.6	12.9	11.1	12.6	12.1	20.4	21.9	18.8	20.3
Length of Root (ln cm)	5.3	4.5	4.7	4.8	7.8	6.3	7.6	7.2	13.6	14.8	12.1	13.5
Length of Shoot (ln cm)	2.5	2.9	3	2.8	5.1	4.8	5	4.9	6.8	7.1	6.7	6.8
Number of Leaves	2	2	2	2	3	3	3	3	5	5	5	5

Table 4.2 Measurement of wheat in soil

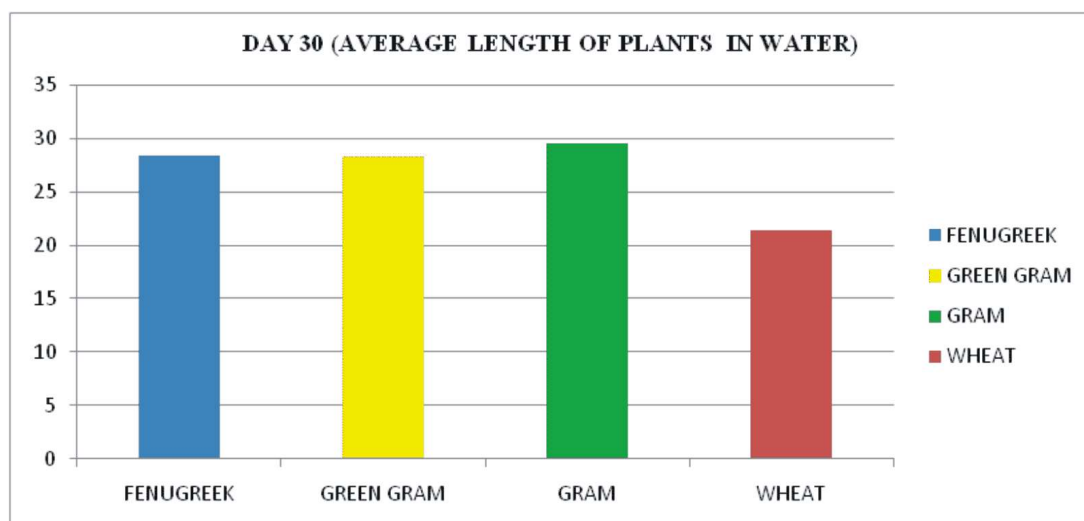
GRAPHICAL REPRESENTATION OF GROWTH IN WHEAT [IN WATER]

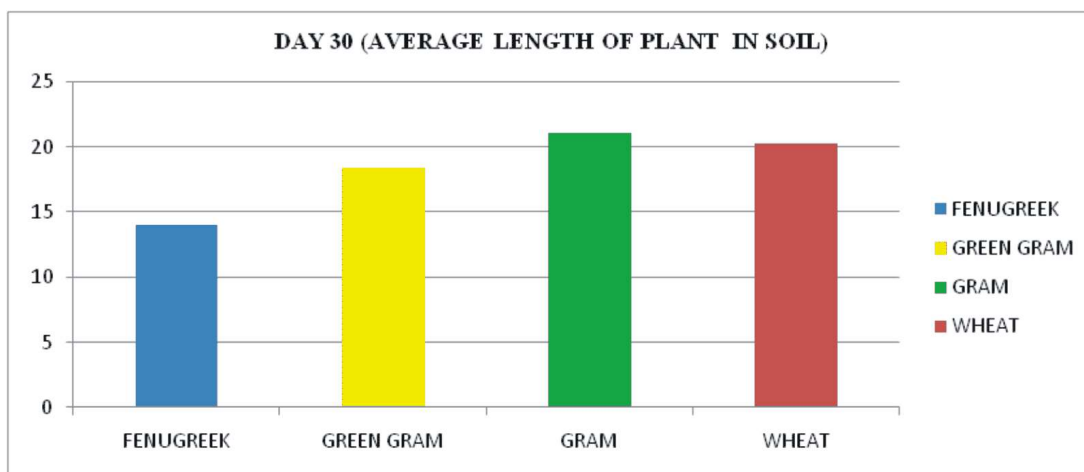


GRAPHICAL REPRESENTATION OF GROWTH IN WHEAT [IN SOIL]



GRAPHICAL REPRESENTATION OF AVG. LENGTH OF PLANTS





DISCUSSION

ABOUT FENU GREEK (*Trigonella foenum-graecum*) :

- After soaking the seed, seeds were transferred in both medium, in water as well as in soil. Next day small roots were observed in both medium.
 - Third day, length of roots were increased and on fifth day two small leaves were observed on both medium.
 - After 10 days, the length of roots, shoots and number of leaves were measured through cm scale. Total length of plant in hydroponic medium was greater (18.3cm) THAN soil(12.6cm) that means growth of plant in hydroponic medium was faster than that of soil medium.(Table- 1.1 and 1.2)
- Lengths of roots were greater in hydroponics in comparison to that of soil. There was a minor differences in shoot length while number of leaves were same in both media plant (no of leaves = 2 (Table- 1.1 and 1.2)
- The major differences between both media plant in case of fenugreek was root nodules. Root nodules were present in soil while absent in hydroponic.

- After 20 days, more secondary growth of roots in soil was observed as compared to that of hydroponic .Length of roots were more increased in hydroponics.2 dark green leaves,1 light green leaf and 3 new small leaf bud were observed in both media.
- After 30 days, the lengths of roots were more increased in hydroponics than that of soil. 9 leaves were observed in both media. Secondary growth of root was faster in soil than in water.

ABOUT GREEN GRAM (*Vigna radiata*)-

- After soaking, these seeds were transferred in both medium water as well as soil.
- After 12 hours small roots were observed in both medium.
- Second day, in water media minute leaves were observed where as in soil roots were increased. On 5th day ,roots and leaves were clearly observed in both medium.
- After 10 days, the length of roots ,shoots and number of leaves were measured through cm scale .Total length of plant in hydroponics was greater(20.1cm) than in soil(13.3cm) that means growth of plant in hydroponic was faster than that of soil.(Table- 2.1 and 2.2)

Length of roots and shoots were greater in hydroponic in comparison to soil while no of leaves were same in both media plant (Table-2.1 and 2.2)In hydroponically grown plant, roots had root hairs.

- After 20 days, hydroponically grown plant had 5 leaves and roots gave compact net like appearance while in soil 2 leaves and some new leaf bud were observed.
- After 30 days, length of root (18.3cm) and shoot (13.2cm) in water was greater than that of soil(7.13cm)and(11.6cm) respectively .In water, 8 leaves were clearly observed while in soil 5 leaves with 3 new born leaves were observed. Roots of soil grown plant was prominent than that of hydroponically grown plants.

ABOUT GRAM (*Cicer arietinum*)-

- After soaking the seed, these seeds were transferred in both medium water as well as soil. Next day, small roots were observed in both medium.
- On 5th day small leaves were observed in water medium only.
- After 10 days, the length of roots ,shoots and number of leaves were measured through cm scale .Total length of plant in hydroponics was greater(13.9cm) than in soil (7.6cm) that means growth of plant in hydroponic was faster than that of soil.

Secondary growth of roots was observed in hydroponic medium. The length of shoot was double in water as compare to soil. Compound leaves were observed approx 4-5 in water and 3-4 compound leaves in soil were observed.

- After 20 days, more secondary growth of roots was observed in water. Length of shoot (20.5cm) was more in water in

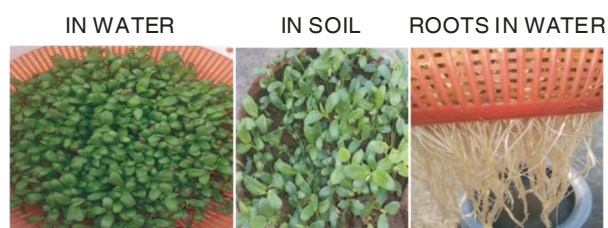
comparison to that of soil(14.3cm). 9-10 compound leaves in water and 7-8 compound leaves in soil were observed.

ABOUT WHEAT (*Triticum aestivum*)-

- After soaking the seeds, the seeds were transferred in both the medium water as well as soil. Next day, roots (radical) were observed in both medium in form of sprouts
- On 3rd day length of roots were increased and they also had root hairs .Stem was also observed (small at tip)
- On 5th day, leaves were observed and found that the length of roots and shoots were increased
- After 10 days, the length of roots, shoots and number of leaves were measured through cm scale .Total length of plant in hydroponics was greater(7.7cm) than in soil(7.6) that means growth of plant in hydroponic was faster than that of soil
- Length of root was greater in hydroponic in comparison to that of soil. There was a very minor difference in the length of shoot, the no of leaves were different in both the medium
- After 20 days root and shoot length was increased but the length of root in hydroponic was greater (7.8cm) in comparison to that of soil(7.2cm). Secondary growth was also observed in both medium. Number of leaves increased and nodes on stem were also increased
- After 30 day , the length of shoot was increased in both medium , length of roots in hydroponic medium was greater (14.5cm) than that of soil(13.5cm), secondary growth of root was faster in soil, no of leaves were same(5) in both medium

PHOTOGRAPH OF FENUGREEK

DAY 10



DAY 20



DAY 30



PHOTOGRAPH OF GREEN GRAM

DAY 10



DAY 20



DAY 30



PHOTOGRAPH OF GRAM

DAY 10



DAY 20



DAY 30



PHOTOGRAPH OF WHEAT

DAY 10



DAY 20



DAY 30



CONCLUSION

- Hydroponics require only 5% of the water normally required in soil growing plants, which has enabled both domestic and commercial growers to cultivate plants in new ways.
- Plants growing hydroponically require 20% less space than plants grown in soil as roots do not have to spread out in search of nutrients and water, these are delivered directly to roots. Due to which roots are compact and grow closer. Thus growers can produce significantly higher yields with less infrastructures.
- The best advantage of hydroponics is that no soil is needed.
- Hydroponics environments provide total control over climate. One can adjust temperature, light intensity and duration and even composition of air, all in accordance with what is necessary for optimal growth. This creates an avenue to grow and produce seasonal veggies regardless of season, meaning farmers can maximize production all year round

and consumers can access products whenever they desire.

- No weeds, pests or disease possibility is present in soil free environment.
- The Hydroponic system is less labor intensive

FUTURE PROSPECTS

As the world population continues to grow, the challenge is to produce more food whilst being more sustainable. To assist with this, more technologies are coming into play. However, such population increase comes hand in hand with the need to produce more food to feed them. Estimates suggest 70% more food will be needed. But with 80% of cultivated land already in use and the rapid urbanization of countries set to continue, the challenge of producing more food in a sustainable way will become ever more pressing.

One solution is Using hydroponic technology to produce plants has a number of benefits when compared with traditional cultivation methods. In hydroponics, the roots of the plant have constant access to an unlimited supply of oxygen, as well as access to water. This is particularly important as a common error when growing food is over or under-watering. Hydroponics eliminates this error margin, as quantities of water, mineral salts, and oxygen are controlled.

Other benefits of hydroponic technology include the ability to better control the plant's nutrition. a visible improvement in quantity and yields, a shortening of the growth interval for many plants, a high propagation success rate , savings on fertilizers , the absence of pesticides and herbicides, and a more efficient use of space. Hydroponics has the potential to sustain a large proportion of the world's population and to allow third world countries to feed their own people, even in places where soil is poor and water is scarce.

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EFFECT OF SOIL STERILIZATION ON GROWTH OF PEA PLANT

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* Sneha Bharti

Presentation : 17 / 01 / 2020

Supervisor : **Dr. Sweta Kumari**

ABSTRACT

The use of vegetable (pea) to assess the influence of edaphic characteristics on the seedling growth performance capacity was recommended according to adaptation ability. The aim of the present study is to investigate the performance

of growth in sterilized and field soil. The main objective of the experiment is to observe the rate of seed germination of Pisum sativum in sterilized and field soil. Soil samples were collected from the college campus of Magadh Mahila College, one portion was sterilized by pressure cooker method and another was sterilized using microwave oven. Pea seeds were taken and planted in sterilized as well as field soil. Plants were observed over a 20 days period. Seedling germination rate and height were measured daily. Result showed that the peas planted in field soil showed the poor growth, less germination, weak and diseased development. The results suggest that sterilizing the soil benefits pea plant growth.

Key word : Soil sterilization, Plant - Soil feedback, Seedling growth.

INTRODUCTION

Soil is an important component of the earth's biosphere. Crops production may be affected by various environmental factors including both biotic and abiotic factors. Relationship between the plants and soil layer affects crop productivity. Soil is one of the most important natural resources and

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a major factor in global food production. There has been an innate interest in soil and land quality since the advent of agriculture. The soil characteristic below the ground is recognised as possible key factor in affecting plant species co-existence and community organization. Inappropriate land use and poor soil management adversely affect the environment and soil productivity.

The composition and dynamics of plant communities strongly depends on plant-soil interactions. To better understand the role of plant-soil interaction, growth of pea plant on sterilized and field soil experiment have been widely applied. The concept of sterilized and field soil effect is based on the idea that plants change properties of the soil in which they grow and such modified soil can in turn influence the growth. Specifically plants can induce changes in soil biotic (e.g. composition of microbial communities) and biotic (e.g. Nutrient content or pH) properties. Several studies have regarded sterilizing soil as one of the key mechanisms affecting species co-existence in natural communities, the course of vegetation succession and spread of invasive species.

Sterilized soils are frequently used in experiment related to soil biology. Soil sterilization is frequently used to eliminate or reduce microbial inoculations, soil enzymes and degradation/sorption/mobility of pesticides and other xenobiotics. And also soil sterilization is known to alter physiochemical characteristics of soil, plant growth and community structure of the newly developed bacterial population.

The leguminosae is one of the largest plant families in plant kingdom *Pisum sativum* (Family-Leguminosae or Papilionaceae) is one of the most important leguminous vegetable crops grown during winter season. The pods of pea contain a great amount of protein and carbohydrates. So that pea is considered as one of the most important

crop for human nutrition. Germination was the initial stage of a plant life cycles and determine where and when a crop can be established. High rate of increase in population density and construction of new structure are affecting distribution of plant species, physical, chemical and biological properties of soil. Interest in the quality of soil and its effect on vegetable has been increased since last couple of decade. Such types of studies on vegetable such as *Pisum sativum* are scanty in the country. Therefore, the present study was carried out with the aim to find out the effects of sterilized and field soil on seedling growth and biomass production of *Pisum sativum*.

Materials and methods

Soil samples from the campus of Magadh Mahila College of garden area were collected in a jute bag. Healthy seeds of *Pisum sativum* were taken from local market. All the above mentioned samples were brought to the Botany lab of Magadh Mahila College, Patna.

Seedling growth experiment:

Sterilization: First of all, the soil samples collected from college campus were divided into two portions.

Sterilization of soil using pressure cooker: Several cups of one portion was taken and again divided into two halves, first half was sterilized by pressure cooker method and second half was sterilized by microwave oven. The other portion of soil was used for planting pea seeds without any sterilization method. Water was poured into the cooker and a rack was inserted into the cooker. Heat proof containers were set on the rack above the water with no more than 4 inches of soil in each container. Each container was covered tightly with aluminium foil. Lid was placed on the pressure cooker; steam valve was leaved open slightly to allow steam to vent until the pressure began to build. The heat source under the pressure cooker was adjusted to build the

steam. When the steam valve closes, the soil was processed at 10 pounds of pressure for 15 to 30 minutes. The heat source was removed and the pressure was allowed to subside completely before removal of the lid. The sterile soil was kept covered with the aluminium foil until it was used.

Sterilization of soil using microwave oven: Lightly moist soil was taken in a microwave safe plastic container. The soil was heated on 180° C in microwave for one and a half minutes. The top of the container was opened. The container was sealed leaving a bit open to allow for ventilation. The soil pasteurization completed as the soil cools. The sterile soil was kept covered or sealed until it was used.

Planting of pea seeds: Seeds of *Pisum sativum* were taken and few seeds were planted in field soil. Similarly few were planted in pressure cooker sterilized soil as well as microwave oven sterilized soil. Plants were observed over a 20 days period. Seedling germination rate and height were measured daily.

Observation

Observation was done at an interval of 5 days over a 20 - day period.

Points of observation were:

- Root length
- Shoot length
- Plant height
- No. of leaves

Readings: Pea seeds grown in field soil.

Day	Root length	Shoot length	Plant height	No. of leaves
Day 1	0	0	0	0
Day 5	2.7 – 2.8	0.1 – 0.2	2.8 – 3.0	0
Day 10	4.0 – 4.4	3.0 – 3.2	7.0 – 7.6	4
Day 15	7.0 – 7.1	5.0 – 5.3	12 – 12.4	6 – 8
Day 20	8.0 – 8.1	9.0 – 9.2	17 – 17.3	8 – 10

* All measurements are taken in centimeters.

Readings: Pea seeds grown in pressure cooker sterilized soil.

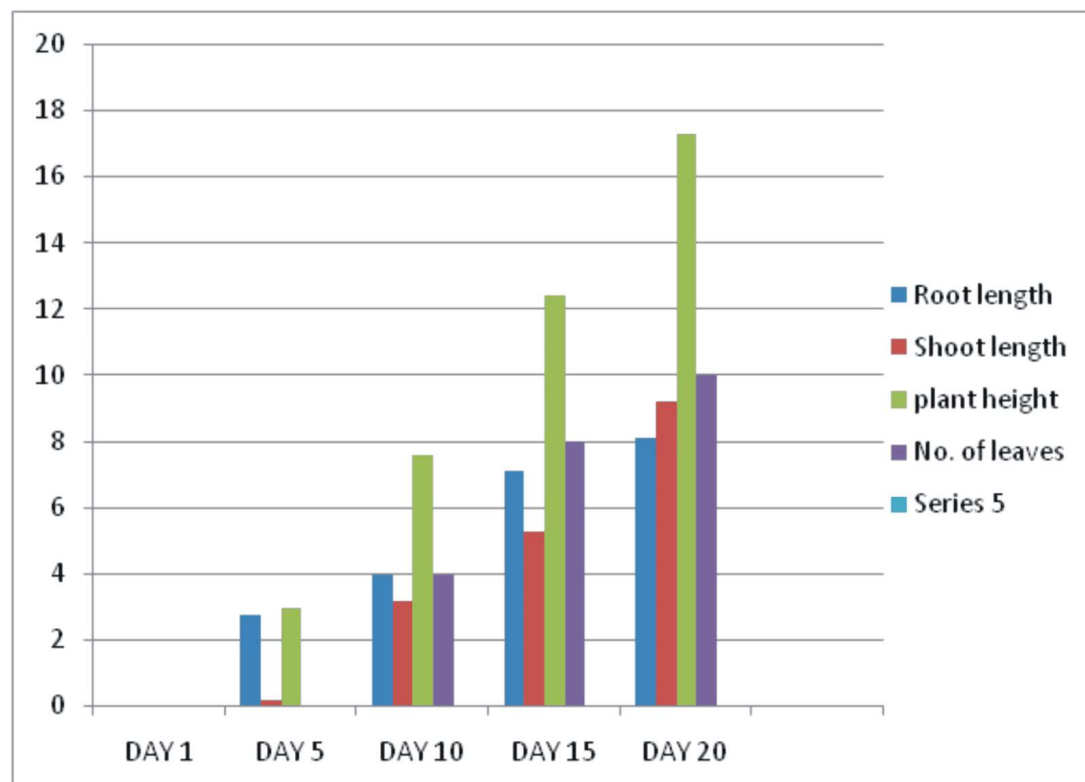
Day	Root length	Shoot length	Plant height	No. of leaves
Day 1	0	0	0	0
Day 5	4.5 – 4.8	0.4 – 0.6	4.9 – 5.4	2
Day 10	5.8 – 6.0	4.0 – 4.5	9.8 – 10.5	6
Day 15	7.0 – 7.1	8.0 – 8.7	15 – 15.8	10 - 12
Day 20	12 – 12.2	12 – 12.3	24 – 24.5	14 - 16

*All measurements are taken in centimeters.

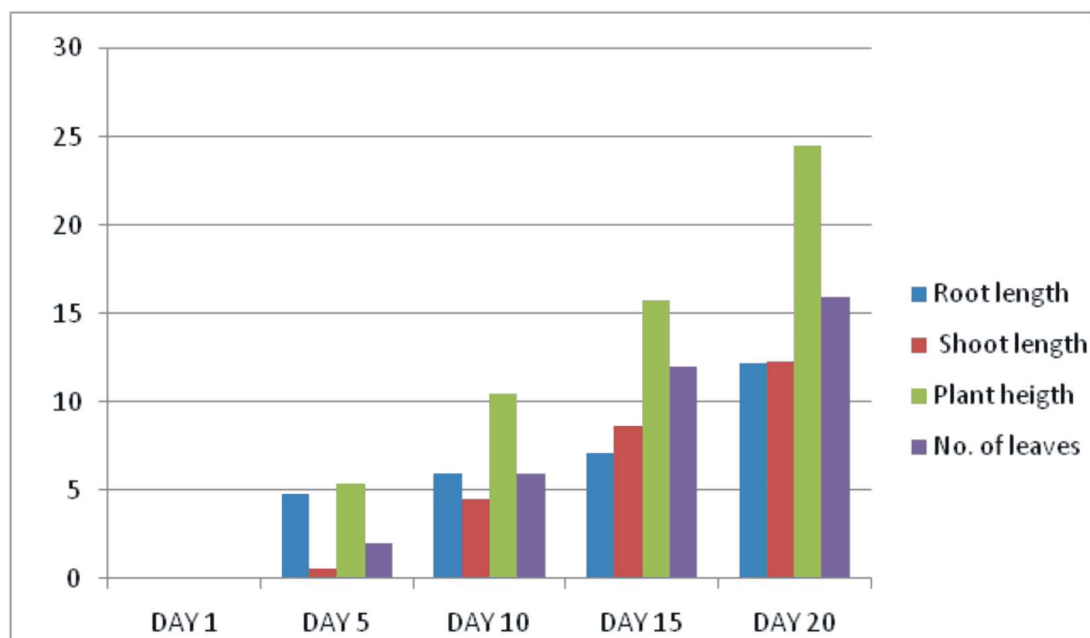
Readings: Pea seeds grown in microwave oven sterilized soil.

Day	Root length	Shoot length	Plant height	No. of leaves
Day 1	0	0	0	0
Day 5	4.2 – 4.4	0.2 – 0.3	4.4 – 4.7	2
Day 10	5.5 – 5.6	3.5 – 3.8	9.0 – 9.4	4– 6
Day 15	6.7 – 6.8	7.0 – 7.2	13.7 – 14.0	8 – 10
Day 20	10.5 – 10.7	10.5 – 10.7	21.0 – 21.4	10 - 12

* All measurements are taken in centimetres.



Pea seeds grown in field soil.



Pea seeds grown in pressure cooker sterilized soil.

Results

Results showed that the plants grown in sterile soil were healthier as compared to plants grown in field soil.

The plants grown in pressure cooker sterile soil showed the better growth.

The pea planted in field soil showed the poorest growth, with the least germination, and very weak development. The results suggest that sterilizing the soil benefits pea plant growth and pressure cooker sterilization method is better than oven sterilization.

Discussion

This study showed that soil sterilization can make a significant difference in pea plant growth. Specifically, pea plants grew best in sterilized soil and worst in field soil. This may be because sterilizing the soil gets rid of harmful soil organisms. These harmful soil organisms can affect the growth of the pea plant.

The death of the soil microorganisms due to sterilization helps to release certain nutrients to the plant, which increases plant growth. Soil

sterilization helps to control disease outbreak in the soil. Soil sterilization leads to a better starting position, quicker growth, and strengthened resistance. Soil sterilization provides relief from soil fatigue through activation of biochemical reactions. Soil treatment affects subsequent pea plant growth and ability to withstand environmental stresses. The use of sterilized soil produces healthier pea plants, saves time and money, and can benefit the environment.

Future prospect:

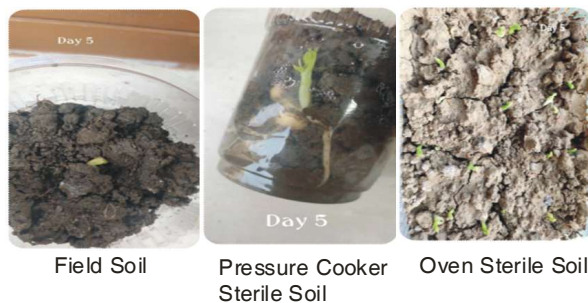
Sterilizing soil will enhance the growth of pea plant and increase productivity, which will be beneficial for our farmers. Along with an increase in production, the product obtained from sterilized soil will be much healthier than the one grown in crude field soil.

Sterilized soil will strengthen resistance ability of pea plant and hence pea plant withstands the stressful environmental conditions. Sterilized soil will lead to quicker growth of pea plant and hence saves a lot of time and money as well.

DAY 1 :



DAY 5 :



DAY 10 :



DAY 15 :



DAY 20 :



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SYNTHESIS OF BIOPLASTIC: A GLOBLE NEED

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Presentation : 17 / 01 / 2020

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ABSTRACT

Bio-plastics can be defined as plastics made of biomass such as corn-starch and agar-agar. These substances have been increasingly spotlighted as means to saving fossil fuels, reducing carbon dioxide emission and plastic waste.

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Biodegradability of bioplastic has been widely published in society and demands of packaging are rapidly increasing among retails and food industry at large scale. The plastic which is available in the market is very dangerous it is non-biodegradable. Therefore, it is the demand of the day; biodegradable plastics should be produced and used. In the present work corn starch and agar were used to synthesize bio plastics and glycerol was used as plasticizer. The plastic formed were found to be completely degradable in 8 days when kept in soil, no pungent smell was observed on burning.

Key word : Bio-plastics, Biodegradability, Plasticizer.

INTRODUCTION

Bioplastics are defined as polymers of biomass mainly carbon-based compounds, which are usually derived from biological sources such as sugar cane, potato starch or the cellulose from trees, straw and cotton. Some bioplastics degrade in the open air, others are made so that they compost in an industrial composting plant, aided by fungi, bacteria and enzymes. Others mimic the robustness and durability of conventional plastics

such as polyethylene. Plastics are so widely used that imagining our lives without it is impossible. Bioplastics that is, plastics derived from plants have the potential to alleviate some of the long-term pollution problems caused by conventionally made plastics. From manufacturing processes that release less global warming related pollution to the ability to biodegrade, bioplastics seem environmentally friendly. However, bioplastics are currently more expensive than standard plastics, and they might not be as eco-friendly as they seem. Most plastics are made through petrochemical processes. In other words, they start out as the chemical by-products of oil refining, which are turned into a variety of plastics through chemical processes that form long molecular chains known as polymers. These polymers give plastics their structure. In this work corn starch and agar were used to synthesise bioplastics and glycerol was used as plasticizer. Five different combinations of these raw materials were taken and plasticizer and then the formed bioplastics was optimised. Then their tensile strength, biodegradability and thermal Properties were compared. The result suggested that bioplastic formed from starch and agar in equal amounts has more tensile strength and was thermally more stable.

OBJECTIVE

The general objective of this project is to synthesis bioplastic from corn starch, agar agar and mixture of agar agar and corn starch can be achieved by introducing an innovative, economically viable and fully biodegradable plastic that eliminates waste completely. Conventional non-degradable polymers after single-use become plastic waste, creating a serious problem of waste management since it is time-consuming and expensive to recycle. This plastic waste is usually

abandoned, incinerated or taken to a landfill. These practices have serious consequences for the environment. Therefore, governments and farmers demand cost-efficient, environmentally responsible solution. to develop optimised parameter and to compare properties of bioplastic with regular plastic.

SYNTHESIS OF BIOPLASTIC

(a) Synthesis of Bioplastic from corn starch:-

Materials required: Corn starch, Acetic acid, Glycerol, Distilled water

Procedure: 5 grams of corn starch was dissolved in 30 ml of distilled water. To this mixture 2.5 ml of acetic acid and 2.5 ml of glycerol was added sequentially and heated on low flame for 10 mins with constant stirring. The mixture was spread onto a large Petri plate and then baked in hot air oven set to 130° C for 90 minutes (Fig 1). Heating time and amount the constituents were optimised accordingly.

(b) Bioplastic from agar: -

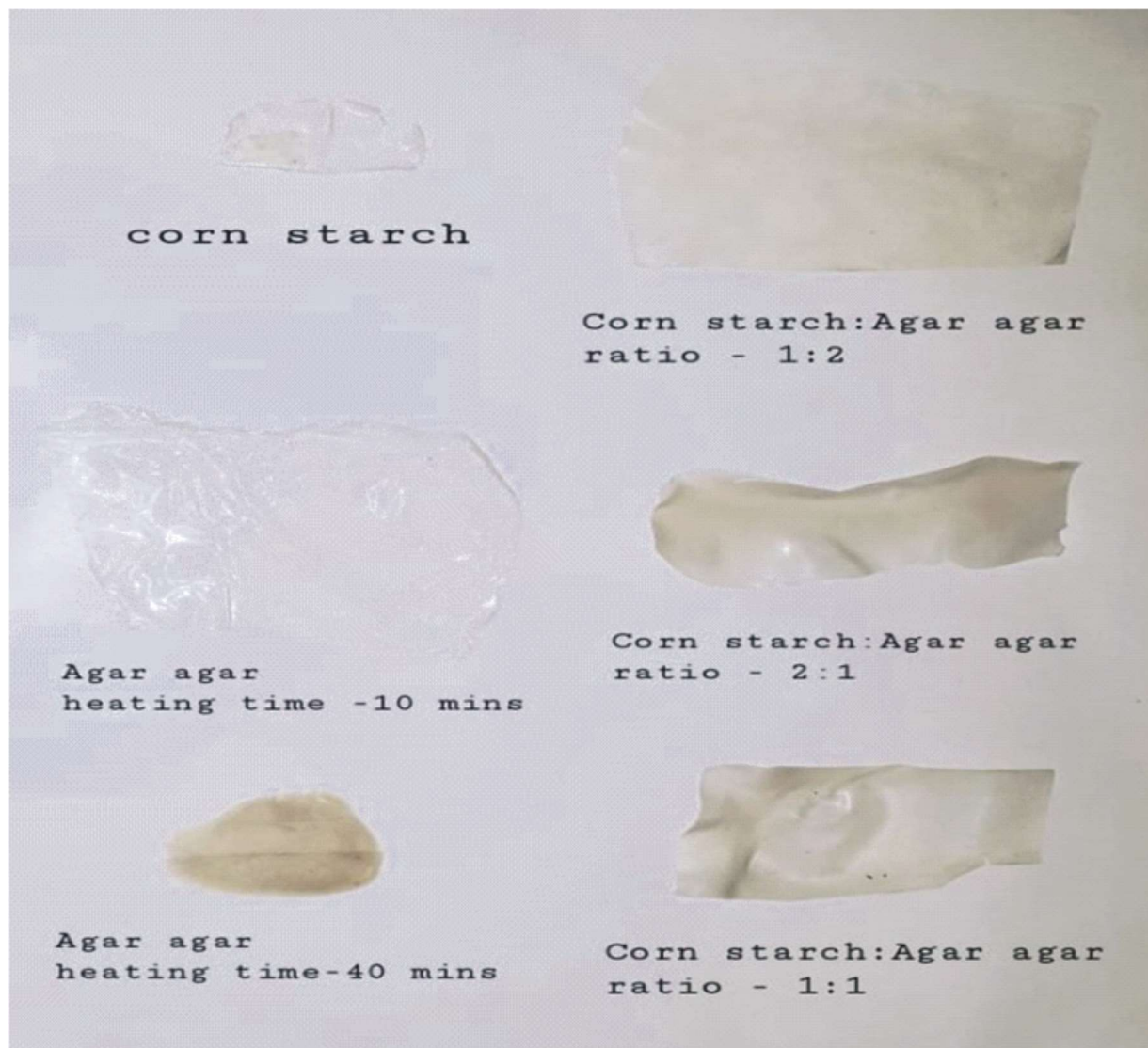
Materials required: Agar, Glycerol, Distilled water

Procedure: -Agar solution was prepared by adding 3g agar in 100ml distilled water and 2ml glycerol was added to it. The mixture was heated on a low flame, poured evenly onto a Petri plate and baked in hot air oven at 130oC. (Fig 1).

(c) Bioplastic from corn starch and agar: -

Materials required: Agar, Corn starch, Acetic acid, Glycerol, Distilled water

Procedure:- corn starch and agar were taken in three different ratios (1:1, 1:2, 2:1) followed by addition of Glycerol and acetic acid (10 ml each), then 50 ml of distilled water was dissolved in the mixture. The mixture was heated on a low flame for 12 mins and intermittent heating was done in hot air oven for 90 mins (Fig 1).



(Fig 1: Various Bioplastics synthesised with varying ratio of constituents)

CHARACTERIZATION

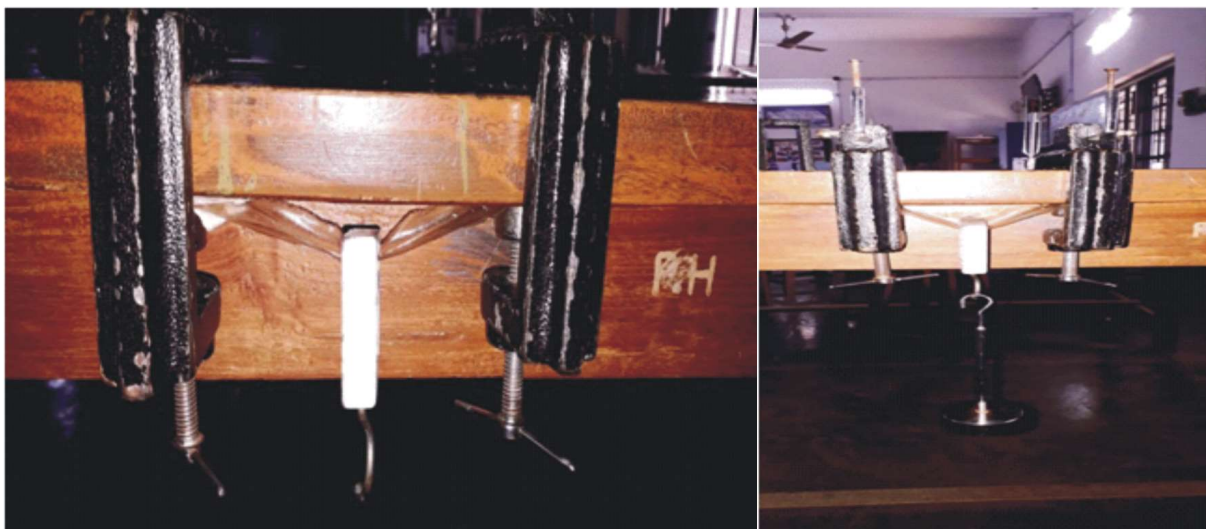
PROPERTIES: -The synthesised bio-plastics were water insoluble, and water was not filtered through it. It did not give fumes or any pungent smell during burning. Some of the properties are given in table 1

Table 1: Properties of various bioplastics synthesised

Properties	Normal use plastics	Agar-agar (10 mins)	Agar-agar (45 mins)	Corn starch	Corn starch-agar-agar (1:1)	Corn starch-agar-agar (1:2)	Corn starch-agar-agar (2:1)
Solubility	Not soluble	Not soluble	Not soluble	Not soluble	Not soluble	Not soluble	Not soluble
Filtration	Not filtered	Not filtered	Not filtered	Not filtered	Not filtered	Not filtered	Not filtered
Heating	Pungent smell	No pungent smell	No pungent smell	No pungent smell	No pungent smell	No pungent smell	No pungent smell
Bio-degradability	Non - biodegradable	Bio-degradable	Bio-degradable	Bio-degradable	Bio-degradable	Bio-degradable	Bio-degradable

STRENGTH TEST: -

For measuring the tensile strength of the polymer ADMET universal testing machine (ASTAM D 882) is required. But due to unavailability of this machine we tried to test the strength by using other technique. The sample is trimmed in rectangular shape whose area is 18 sq.cm. The sample of the material was fixed between two fixtures called "grips" then begin to apply weight to the material as shown in the figure. We keep increasing the weight and applying 250gram of weight the material teared after 20 seconds. Thus, the idea of the strength was estimated (Fig 2).



(Fig 2 Pictorial representation measuring strength)

Degradability test: The synthesised bioplastic was degraded within 7-8 days where as the normal plastic remains in the same state (Fig 3).



Fig 3: degradability test

CHEMICAL COMPOSITIONS:

Agar -Agar consists of a mixture of two polysaccharides: agarose and agaropectin, with agarose making up about 70% of the mixture. Agarose is a linear polymer, made up of repeating units of agarobiose, a disaccharide made up of D-galactose and 3,6-anhydro-L-galactopyranose. Agaropectin is a heterogeneous mixture of smaller molecules that occur in lesser amounts, and is made up of alternating units of D-galactose and L-galactose heavily modified with acidic side-groups, such as sulphate and pyruvate.

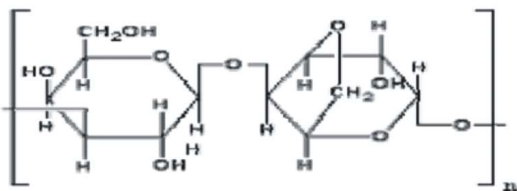
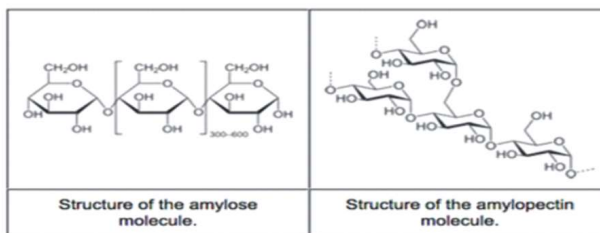


Figure : Structure of Agar and Agarose

Corn starch -Starch is a polymer of glucose sugar molecules strung together into a long chain. If the chain is branched, the starch molecule is called an amylopectin, whereas if it's straight it's called amylose. Each glucose molecule has hydroxide groups that can form weak bonds with water or other starch molecules. That's how starch polymers associate to form small granules that dissolve neither in water nor most other solvents. If you heat water with starch granules, however, the granules gradually fall apart, and the starch polymers mix with the water to form a thick paste.



CONCLUSION

Bioplastics has diverse usages which are fascinating to the extent of becoming eco-friendly tale. All this is good for human growth, both mentally and socially. However, the consequences should not be ignored. The main conclusion from this study is that biodegradation of plastic material strongly depends on both the environment where they are placed and the chemical nature of the material. The correct use of this resource will certainly lead to a process of rapid developments. Bioplastics are an alternative to traditional plastic.

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COMPARISON OF WATER IMPURITY IN VARIOUS SAMPLES BY DETERMINING THE DOSES OF BLEACHING POWDER REQUIRED FOR ITS STERILIZATION

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ABSTRACT

The sterilization technique is used to purify water and make it fit for drinking. Some of the known methods for sterilization are Boiling, Filtration, Bleaching powder treatment, and Solar Water Disinfection etc. Bleaching powder (Calcium hypochlorite), remains the most commonly

used drinking water disinfectant. In the present work four different water samples (laboratory tap water, station tap water, Ganges' water from Krishna Ghat, Ganges' water from Gandhi Ghat) were disinfected using bleaching powder and the amount of bleaching powder required was calculated to compare their impurity. The result obtained showed that the Ganges water is more impure as compared to laboratory and station tap water and furthermore out of the two ghats of Patna, water of Krishna ghat, was having more pathogenic impurity as compared to water from Gandhi ghat, Patna.

Key word : Sterilization, Disinfectant, Bleaching powder

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INTRODUCTION

This project focuses on the technique called Sterilization of Water by using Bleaching Powder, which is used to purify water and make it fit for drinking. Water is an important and essential ingredient in our quest for survival on this planet. With the increasing world population, the demand for drinking water has also increased dramatically and therefore it is very essential to identify

resources of water from which we can use water for drinking purposes. Since many available resources of water do not have it in drinkable form, in order to fulfil the demand of water, it needs to be purified and supplied in an orderly and systematic way. There are many methods for the purification of water. Some of them are Boiling, Filtration, Bleaching powder treatment, SODIS (Solar Water Disinfection) etc. Boiling is perhaps the most commonly used water purification technique in use today. But in Industrial or large scale purification of water the water loss due to evaporation will be quite high and the amount of purified water obtained will be very less. Filtration is also used however it cannot be used for removing foreign chemicals and impurities that are miscible with water. In SODIS or Solar Water Disinfection uses the combination of heat and ultraviolet light which kills the organisms. The major drawback of this purification technique is that it cannot be used in countries with cold weather. Also, the time consumed for Purification process is more and it also needs a 'blackened' surface, much like solar cookers. Therefore we need a purification technique which can be used anytime and anywhere, does not require the use of any third party content and which is also economically feasible on both normal scale and large scale. Hence we look at the method of purification of water using the technique of treatment by bleaching powder commonly known as "Chlorination". In addition to controlling disease-causing organisms, chlorination offers a number of benefits which includes: i) Reduces many disagreeable tastes and odours; ii) Eliminates slime bacteria, moulds and algae that commonly grow in water supply reservoirs, on the walls of water mains and in storage tanks iii) Removes chemical compounds that have unpleasant tastes and hinder disinfection; and iv) Helps remove iron and manganese from raw water.

Only chlorine-based chemicals provide "residual disinfectant" levels that prevent microbial re-growth and help protect treated water throughout the distribution system. However, bleaching powder also reacts with organic matter, naturally present in water, such as decaying leaves. This chemical reaction forms a group of chemicals known as disinfection by-products. Current scientific data shows that the benefits of bleaching our drinking water are much greater than any health risks from THMs (trihalomethanes) and other by-products. However, bleaching powder also reacts with organic matter, naturally present in water, such as decaying leaves.

The benefits of chlorination are:

- Proven reduction of most bacteria and viruses in water
- Residual protection against recontamination
- Ease-of-use and acceptability
- Proven reduction of diarrheal disease incidence
- Scalability and low cost

The drawbacks of chlorination are:

- Relatively low protection against protozoa
- Lower disinfection effectiveness in turbid waters
- Potential taste and odour objections
- Must ensure quality control of solution
- Potential long-term effects of chlorination by-products

Chlorination is most appropriate in areas with a consistent supply chain for hypochlorite solution with relatively lower turbidity water, and in urban, rural, and emergency situations where educational messages can reach users to encourage correct and consistent use of the hypochlorite solution.

Theory

To this day, bleaching powder (Calcium hypochlorite $\text{Ca}(\text{OCl})\text{Cl}$), remains the most commonly used drinking water disinfectant, and the disinfectant for which we have the most scientific information.

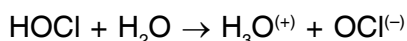
Action of Bleaching Powder as disinfectants:

Chlorine kills pathogens such as bacteria and viruses by breaking the chemical bonds in their molecules. Disinfectants that are used for this purpose consist of chlorine compounds which can exchange atoms with other compounds, such as enzymes in bacteria and other cells. When enzymes come in contact with chlorine, one or more of the hydrogen atoms in the molecule are replaced by chlorine. This causes the entire molecule to change shape or fall apart. When enzymes do not function properly, a cell or bacterium will die.

When chlorine is added to water, it forms hypochloric acid



Depending on the pH value, hypochloric acid partly expires to hypochlorite ions:



This falls apart to chlorine and oxygen atoms:



Hypochloric acid (HOCl which is electrically neutral) and hypochlorite ions (OCl^- , electrically negative) will form free chlorine when bound together. This results in disinfection. Both substances have very distinctive behaviour. Hypochloric acid is more reactive and is a stronger disinfectant than hypochlorite. Hypochloric acid is split into hydrochloric acid (HCl) and an atom of oxygen (O). The oxygen atom is a powerful disinfectant.

OBJECTIVE

Objective of the present work is to determine the concentration of bleaching powder required for disinfection of four water samples (Sample 1: laboratory tap water, Sample 2: station tap water, Sample 3: Ganges' water from Krishna Ghat, Sample 4: Ganges' water from Gandhi Ghat) and then Comparing the impurity of various samples of water.

CHEMICALS REQUIRED

Bleaching powder (5gm), $\text{Na}_2\text{S}_2\text{O}_3$ (6.2gm.), KI (20gm.), KMnO_4 (0.079 gm.), Distilled Water, Glacial acetic acid (20 ml.), Soluble starch - 1gm. Starch Solution, water samples.

PROCEDURE

1) Preparation of 500 ml N/20 $\text{Na}_2\text{S}_2\text{O}_3$ Solution:

6.2 gm of sodium thio-sulphate hydrated was weighed and was mixed in about 100ml of water. The solution was transferred into a measuring flask of 500ml. and then distilled water was added to make the volume up to the mark

2) Preparation of KMnO_4 Solution:

0.079 g of pure KMnO_4 were weighed out on a watch glass. The crystals were transferred into 50 ml measuring flask with the help of a conical flask. The watch glass was washed with distilled water and the washing was transferred into the measuring flask. Distilled water was added to the mixture and was shaken well to dissolve the crystals. After the crystals were dissolved, more distilled water was added to make the volume up to the mark.

3) Preparation of 10% KI Solution:

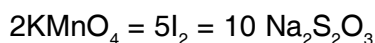
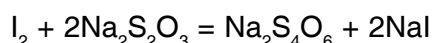
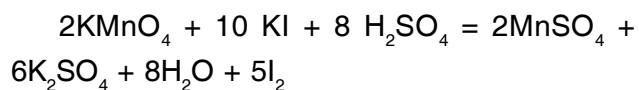
20gm. of KI powder was weighed and mixed in about 100ml of water. Then the mixture was diluted to make the volume 200 ml and solution was transferred in a measuring flask.

4) Preparation of starch Solution:

1gm of soluble starch was taken in a test tube and 10 ml of distilled water was mixed vigorously to it to obtain a paste. The paste was poured in about 100ml. of hot water contained in a beaker with constant stirring. The content was boiled for 4-5min. and then was allowed to cool.

5) Standardization of $\text{Na}_2\text{S}_2\text{O}_3$ Solution with KMnO_4 Solution:

Potassium permanganate is reduced by an acid solution of KI to almost colourless manganous salt and an equivalent amount of iodine is liberated. The iodine is titrated with the approximate (N/20) sodium thiosulphate solution.



Or, 1ml. (N/20) $\text{KMnO}_4 \equiv 1 \text{ ml. (N/20) Na}_2\text{S}_2\text{O}_3$

Titration procedure

1. 10ml. of (N/20) KMnO_4 solution was taken in a clean conical flask.
2. 10ml. of 10% KI solution and 10 ml. of bench H_2SO_4 were added to the flask and mouth of flask was covered with a watch glass.
3. The solution was mixed and kept in a dark place for 5 min.
4. 25 ml. of distilled water was added and was titrated with sodium thiosulphate solution in a burette.
5. The liquid was swirled continuously and sodium thiosulphate solution was added until the colour changes to pale yellow.
6. 2-3 ml. of freshly prepared starch solution indicator was added and the titration was continued until the colour changes from deep blue to colourless.

7. The titration was repeated till a concurrent reading was obtained.

Observation table:

S.N.	Volume of $\text{Na}_2\text{S}_2\text{O}_3$ Solution	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of KMnO_4
		Initial	Final	Difference			
1.	10 ml.	0	10.2	10.	10.4	Starch solution (10%)	(N/20)
2.		10.2	20.6	10.4			
3.		20.6	31.0	10.4			

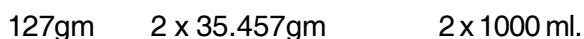
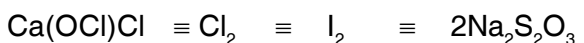
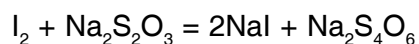
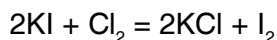
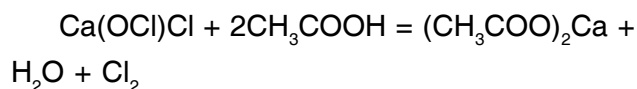
10.4 ml. of $\text{Na}_2\text{S}_2\text{O}_3$ Solution = 10 ml of N/20 KMnO_4 Solution

1 ml of $\text{Na}_2\text{S}_2\text{O}_3$ Solution = (10/10.4) ml of N/20 KMnO_4 Solution
= 0.96 ml. of N/20 KMnO_4 Solution

Strength of $\text{Na}_2\text{S}_2\text{O}_3$ Solution = $N/20$ ($f = 0.96$)

6. Determination of bleaching powder in different samples taken:

Bleaching powder is a mixture of calcium hypochlorite, $\text{Ca}(\text{OCl})_2 \cdot 4\text{H}_2\text{O}$, and the basic chloride, $\text{CaCl}_2 \cdot \text{Ca}(\text{OH})_2 \cdot \text{H}_2\text{O}$, besides some free slaked lime and other impurities. When it is treated with a dilute acid, chlorine is liberated. The amount of liberated chlorine is known as available chlorine in bleaching powder. When a suspended solution of bleaching powder is treated with KI solution in presence of acetic acid, the available chlorine liberates iodine from potassium iodide. The liberated iodine is titrated against standard solution of $\text{Na}_2\text{S}_2\text{O}_3$; starch is used as an indicator. Knowing the volume of $\text{Na}_2\text{S}_2\text{O}_3$ solution, the amount of bleaching powder required can be calculated.



Since, 1000ml. (N) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 63.5g of bleaching powder = 35.457g of bleaching powder

Therefore, 1ml (N) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 0.035457 g of chlorine

Procedure for determining the amount of bleaching powder required for its sterilisation

- i) 1g of bleaching powder was measured on a weighing scale and it was then transferred into a clean mortar. 10ml of distilled water was added to bleaching powder and the mixture was rubbed to make smooth paste. The mixture was allowed to settle and milky liquid was poured off into a 100 ml measuring flask with the help of funnel. The process of adding water, grinding the residue was repeated and the mixture was allowed to settle and milking liquid was poured off into measuring flask until whole of the sample has been transferred to the measuring flask. The paste and mortar was washed and the washings were transferred into the measuring flask. The funnel was removed and more distilled water was added to make the volume up to the mark. It was then shaken well.
- ii) 20ml of the above solution was taken in a conical flask, 10ml of 10% KI and 5ml glacial acetic acid was added to it. The conical flask was covered with watch glass and it was kept in dark for 5 minutes.
- iii) The liberated iodine was titrated with (N/20) sodium thiosulphate solution to a pale-yellow colour. 2ml of freshly prepared starch solution was added and the titration was continued till the blue colour disappeared permanently to colourless. 3-4 concurrent readings was taken.
- iv) The steps from (i) to (iii) were repeated with other samples of water and the observations were recorded.

OBSERVATION**TITRATION: I (FOR DISTILLED WATER)**

SL. NO.	Volume of milky solution taken	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of $\text{Na}_2\text{S}_2\text{O}_3$ used
		Initial	Final	Difference			
1.	20 ml.	0.0	8.9	8.9	8.8	Starch Solution	(N/20)
2.		8.9	17.7	8.8			
3.		17.7	26.5	8.8			

TITRATION: II (SAMPLE I: LABORATORY TAP WATER)

SL. NO.	Volume of milky solution taken	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of $\text{Na}_2\text{S}_2\text{O}_3$ used
		Initial	Final	Difference			
1.	20 ml.	0.0	8.0	8.0	8.0	Starch Solution	(N/20)
2.		8.0	15.9	7.9			
3.		15.9	23.9	8.0			

TITRATION : III (SAMPLE II: STATION TAP WATER)

SL. NO.	Volume of milky solution taken	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of $\text{Na}_2\text{S}_2\text{O}_3$ used
		Initial	Final	Difference			
1.	20 ml.	0.0	7.5	7.5	7.5	Starch Solution	(N/20)
2.		7.5	15.0	7.5			
3.		15.0	21.3	7.3			

TITRATION: IV SAMPLE III: GANGES' WATER (FROM KRISHNA GHAT)

SL. NO.	Volume of milky solution taken	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of $\text{Na}_2\text{S}_2\text{O}_3$ used
		Initial	Final	Difference			
1.	20 ml.	0.0	4.8	4.8	4.8	Starch solution	(N/20)
2.		4.8	9.7	4.9			
3.		9.7	14.5	4.8			

TITRATION: V SAMPE IV: GANGES' WATER (FROM GANDHI GHAT)

SL. NO.	Volume of milky solution taken	Burette Reading (in ml)			Concurrent Reading	Indicator Used	Strength of $\text{Na}_2\text{S}_2\text{O}_3$ used
		Initial	Final	Difference			
1.	20 ml.	0.0	7.1	7.1	6.8	Starch solution	(N/20)
2.		7.1	13.9	6.8			
3.		13.9	20.7	6.8			

CALCULATION

FOR SAMPLE I: LABORATORY TAP WATER

Amount of bleaching powder used to disinfect 100 ml of water sample I = (8.8-8.0) ml of (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 0.8 ml (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution

1 ml. Of bleaching powder solution contains = $1/100\text{gram} = 0.01 \text{ gram}$

20 ml. Of bleaching powder solution contains = 8.8 (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution

So, 1 ml. (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 20/8.8 ml of bleaching powder solution

Volume of bleaching powder solution used to disinfect 100 ml of water = $(0.8 \times 0.96 \times 20)/8.8$ ml. = 1.74 ml

1.74 ml of bleaching powder solution = $(1.74 \times 0.01 \text{ gram}) = 0.0174 \text{ gram}$

Volume of bleaching powder solution used to disinfect 1000 ml of water = $(0.0174 \times 1000)/100 \text{ gram} = 0.174 \text{ gram}$

FOR SAMPLE II: STATION TAP WATER

Amount of bleaching powder used to disinfect 100 ml of water sample II = (8.8-7.5) ml of (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 1.3ml (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ Solution.

1 ml. Of bleaching powder solution contains = $1/100\text{gram} = 0.01 \text{ gram}$

20 ml. Of bleaching powder solution contains = 8.8 (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution

So, 1 ml. (N/20) (f=0.96) $\text{Na}_2\text{S}_2\text{O}_3$ solution = 20/8.8 ml of bleaching powder solution

Volume of bleaching powder solution used to disinfect 100 ml of water = $(1.3 \times 0.96 \times 20)/8.8$ ml. = 2.83 ml

2.83 ml of bleaching powder solution = $(2.83 \times 0.01 \text{ gram}) = 0.0283 \text{ gram}$

Volume of bleaching powder solution used to disinfect 1000 ml of water = $(0.0283 \times 1000)/100$ gram = 0.283 gram

FOR SAMPLE III: GANGES WATER (KRISHNA GHAT)

Amount of bleaching powder used to disinfect 100 ml of water sample III = $(8.8-4.8)$ ml of $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution = 4.0 ml $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ Solution.

1 ml. Of bleaching powder solution contains = $1/100\text{gram} = 0.01 \text{ gram}$

20 ml. Of bleaching powder solution contains = 8.8 $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution

So, 1 ml. $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution = $20/8.8$ ml of bleaching powder solution

Volume of bleaching powder solution used to disinfect 100 ml of water = $(4.0 \times 0.96 \times 20)/8.8$ ml. = 8.72 ml

8.72 ml of bleaching powder solution = $(8.72 \times 0.01 \text{ gram}) = 0.0872 \text{ gram}$

Volume of bleaching powder solution used to disinfect 1000 ml of water = $(0.0872 \times 1000)/100$ gram = 0.872 gram

FOR SAMPLE IV: GANGES' WATER (GANDHI GHAT):

Amount of bleaching powder used to disinfect 100 ml of water sample IV = $(8.8- 6.8)$ ml of $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution = 2.0 ml $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ Solution.

1 ml. Of bleaching powder solution contains = $1/100\text{gram} = 0.01 \text{ gram}$

20 ml. Of bleaching powder solution contains = 8.8 $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution

So, 1 ml. $(N/20)$ $(f=0.96)$ $\text{Na}_2\text{S}_2\text{O}_3$ solution = $20/8.8$ ml of bleaching powder solution

Volume of bleaching powder solution used to disinfect 100 ml of water = $(2.0 \times 0.96 \times 20)/8.8 = 4.36 \text{ ml}$

4.36 ml of bleaching powder solution = $(4.36 \times 0.01 \text{ gram}) = 0.0436 \text{ gram}$

Volume of bleaching powder solution used to disinfect 1000 ml of water = $(0.0436 \times 1000)/100$ gram = 0.436 gram

RESULT

Amount of bleaching powder required to disinfect one litre of the given samples of water:

Samples	Source of water	Amount of bleaching powder required for its sterilization
I	Laboratory tap water	0.174 gram
II	Station tap water	0.283 gram
III	Ganges water from Krishna Ghat	0.872 gram
IV	Ganges water from Gandhi Ghat	0.436 gram

Thus we get the amount of bleaching powder required for disinfection and if it is taken less than this amount water will remain impure and if it taken in excess than this will also be harmful as it will contain chlorine.

The results show that Samples III is the most impure water as the amount of bleaching powder required is maximum and Sample I is least impure than others as the bleaching powder used is minimum. The tables also show a comparison of impurity.

CONCLUSION

From the above results obtained it can be easily concluded that the ganges water of Krishna ghat, Patna Bihar is having more pathogenic impurity as compared to ganges water from

Gandhi ghat, Patna. Furthermore, the water from ganges is more impure as compared to laboratory tap water and station tap water.

Sterilizing through bleaching powder is a convenient method. It leaves no impurities and shows no harmful effect if the bleaching powder is taken in right amount. Using the above procedure we can calculate the amount of bleaching powder required for any sample of water and then take it in large amount if the water is to be disinfected in large scale as in household needs. The only cause of using bleaching powder to disinfect water instead of any other method is that it kills all germs and bacteria due to its chemical action and provides us with a pure sample of water to use for all purposes.





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SOME APPLICATIONS OF DIFFERENTIAL EQUATIONS

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Supervisor : **Dr. Binay Kumar**

ABSTRACT

Differential equation is one of the important branch of mathematics that is used in many applied branches of science. In this paper we are going to discuss the real life application of differential equation in tumor growth and treatment, mixed value problems and signal processing.

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Mathematical modeling is one of the important tools that are used for mathematical interpretation of physical system. In this paper by using mathematical modeling we convert the present system in mathematical form and then by applying appropriate differential equation to solve the system and to interpret it mathematically.

Key word : Differential equation, Modeling, Tumor, Mixed value, Signal processing, fourier Transform.

INTRODUCTION

In Mathematics, the history of differential equation traces the development of "Differential Equations" from calculus, which itself was independently invented by English physicist Isaac Newton and German Mathematician Gottfried Leibnitz. In Circa, 1671, Newton wrote his unpublished work, "The Method Of Fluxions and Infinite series" in which he classified first order differential equation known to him as Fluxional equations into three classes. An example of differential equation is:-

$$\frac{d^2y}{dx^2} = \frac{dy}{dx} - y$$

A differential equation is an expression involving an independent variable and a dependent variable and derivative of dependent variable in which constants may or may not be present. For example in above expression, y is a dependent variable while x is an independent variable.

Types of differential equations:-

Differential equation is primarily classified in to two types:-

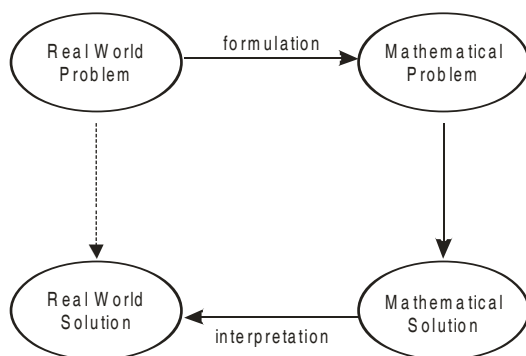
- Ordinary differential equations (ODE)
- Partial differential equations (PDE)

Order and Degree of differential equations:

Order of a differential equation is the order of highest derivative involved in its expression. Degree on the other hand can be defined as degree of the highest order derivative when the equation is made rational or free from radicals.

Mathematical Modelling

Mathematical modelling is a process of representing real-life problems into mathematical problem by constructing an appropriate mathematical model, solving it mathematically by some appropriate techniques and interpreting the results in physical or other form to describe the behaviour of system. A mathematical modelling may be represented as:



Logistic Growth model:-

The number of cancer cells in a tumour is difficult to estimate due to continuous changes in their number with respect to time. This is because

they may proliferate, rest in a quiescent state, or die. Describing the number of tumour cells as a function of time is quite difficult. The number of living cells only changes when cells proliferate or die.

Difference in live cell number over time interval depends on number of cells created and died over time interval.

Their number and how often they proliferate and their number to which they die depends on the considered time difference i.e. dt (where d stands for difference and t stands for time).

Number of live cells of tumor over a time interval = Number of cells created or number of active cells - number of cells died over that time interval

Let us introduce a variable c which represents number of tumor cells. Thus if dt is the time difference, we have:-

$$\frac{dc}{dt} = \alpha c - \beta c \quad (1)$$

$$\frac{dc}{dt} = \lambda c \quad (2)$$

Where $\lambda = \alpha - \beta$

α = Fraction of active cells in time interval dt .

β = Fraction of dying cells over each dt .

A solid tumour initially grow rapidly but growth decelerates as it grow bigger, therefore rate of tumour growth should depend on the size of tumour and not on the λ which is a constant. Hence λ should be a function of c . We, thus introduce a carrying capacity K into consideration assuming tumour would reach a limiting cell numbers if the death or treatment of person didn't intervene.

- When $c < K$ the rate $\frac{dc}{dt} > 0$
- When $c > K$ the rate $\frac{dc}{dt} < 0$

Thus a more general modelling formulae was proposed for above

$$\frac{dc}{dt} = \lambda c \left(1 - \frac{c}{K}\right) \quad (3)$$

Equation (3) is called equation of logistic model proposed first by Belgian Mathematician and Economist Pierre Vurlhurst. It's a non- linear equation whose exact solution can be determined.

Solution :- let $\frac{dc}{dt} = c'(t)$

$$\Rightarrow \frac{c'(t)}{c \left(1 - \frac{c}{K}\right)} = \lambda$$

$$\Rightarrow \int \frac{c'(t)}{c \left(1 - \frac{c}{K}\right)} dt = \lambda t + A$$

$$\Rightarrow \int \frac{1}{c \left(1 - \frac{c}{K}\right)} dc = \lambda t + A$$

$$\Rightarrow \int \left(\frac{1}{c} - \frac{1}{K - c} \right) dt = \lambda t + A$$

$$\Rightarrow \log \frac{c}{K - c} = \lambda t + A$$

$$\Rightarrow c = \frac{K}{1 - B e^{-\lambda t}}$$

$$\Rightarrow c = \frac{K}{1 + D e^{-\lambda t}}$$

Let us suppose c_0 be initial population of cancer causing cells when the time was 0 days / hours through this we can calculate the value of constant B.

Let $K = 40,000$ limit of cells counts in a tissue observed under a tumour. This means 40,000 cells getting infected. The cancer can be considered covering major of that single tissue. we shall take the period of observation for certain number of days. Suppose 40 days which is divided into 8 intervals each of 5 days. Now at

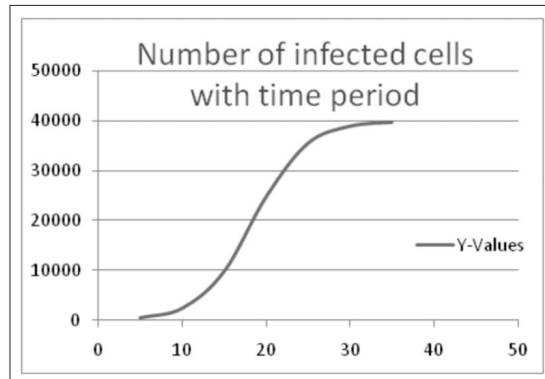
time $t = 0$, 100 cells were found to be infected. Thus, we have,

$$100 = \frac{40000}{1 + D e^{-0 \times \lambda}}$$

$$D = 400 - 1 = 399$$

After using further observations it was observed that after 5 days 500 cells were found to be infected. By the help of this data we calculated rate = 0.3238 . Now after substituting the value of λ and D in equation (4), the Number of cells infected in corresponding period of time is shown below:-

Period in days	Cells infected(approx)
5	500
10	2400
15	9800
20	24800
25	35600
30	39000
35	39800
40	39900



We then plotted the graph of number of cells infected against the time period as

Tumor treatment can follow two different strategies. A gross reduction in tumor volume can be inflicted by inducing cell death in proliferating cancer cells, or by decreasing the tumor support via reduction of carrying capacity. The effects of both forms of cancer treatment can be readily included in differential equation models.

$$\frac{dc}{dt} = c\lambda \log\left(\frac{c}{K}\right) - \xi c$$

$$\frac{dK}{dt} = \varphi c - \varphi c K$$

In order to predict the effect of particular medicine we can use the above said differential equation.

Mixed value problems (Estimating Alcohol amount)

A still or a copper still is an apparatus used to distill liquid mixtures by heating to selectively boil and the cooling in order to condense the vapors in order to get solutions of different alcohol amounts so that they could be used according to the requirements. The question arise that how one can know what amount of alcohol is present in the solution and how a spirit of desired amount of alcohol could be obtained. The answer lies in solving mixed value problems of such types. A copper still is used to distill and obtain the required amount of spirit based on solving these problems. The percentage of alcohol in a spirit is made by heating of queen alcohol in a Copper Still can be estimated.

Let us consider a vat having 800 liters of spirit (alcohol+ water) having 30% of alcohol in it. Let the spirit be added with 60% of alcohol in it from top of the vat at the rate of say 50 liters per min. In a still if 20 liters of spirit is spilled from the tank per minute. suppose we are asked to determine alcohol percentage after 10 say minutes.

Let $y(t)$ = amount of alcohol in the tank of still at a time t ,

We know that

$$\frac{dy}{dt} = \text{rate of change in alcohol amount} = \text{rate}$$

in-rate out (1)

The rate of alcohol going in vat= 60% of 50 = 30 lit/min (2)

Inside the vat if the spirit is being added the amount of alcohol is not constant,

Rate of spilling of spirit from the tank = 20lit/min

Amount of spirit in vat = 800lit

In t min the amount that goes in

$$= 30\text{lit/min} \times t = 30t$$

Total amount in t min inside the vat

$$= 800 + 30t$$

In t min the amount that goes out = $20t$ (3)

$Y(t)$ = liters of alcohol after t minutes

$$\frac{y(t)}{t} = 800 + 30t$$

$$t = \frac{y(t)}{800 + 30t}$$

Substituting above in (3) we get,

The amount that goes out after t minutes

$$= 20 \times \frac{y(t)}{800 + 30t} \quad (4)$$

From Eqn (1), (2) & (4) we get

$$\frac{dy}{dt} = 30 - \frac{20y}{800 + 30t} \quad (5)$$

Equation (5) is a linear equation of first order, solving above we'll get

$$Y = \frac{90t}{13} + \frac{300}{13} + C$$

Where C is an Integration constant, thus knowing the value of C with initial conditions of still we can find alcohol amount.

Thus in similar way we can obtain amount of alcohol in spirit after certain time and then distill it to get required alcohol solution which then can be used for various purposes like in medicine, cosmetics, food, furniture, disinfectants etc.

Fourier transform (Signal processing)

The development of Fourier transform was pressed in order to solve heat equations in a metal plate which were partial differential equations. Basically Fourier series is used to represent periodic signal in terms of cosine and sine function. It was named after Jean Baptiste Joseph Fourier.

He emphasised that a continuous function can be represented by trigonometric series.

The heat equation is a partial differential equation. No solutions to the heat equation were known. Only particular solutions of equations were known if the heat source behaved in a simple way which were called Eigen solutions. Fourier's idea was to model complicated heat source as a superposition of sine and cosines. Although the original motivation was to solve the heat equation, it later became obvious that the same techniques could be applied to a wide array of mathematical and physical problems, and specially those involving linear differential equations with constant coefficients for which the Eigen solutions are sinusoids.

Thus differential equations form its indirect application in Fourier series and thus it is useful in further advancement of noise cancellation, approximation theory, modulation and demodulation and several other applications. One such application is signal processing briefly discussed below.

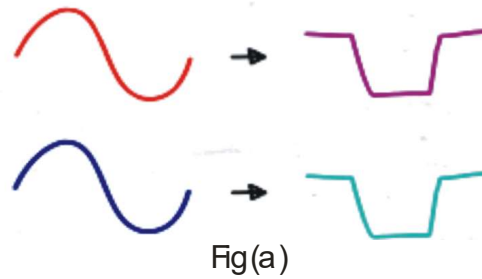
Sound is collaborated with noise that usually comes from background which may change the original nature of multimedia and thus we find methods and means to remove this unwanted noise.

Signal processing is the method to isolate the unwanted noise or to obtain more useful information. Signal processing is not limited to sound only it includes audio processing, wireless communication, array processing, image processing, feature extraction etc.

It works on a system called Linear Shift (time) Invariant (LTI).

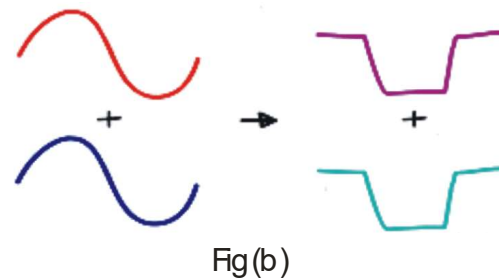
LTI has two properties:-

Linearity- It is the property by which if we compound two distinct wave functions then we will get the sum of their corresponding individual outputs and thus sound wave is linear.



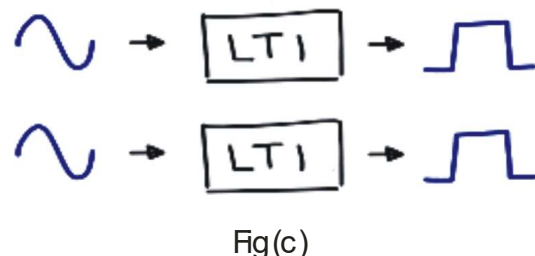
Fig(a)

Also if the resultant of two sound waves are to be obtained as one resultant sound wave as shown in the figure. , then we call it superposition.



Fig(b)

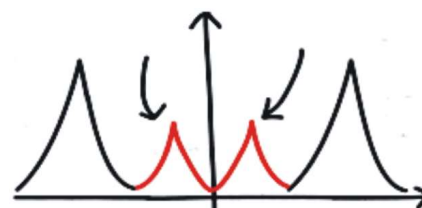
Time invariant- Under this property if we processed a sound wave and get an output then we can expect the same output of that wave even after sending the same wave one hr. later and this property is called time invariant.



Fig(c)

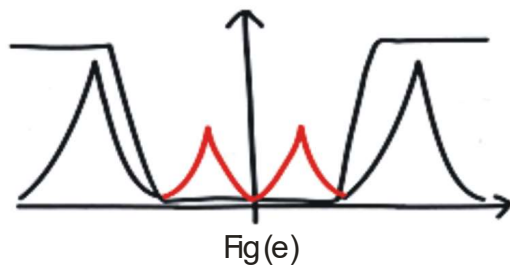
This symmetry of line is explained by Noether's Theorem, it conserves total energy of output wave function.

Under LTI we can consider a sound wave which undergoes in it. Therefore, in LTI we can apply an auto filtering function which is shown in fig (d)

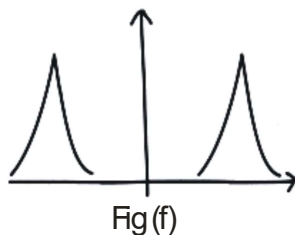


Fig(d)

Here, the sound wave comes along with noise of lower frequency wave shown by arrows. we can apply a filtering function shown in fig (e).



If we superimpose these two functions we get a new recording that has high frequency wave and no undesirable wave shown in Fig(f).



LTI system physically works on a function called Delta function developed by Dirac Delta which uses impulse function to superimpose with the original wave. We know that sound wave is the function of t then if we want to get the original sound by eliminating background noise, the solution comes from mathematical function called Fourier transform.

Conclusion

Under this research, we have known a lot more about direct applications of differential equations. We have figured out that from the above listed application, Fourier transform results to a greater amount of contribution from differential equations to real life. One could imagine how the life would be without proper sound mechanism and

removing irregularities that occur due to surrounding atmosphere in pleasant music. LTI system of audio filtration is a revolution in this process. Differential equations have got their hands in Fourier series and Fourier transform because of what we get the sinusoidal functions of wave mechanism correctly.

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STATISTICAL ANALYSIS ON COMPARISON BETWEEN ONLINE FOOD ORDERING APP (SWIGGY & ZOMATO)

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ABSTRACT

This Project is aimed to investigate the consumer's perception towards the online food Ordering and delivering services. Technology has played a key role in revolutionizing the food delivery service it has contributed to the changes in consumer preferences as their dependency on technology has motivated them to do everything online comprising, getting cooked meals delivered to their doorstep in Patna.

As well all know that the food is basic need in every human lives for which he/she struggling. But even after their struggles, if people are not Happy with their substance, then the effort given behind it is useless. The reason might be that people are busy they either can't be able to cook in right time or not having time to go outside for meals. So, by ordering food online people can save themselves from being starved. Online food ordering system has a huge impact on organised food industries. While Swiggy Started delivering food in early 2014, Zomato was late entrant in delivery in feb 2015

Key word : Aimed, Investigate, dependency, technology, ordering system

INTRODUCTION

The project is basically conducted to know how consumers perceive the online Food delivery services. The perception of consumers may vary under different circumstances. From this project we can have a better understanding of the 'Online food delivery service'.



"We will know about the perception of consumer regarding the services they provide in Patna and get to know about the variables affecting their perception. Therefore, these findings may help the service providers to work upon these variables to fill the gaps in the mindset of consumers.

HISTORY OF ZOMATO

"TEN-MILESTONE REACHED BUT ZOMATO GETS HUNGRY FOR MORE "

Zomato, which started as foodiebay, was established in July 2008 by two IIT Delhi alumnus, Deepinder Goyal and Pankaj Chaddah.

The idea struck Deepinder when his colleagues consistently had a demand for paper menu leaflets of different restaurant's to order food. When he thought of converting these restaurant paper menu into a digital app, that is more accessible and easier to use.

HISTORY OF SWIGGY

The dream of making an online food delivery app started in August 2014 for Sriharsha Majety, Nandan Reddy and Rahul Jaimini. After failing in their previous ventures, this time they tried their

with an online food delivery company Swiggy.

The start of Swiggy was not easy. Sriharsha Majety and Nandan Reddy, two IIT graduates who are the co-founders, had tough times as their previous business ventures had failed. Many experts predicted that Swiggy was entering into the already overcrowded market.

It was also a late entrant into the market but has become the fastest Indian company to reach UNICORN STATUS by some distance. Where other online sites such as Flipkart took six years to reach unicorn valuation but Swiggy achieved it in four years. The Swiggy success story is nothing sort of astonishing.

THE HUNGRY GAMES : SWIGGY VS. ZOMATO

With the ability to conquer the world with our devices, technology has made assessing our basic necessities extremely easy with a swipe of a finger.

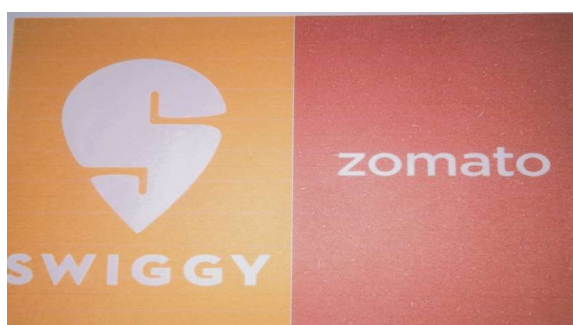
The common reason for both of their success stories is undoubtedly the way users have become accustomed to the design of these apps, which individually speaks so much about the company and the services provided.



BACKGROUND : With its estimated monthly visits at 6.8 million, Swiggy lags way behind ZOMATO which is at 32.3 million. Starting four years prior to the launch of Swiggy, Zomato has quickly acquired the market and is visibly a favourite of users with one of the reasons being

its global presence Zomato has an extensive database of 1.4 million restaurant across 23 countries while Swiggy is still growing and has a hold over eight national cities where it has more than 9,000 restaurants on its platform.

"Zomato is slower than Swiggy and they COD which is, honestly, a tad bit of a hassle. It is only good for online menu and not for delivery. Swiggy takes one order at a time whereas Zomato takes 2 to 3 order at a time so because of their delay in service I generally prefer Swiggy over Zomato.



OBJECTIVE :

- To analyse the most preferred online food delivery service popular in Magadh mahila College PATNA.
- To study the data collected from all those users who are already using the online food delivery services.
- To achieve the objective data from different departments of Magadh Mahila College
- This statistical study is basically conducted to know how consumers perceive the online food delivery services.

METHOD UNDER STUDY

The study is based on the collection of primary data. Quantitative method was used in this project so as to investigate and observe the collected data with the help of statistical, mathematical and computational techniques and also using SPSS software. A structured questionnaire was designed. It was designed in such a manner so

that it caters all the areas of study. The survey was conducted in different departments of Magadh Mahila College and around 50 responses were collected.

The sample has been taken from a normal population. This is the large sample test of 50 data, collected from different departments of Magadh Mahila College, Patna. And here we applied t-test using SPSS software for computation and comparison on the basis of our questionnaire.

Here, we have used some codes for the calculation and statistical analysis in SPSS. And the codes used are given below ;

0 ; for Swiggy and

1; for Zomato

Formula used :-

When $\sigma_1^2 = \sigma_2^2 = ?$ is known

Then,

$H_0:- \mu_1 = \mu_2$

$t = \frac{\bar{X} - \bar{Y}}{S}$

STATISTICAL ANALYSIS :

1. Hypothesis;

$H_0:-$ Null hypothesis

$H_1:-$ Alternative hypothesis

Here ,

$H_0:$ Both are equally preferred for online order in different age groups

i.e, $\mu_z = \mu_s$

$H_1:$ Both are not equally preferred for online order in different age groups

i.e, $\mu_z \neq \mu_s$

Group Statistics

ONLINE_ORDER	N	Mean
Std. Deviation	Std. Error	Mean

Group Statistics					
	ONLINE_ORDER	N	Mean	Std. Deviation	Std. Error Mean
AGE	zomato	29	20.10	4.030	.748
	swiggy	21	20.86	2.516	.549

Independent Samples Test			
		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
AGE	Equal variances assumed	-2.759	1.251
	Equal variances not assumed	-2.621	1.113

Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
AGE	Equal variances assumed	.317	.576	-.756	48
	Equal variances not assumed			-.812	47.135

Independent Samples Test				
		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
AGE	Equal variances assumed	.453	-.754	.997
	Equal variances not assumed	.421	-.754	.928

Result :- H0 is rejected i.e, $\mu_z \neq \mu_s$ and we have $\mu_z < \mu_s$.

GRAPH



2.Hypothesis ;

H0 : Both gives equal no. of offers and promotions according to different age groups,

i.e, $\mu_z = \mu_s$

H1 : Both does not give equal no.of offers and promotions for different age groups,

i.e, $\mu_z \neq \mu_s$

Group Statistics					
	OFFERS_PROMOTIONS	N	Mean	Std. Deviation	Std. Error Mean
AGE	zomato	31	19.61	2.186	.393
	swiggy	19	21.74	4.665	1.070

Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
AGE	Equal variances assumed	4.359	.042	-2.183	48
	Equal variances not assumed			-1.863	22.922

Independent Samples Test				
		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
AGE	Equal variances assumed	.034	-2.124	.973
	Equal variances not assumed	.075	-2.124	1.140

Independent Samples Test			
		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
AGE	Equal variances assumed	-4.080	-.168
	Equal variances not assumed	-4.482	.235

Result :- H_0 is rejected i.e, $\mu_z \neq \mu_s$ and we have $\mu_z < \mu_s$.

GRAPH



3. Hypothesis ;

H_0 : Both are equally popular for Good packaging.

i.e, $\mu_z = \mu_s$

H_1 : Both are not equally popular for Good packaging.

i.e, $\mu_z \neq \mu_s$

Group Statistics					
	GOOD.PACK AGING	N	Mean	Std. Deviation	Std. Error Mean
AGE	zomato	23	19.35	1.921	.401
	swiggy	27	21.33	4.197	.808

Independent Samples Test					
		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
AGE	Equal variances assumed	4.634	.036	-2.088	48
	Equal variances not assumed			-2.202	37.672

Independent Samples Test				
		t-test for Equality of Means		
		Sig. (2-tailed)	Mean Difference	Std. Error Difference
AGE	Equal variances assumed	.042	-1.986	.951
	Equal variances not assumed	.034	-1.986	.902

Independent Samples Test			
		t-test for Equality of Means	
		95% Confidence Interval of the Difference	
		Lower	Upper
AGE	Equal variances assumed	-3.898	-.073
	Equal variances not assumed	-3.811	-.160

Result :- H_0 is rejected i.e, $\mu_z \neq \mu_s$ and we have $\mu_z < \mu_s$.

GRAPH



4. Hypothesis :

H_0 : Both have equal no. of order placed in a week.

i.e, $\mu_z = \mu_s$

H_1 : Both does not have equal no. of order placed in a week.

i.e, $\mu_z \neq \mu_s$

Group Statistics					
	ONLINE_ORDER	N	Mean	Std. Deviation	Std. Error Mean
NO_OF_ORDER	zomato	29	3.31	1.491	.277
	swiggy	21	2.95	1.564	.341

Independent Samples Test				
		t-test for Equality of Means		
		Std. Error Difference	95% Confidence Interval of the Difference	
			Lower	Upper
NO_OF_ORDER	Equal variances assumed	.436	-.519	1.235
	Equal variances not assumed	.440	-.529	1.245

Independent Samples Test				
		Levene's Test for Equality of Variances		t-test for Equality of Means
		F	Sig.	t
NO_OF_ORDER	Equal variances assumed	.214	.645	.821
	Equal variances not assumed			.814

Independent Samples Test				
		t-test for Equality of Means		
		df	Sig. (2-tailed)	Mean Difference
NO_OF_ORDER	Equal variances assumed	48	.416	.358
	Equal variances not assumed	41.978	.420	.358

Result :- H0 is rejected i.e, $\mu_z \neq \mu_s$ and we have $\mu_z > \mu_s$.

CONCLUSIONS AND LIMITATIONS

On the basis of our above results as followed by different hypothesis, we conclude that ZOMATO is much more preferable and popular than Swiggy. Since, we have four hypothesis in favour of ZOMATO and only one hypothesis is rejected. Through this we come to know that customers are more prone to order from ZOMATO rather than Swiggy.

This analysis is based on perception of consumer's regarding online food ordering which vary from person to person. From the above results we get to know that ZOMATO is more preferable for online food ordering in the age group, that we have considered in our data through our questionnaire.

We estimated this through different objectives which are Online order, Good Packaging, Offers & promotions and no. of orders respectively. Hence, we wrap up this with the conclusion that ZOMATO is more appropriate and satisfactorily than SWIGGY.

- Here, we are considering only two Food Ordering Apps for comparison and selecting one from two of them as best which is not justified.

- Since, there are so many Food Ordering Apps. So we can't consider one as a best. We can consider it only better from the other one .

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A STATISTICAL ANALYSIS ON THE IMPACT OF SMOKING AND LACK OF EXERCISE ON THEIR PHYSICAL ENDURANCE AND BMI

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* Tanusha Gupta

* Vishakha Verma

Presentation : 17 / 01 / 2020

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ABSTRACT

This is the research project on the impact of smoking and level of exercise on their physical endurance and body weight or BMI. Research has shown that current smokers have a lower mean body mass index (BMI) than never and

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former smokers, with former smokers having the highest mean BMI. A number of physiological mechanisms have been hypothesized to explain this pattern, but few studies have explored the impact of level of exercise on the physical endurance of smokers. It is generally believed that smoking causes both immediate and long-standing effects on exercise and physical activity. Smoking related risks for e.g. cancer, heart and respiratory problems are well known to us.

Thus, collecting data from the area Ashoka Rajpath, Kargil Chowk and Boring road, we explored the descriptive study about the associations among smoking status, their body weight or BMI and physical endurance using the software SPSS.

Key word : Smoking, BMI, Physical endurance, Exercise

INTRODUCTION

The increase in the number of people who are ill in the various health establishments has risen geometrically overtime. Most of these illnesses may be as a result of unhealthy lifestyles and habits. Amongst this various unhealthy lifestyles

and habits are smoking, lacks of exercise, weight, poor dietary just to mention but a few.

Smoking and obesity are major public health challenges and the prevalence of both is increasing globally. Smoking increases the risk of cancer, respiratory and cardiovascular diseases, and is the leading preventable cause of death in developed countries.

Research has shown that current smokers have a lower mean body mass index (BMI) than never and former smokers, with former smokers having the highest mean BMI. Over the years, numerous studies support the notion that smokers tend to weight less, have a lower body mass index (BMI), and are leaner than non-smokers, and those who quit smoking are likely to gain weight.

Some Study findings also suggest that smokers will have lower physical endurance than non-smokers, even after differences in the average exercise levels of smokers and non-smokers are taken into account.

When one smokes, it harms their ability to exercise. Smoking hurts your athletic performance in several ways. Regular exercise may protect smokers from some of the negative effects associated with smoking, such as muscle loss and inflammation, according to a new study.

According to the study, it is generally believed that a regular exercise may protect smokers from some of the negative effects associated with smoking such as

- Reduce the risk of falling ill
- Muscle loss and inflammation
- Improving your mental health and mood
- Improve your ability to do daily activities
- Increase your chances of living longer, etc.

AIMS AND OBJECTIVES OF THE STUDY:

The following are the objectives of the study:-

- To know if there is a relationship between their weight or BMI of smokers, non-smokers and former smokers.
- To study the impact of exercise on the physical endurance of smokers.
- To study about the physical endurance of smokers and non-smokers taking average exercise level into account.

SIGNIFICANCE OF THE STUDY:

The importance of this study seeks to unveil the impact of smoking on physical endurance, level of exercise, and weight of the persons under study.

This study also seeks to study the relationship between weight of smokers, non-smokers and former smokers, and physical endurance on level of exercise corresponding to their smoking status.

Cigarette smoking, obesity, and smoking-related health effects have been recognized as a major public health concern, the purpose of the present study was to evaluate the relationship between smoking status, body weight, BMI, physical endurance and level of exercise among nearby adults.

The present study is unique because very few studies have examined these relationships in Indian samples or in Bihar (in particular).

SCOPE OF THE STUDY

The scope of this study is centered on the impact of smoking on less exercising, physical endurance and weight and using the areas of Ashok Rajpath, Kargil Chowk, Boring Road of Patna, Bihar as a case study.

DEFINITION OF TERMS

Smoking: The activity or habit of in taking cigarettes.

Exercise: A physical or mental activity that you do to stay healthy or become stronger. It can

equally be a set of movements or activities that you do to stay healthy.

Weight: How heavy somebody or something is which can be measured in kilograms or pounds.

BMI: BMI is measurement of a person's weight with respect to his or her height. It is more of an indicator than a direct measurement of a person's total body fat.

Physical Endurance: Physical Endurance the time span between the beginning of physical activity by an individual and the termination because of exhaustion.

Obesity: A disorder involving excessive body fat that increases the risk of health problems.

Health issues: A state when body parts are unable to work properly, under the study we took usually the health issues regarding respiratory system and cardiovascular system.

RESEARCH QUESTIONS

Personal details

- What is your exact age now?
- What is your weight?
- What is your height?
- How many years have you been smoking?
- How many cigarettes do you consume per day? Or, how many times do you smoke?

Health care

- Do you have any health problem?
- What kind of health problems do you have?
- How many times did you get ill in last few years?

Exercise

- Do you take exercise daily?
- What is your exercise schedule?
- How much time do you give on your exercise per day?

- How many years have you been taking exercise?

Cause of smoking

- What is the reason behind your smoking?
- Do you smoke due to stress or just for having fun?

RESEARCH HYPOTHESES

Hypothesis 1

H_0 : There is no significance difference among BMI of smokers, non- smokers and former smokers.

H_1 : There is significance difference among BMI of smokers, non-smokers and former smokers.

Hypothesis 2

H_0 : There is no relationship between the physical endurance of smokers who do a regular exercise and who do not exercise.

H_1 : There is a relationship between the physical endurance of smokers who do regular exercise and who do not exercise.

Hypothesis 3

H_0 : There is no relationship between the physical endurance of smokers and non-smokers taking average level of exercise into account

H_1 : There is no relationship between the physical endurance of smokers and non-smokers taking average level of exercise into account

DATA COLLECTION

While collecting the data, our motive was to collect the data regarding the objective of the analysis so there won't be much chance of sampling error. Here, our objective was to analyse and predict the weight or BMI, physical endurance and level of exercise on smokers, non- smokers and former smokers.

We had to make sure that the data was collected randomly from the areas of Kargil Chowk,

Ashok Rajpath, Boring Rd. using the survey technique of simple random sampling without replacement. We went to many cigarettes' shops, paan shops and contacted to many corner shops for smokers and former smokers and their acquaintances for more data.

There were some limitations while collecting data:

Time constraint- The major limitation of the study is the time constraint, as we were inhibited by time as there was no enough time to cover all

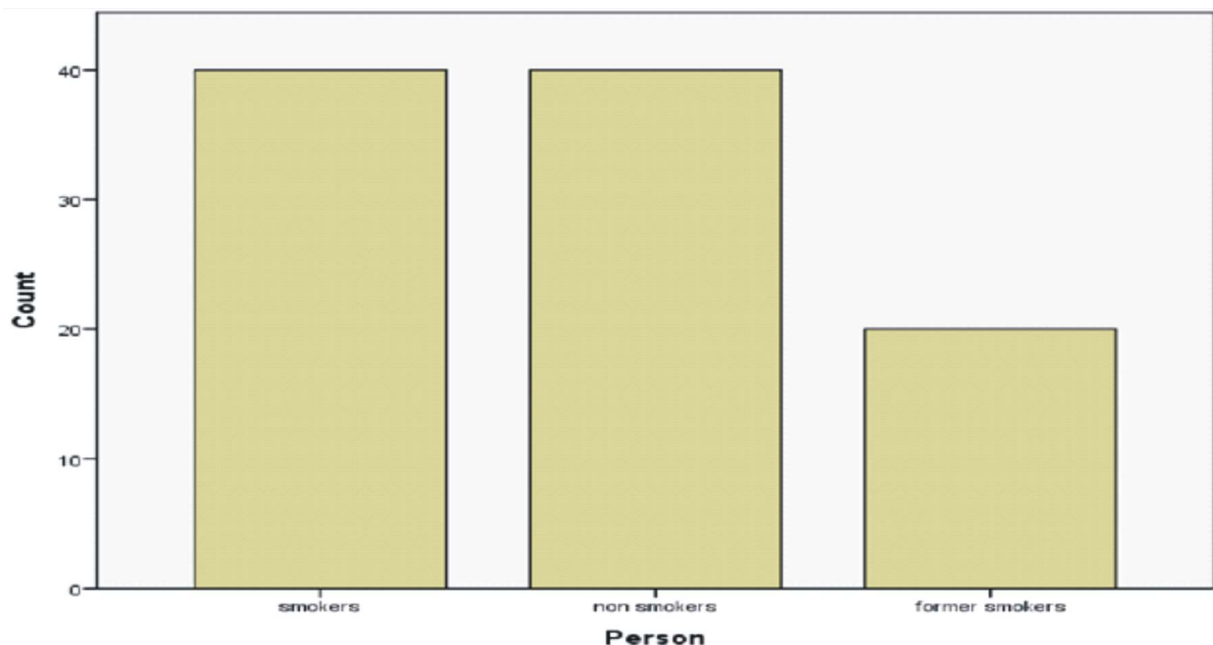
the areas of Patna.

Financial Constraint- Another constraint of this study is financial constraint, lack of adequate finance in travelling and printing enough questionnaires for every sampled individual.

Frequency distribution of data:

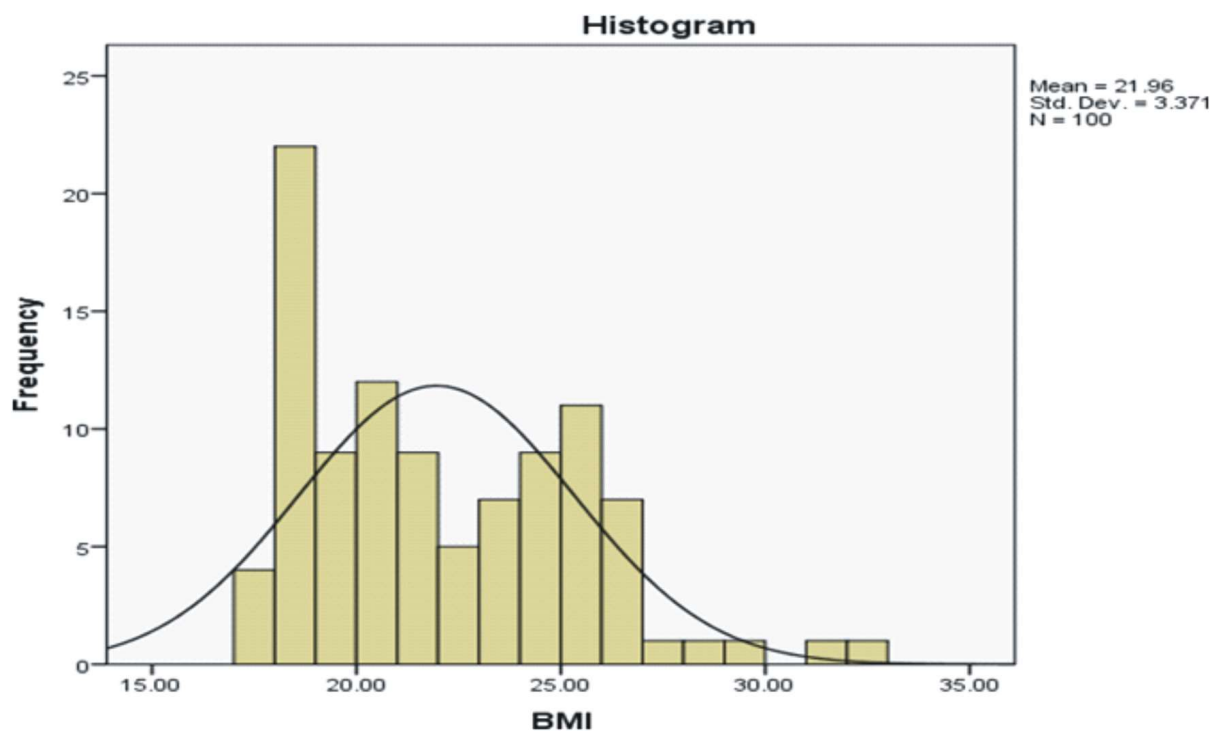
Here, we are presenting the sampled data under case study. 100 samples have been taken whose distribution among smokers, non-smokers and formers smokers are given below:

	Frequency	Percent	Valid Percent	Cumulative Percent
Smokers	40.0	40.0	40.0	40.0
Non smokers	40.0	40.0	40.0	80.0
Former smokers	20.0	20.0	20.0	100.0
Total	100	100.0	100.0	

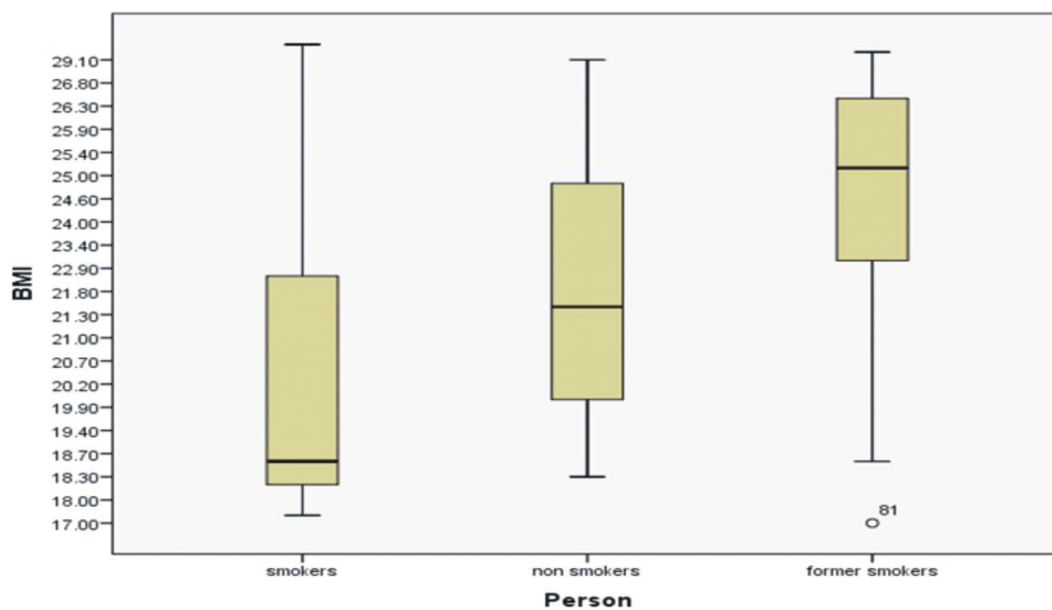


COLLECTION OF BMI:

Frequency distribution of BMI (in kg/m²) of smokers, non- smokers and former smokers is given below:



BMI	Frequency	Percent	Valid Percent	Cumulative Percent
<18.5	22	22.0	22.0	22.0
18.5-24.9	55	55.0	55.0	77.0
25.0-29.9	20	20.0	20.0	97.0
> = 30	3	3.0	3.0	100.0



Here, we have three separate variables: current smokers, non-smokers and former smokers.

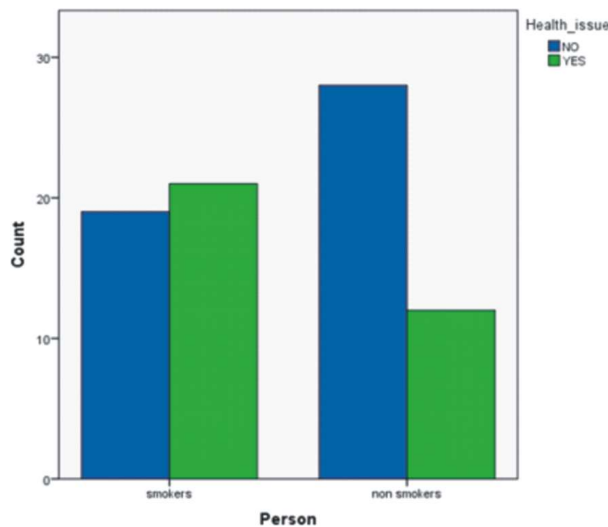
We want to explain this boxplot. The middle dark line is the median of the BMI of smokers, nonsmokers and former smokers which is 18.60, 21.50, 25.30 respectively.

The rectangle extends from the bottom which is First Quartile to the top which is second Quartile of BMI data.

Now we have the vertical line above the rectangle and below. And then the attached lower horizontal line represents the minimum & the upper horizontal line represents the maximum of the data.

Data of the physical endurance:

Frequency	Physical endurance		Total
	disease	no disease	
Smokers	21	19	40
Non smokers	12	28	40
Total	33	47	80



Data of the level of exercise:

Frequency bar graph for the level of exercise of smokers is given below:

Here,

Number of smokers who do exercise= 16
Numbers of smokers who don't exercise=24

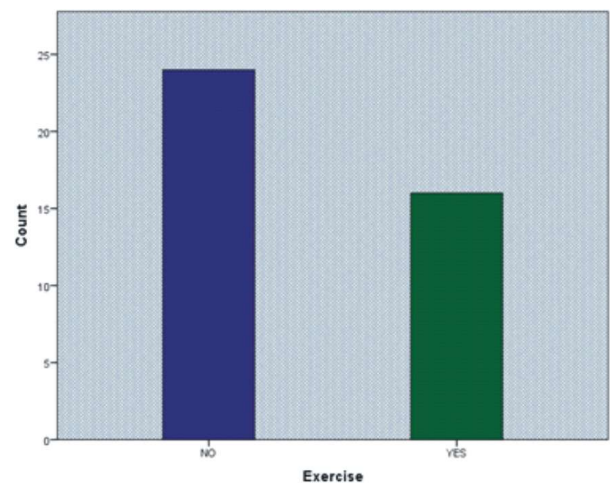
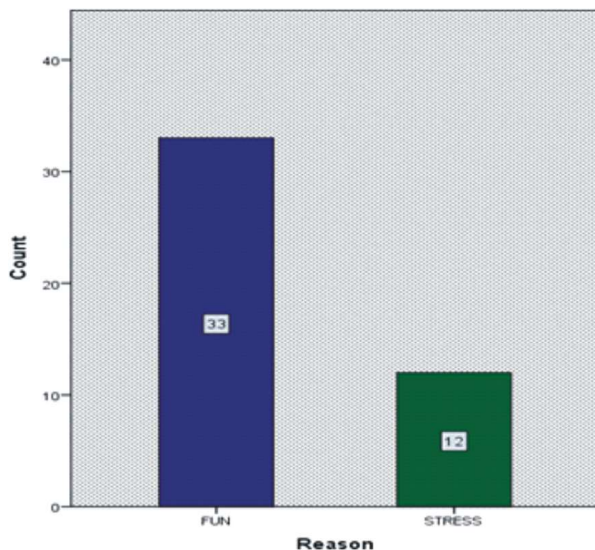


Chart of reason behind smoking:

Reason for smoking may be for fun or for stress, frequency for the same obtained from the data is given below:

Here,

Number of smokers who smoke just for fun= 33
Number of smokers who smoke in stress= 12



DATA ANALYSIS

SPSS statistical package was used for data analysis.

FIRST OBJECTIVE

In our sample dataset, sampled individuals reported their smoking status, weight, height. Suppose we want to know how the smoking status affects their BMI (weight and height). This involves testing whether the sample means for BMI among smokers, non-smokers and former smokers in our sample are statistically different.

Here, we have to test significant difference among three variables that is current smokers, non-smokers and former smokers. We can apply independent sampled t-test for every two groups or either one sample ANOVA test for difference between means of altogether three groups. But the ANOVA uses a different calculation. Its value is in looking at variation between and within the means. Excessive variation in calculating the means reduce the chance of determining a significant difference. So here we are using independent sample t test three times rather than using ANOVA.

FIRST PART: Independence of t-test between smokers and non-smokers

The hypotheses for the first part can be expressed as:

$H_0: \mu_{\text{smokers}} - \mu_{\text{non-smokers}} = 0$ ("the difference of the means is equal to zero")

$H_1: \mu_{\text{smokers}} - \mu_{\text{non-smokers}} \neq 0$ ("the difference of the means is not equal to zero")

where μ_{smokers} and $\mu_{\text{non-smokers}}$ are the population means for BMI of current smokers and non-smokers, respectively.

Based on the results obtained for the first objective, following statements can be made:

- There was a significant difference in mean BMI between smokers and non-smokers.
- The average BMI for smokers is 20.4 kg/m² and for non-smokers is 22.3 kg/m².
- Hence, it is clearly seen that non-smokers are healthier than smokers.

SECOND OBJECTIVE

Independence of chi square test between level of exercise and health issues of smokers:

In the sample dataset, smokers were asked about their health issues regarding respiratory system and cardiovascular system and whether they do exercise or not. Here, we want to test for an association between their health issues and level of exercise using a Chi-Square Test of Independence (we'll use $\alpha = 0.05$).

H_0 : There is no relationship between the physical endurance of smokers who do a regular exercise and who do not exercise.

H_1 : There is a relationship between the physical endurance of smokers who do regular exercise and who do not exercise

Based on the results obtained for the second objective, we can state the following:

- an association is found between health issues and level of exercise.

- Hence, it is clearly seen that level of exercise directly affects the physical endurance of smokers.

THIRD OBJECTIVE

Independence of chi square test between the physical endurance of smokers and non-smokers taking average level of exercise into account

H_0 : There is no relationship between the physical endurance of smokers and non-smokers taking average level of exercise into account

H_1 : There is no relationship between the physical endurance of smokers and non-smokers taking average level of exercise into account.

Based on the results, we can state the following:

- an association is found between health issues faced by smokers and non-smokers.

Hence, it is clearly seen that smokers have lower physical endurance than non-smokers.

CONCLUSION

Data regarding the relationship between smoking status and body weight or BMI that have examined the relationship between smoking and body weight, and find that current smokers tend to have lower BMIs and body weight than former or never smokers. In addition, former smokers gain weight after stopping smoking.

Compared with non-smokers, smokers actually had lower physical endurance. A number of physical endurance studies have shown that smokers reach exhaustion before non-smokers, smokers don't and can't run as far or as fast as non-smokers.

In the present study, the relationship between the level of exercise and health issues of smokers was statistically significant. That means a regular exercise can improve physical endurance of smokers.

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INVESTIGATION OF AVIFAUNAL DIVERSITY OF THE MAGADH MAHILA COLLEGE CAMPUS, PATNA, INDIA

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Presentation : 17 / 01 / 2020

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ABSTRACT

The project study entitled "Investigation of Avifaunal diversity of the Magadh Mahila College campus, Patna"

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has been conducted in the month of November and December 2019. This short term study within the MMC campus which has area of 9 acre revealed the presence of different species with different genera placed taxonomically under families which were further arranged systematically under orders. Passeriformes was the dominant group followed by Columbiformes, Passiformes, Psittaciformes, Pelecaniformes and Coraciiformes of birds; while remaining orders, Cuculiformes, and Accipiteriformes were represented. It was noticed that the fish catcher birds were generally found at the southern part of the campus, which was near to river Ganga and grain eaters were found everywhere in the campus. Duck house inside the Aquatic park of the campus was also provided the food availability for crow, myna etc. Due to cold season, and the construction process inside the campus resulted the less number of species. This campus has good ecological condition to provide a shelter or temporary shelter for many more species of birds. Thus this study is providing baseline information on the number of bird species present in different habitats of the MMC campus.

Key word : Aves; campus; food availability; bird's species; fish eater; grain eater

INTRODUCTION

Magadh Mahila College (MMC), Patna University, Patna is situated to the north of the historic Gandhi Maidan of Patna, Bihar, on the bank of river Ganga. With a number of varieties of fruit-bearing trees like mango, tamarind, lemon, plantain etc. & also large shade -giving trees, like Banyan, Peepal, Neem & Ashok. A number of birds are closely associated with river Ganga. In the MMC, there is also a natural habitat for the birds, some are regular and use this campus as a niche. But some aves are visitors which uses this campus tree for temporary shelter as these aves (fish-eater) are depends on food from river Ganga. Aves act as a key indicator for assessing the status of ecosystem health. They are integral part of food chain and food web. Aves play a vital role in keeping balance of nature. It play an important role in the ecosystem as a potential pollinator and bio-indicator of the quality of the ecosystems (Prakash et.al., 2001; Amat et al., 2010; Bensizerara et al., 2013;). Avifauna being the most important biotic component of any type of ecosystem (Dhindsa and Saini, 1994) plays a crucial role in maintaining ecological balance. Avifaunal diversity acts as an important bio-indicator (Bilgrami, 1995) In present time, avifaunal diversity has been decreasing due to the destruction of natural habitats and human disturbances. Random destruction of natural habitats by cutting nesting trees and foraging habitats for commercial use of woods and lands are the main factors responsible for narrow down in avian foraging habitat and their nesting sites (Edison et al., 2016). Climatic changes and anthropogenic activities have been regarded as the main cause for decline of avifauna (Rapoport, 1993; Chen et al., 2011 and Sekercioglu et al., 2012). Furthermore, bird population has further declined because of change in land use pattern (Roy et al., 2012).

Therefore, this study aims to investigate the avifaunal diversity in the MMC campus as no work on Avifauna diversity was carried out till this time. The study will be helpful in preparing a baseline data on Avifauna diversity which will show a great ecological prospect for the MMC campus as well as for Patna.

Materials and methods: The study has been carried out in the campus located in the Patna. River Ganga is just behind the campus, so variety of avian species possible to be visible. This study has done in the month of November & December 2019. This month is very important to study about the visitor birds, because the food abundances is available in the river Ganga, climate condition, moderate and cold temperature, humidity and other factors are favorable for birds. Camera has been used for birds view and taking of pictures. The birds has not been harmed or disturbed during this study.

Birds were recognized by fixing eye on them. Continuous observations were made regarding their movement, sounds, feeding habit and size. Simultaneously specific birds sound has been also identified. General size, shape, distinctive strips and patches of color including crown strips, eye lines, nape color, etc. has been noted. Wing bars, color patches, and marking on bird body during stationary stage or flying stage were noted. Leg color and length were also noted in each observation. These parameters helped in identification of avian species.

Observation : The birds which were observed during the month of November and December 2019 in the Magadh Mahila College, Campus of Patna are described in the table 1. There were various type of birds has been observed which have different food habit.

Result and Discussion: The present study has been taken for short term i.e. November and

December, within the MMC campus having area about 9 acre. This study revealed the presence of different species with different genera placed taxonomically under families which were further arranged systematically under orders.

Passeriformes was the dominant group followed by Columbiformes, Passiformes, Psittaciformes, Pelecaniformes and Coraciiformes of birds; while remaining orders,

Table 1: Different varieties of Birds found in

the MMC campus

S.N.	Name of Birds	Scientific name	Order	Family
1	Sparrow	<i>Passer domesticus</i>	Passeriformes	Passeridae
2	Myna	<i>Acridotheres tristis</i>	Passeriformes	Strunidae
3	Jungle Babbler	<i>Turdoides striata</i>	Passeriformes	Leiothrichidae
4	Crow	<i>Corvus splendens.</i>	Passeriformes	Corvidae
5	Brown eared Bulbul	<i>Hypsipetes amaurotis</i>	Passeriformes	Pycnonotidae
6	Red vented Bulbul	<i>Pycnonotus cafer</i>	Passiformes	Pycnonotidae
7	Spotted Dove	<i>Spilopelia chinensis</i>	Columniformes	Columbidae
8	Pigeon	<i>Columba livia domestica</i>	Columniformes	Columbidae
9	Great Egret	<i>Ardea alba</i>	Pelecaniformes	Ardeidae
10	Javan Pond Heron	<i>Ardeola speciosa</i>	Pelecaniformes	Ardeidae
11	White stork	<i>Ciconia ciconia</i>	Ciconifomes	Ciconidae
12	Yellow fronted Barbet	<i>Megalaima flavifrons</i>	Picifomes	Megalaimidae
13	Black kite	<i>Milvus migrans</i>	Accipitriformes	Accipitridae
14	Indian spotted Eagle	<i>Clanga hastata</i>	Accipitriformes	Accipitridae
15	King Fisher	<i>Alcedinidae</i>	Coraciiformes	Alcedinidae
16	Parrot	<i>Psittaciformes</i>	Psittaciformes	Psittaculidae
17	Hen	<i>Gallus gallus</i>	Galliformes	Phasianidae
18	Duck	<i>Anas platyrhynchos</i>	Anseriformes	Anatidae
19	Swan	<i>Cygnus olor</i>	Anseriformes	Anatidae

Cuculiformes, and Accipiteriformes were represented. The study area despite small in size appears to support an extremely rich and diverse bird community. Overall, these different species of birds were recorded during our study period. The observed bird diversity (Table:1) in relatively small area underlines the importance of this area (MMC Campus) for biodiversity importance. Since the campus is located near the bank of River Ganga, that adds to the bird diversity of the campus. The variation in species diversity and

species evenness at various habitats observed in this study may be due to the availability of green area, food and the nesting sites in the different habitat types. It has been observed that the abundance of numerous bird species is highly influenced by the composition of the vegetation that forms a major element of their habitats (Noor et al. 2014). As vegetation changes along complex biological and environmental gradients, a particular bird species can appear, increase or decrease in number and vanish as the habitat changes (Lee

& Rotenberry 2005, Noor et al. 2014). The high diversity of birds (Table:2) in this habitat may be influenced by the presence of vital resources. The presence of trees with understory vegetation in this area provided food resources, breeding habitat

and cover for the birds. It was also observed that few species of birds like species of Heron and Kingfisher, which were making temporary shelter on tree of the campus and they were coming to catch the fishes and other aquatic organism as food from the River Ganga.

S.N.	Fish eater	Flesh eater	Omnivores	Insect eater	Seed/Fruit eater
1	Great Egret	Indian spotted Eagle	Crow	Myna	Parrot
2	Javan Pond Heron	Black Kite	Duck	Brown eared Bulbul	Sparrow
3	White stork		Swan	Red vented Bulbul	Pigeon
4	King Fisher		Hen		Spotted Dove
5			Jungle Babbler		Yellow fronted Barbet

Table 2: Different variety of Birds according to their food habit

The study of feeding habit of bird is important for understanding the complexity of the ecosystem structure and providing information on each type of habitat in the ecosystem (Azman et al., 2011). In this study It has been also noticed that grain eaters or insectivores birds like crow, sparrow, mayna etc. were visible at the front portion of the college i.e. away from River Ganga side. But the fish and other aquatic organisms' feeder were visible at back side of the campus near to River Ganga. An aquatic park for duck house, which were constructed in - side the campus was also an attraction for many birds. Generally crow and myna sparrow etc were often found near the food place of duck house in the Aquatic Park. And it is clear indication that this availability of birds were only for feeding purpose.

It must be noted that the present study was undertaken on a random inventory basis and a

more intensive study would surely result in identifying many more avifaunal species. The impact of anthropogenic alteration of the habitats in and around the campus also needs intensive studies.

Conclusions: Birds are recognized among the most important indicators of the environmental status. They are threatened by different anthropogenic pressures such as human disturbance, unsustainable activities, land conversion and unplanned construction and developments. Conservation of birds is not possible unless we have sound understanding of avifaunal diversity of a region. Thus there is a need to enlist the data and manage the habitat in consideration with various requirements of fauna. Current study provided baseline information on the number of bird species present in different habitats of the MMC campus. Further study of

factors affecting bird diversity in different habitats considering spatio-temporal factors and the availability of specific food resources is recommended. This was a short span study and will act as a baseline for conducting detailed studies on species diversity.

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GENDER EQUALITY AND WOMEN EMPOWERMENT WITH REFERENCE TO UN SUSTAINABLE DEVELOPMENT GOALS

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Presentation : 17 / 01 / 2020

Supervisor : Dr. Pushpalata Kumari

ABSTRACT

Gender equality and women empowerment are the central issues in the process of development for many countries of the world in general and India in particular. Present paper is an analytical attempt to study gender equality and women empowerment in context to UN sustainable Development Goals.

Gender equality is necessary precondition for equitable and sustainable human development. The impact of immense social, economic, and environmental consequences of climate change and loss of essential ecosystems are very problematic for livelihood of

marginalised people in society. Their effects are already being felt in floods, droughts and devastated landscapes and livelihoods. Among those sections, women and girls are more sensitive given the precariousness of their livelihoods.

The burden of securing shelter, food, water and fuel largely falls on them and constraints on their access to land and natural resources. As the global community grapples with the challenges of Sustainable Development Goals, the World Survey on the role of women in Development 2014 asserts the central role of Gender Equality. It charts the rationale and actions necessary to achieve sustainable Development.

Linking gender equality with sustainable development is important for several reasons. It is a moral and ethical imperative. Efforts to achieve a just and sustainable future cannot ignore the rights, dignity and capabilities of half of the world's population. To be effective, policy actions for sustainability must redress the disproportionate impact on women and girls from economic, social and environmental shocks and stresses.

Women's knowledge, agency and collective action has

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huge potential to improve resource productivity, enhance ecosystem conservation and sustainable use of natural resources and to create more sustainable low carbon food energy, water and health systems. Failure to capitalize on this would be a missed opportunity. Women should not be viewed as victims, but as central actor in moving towards sustainability.

Key word : Women Empowerment, Gender Equality, Sustainable Development Goals, Objectification, Pornography.

INTRODUCTION

The importance of gender equality and women's empowerment, particularly women's economic empowerment, is at the core of UNIDO's mandate. Enhancing the role of women as drivers of poverty reduction, promoting female investors and entrepreneurs, and recognizing the link between gender equality and safeguarding the environment all promote inclusive and sustainable industrialization, and directly contribute to Sustainable Development Goal - 5 on gender equality.

UNIDO Director General LI Yong has rightly stated,

"Educating and investing in women and girls has a multiplier effect on productivity, efficiency and economic growth. But economically strengthening women is not only a means by which to spur and sustain inclusive industrial development. It is also a matter of advancing women's human rights"

OBJECTIVE OF THE STUDY

- To generate meaningful discussion on such an important and pertinent topic of contemporary relevance
- To analyse how the United Nations has formulated policies in order to achieve the target and till now how much it is affected

and improved the quality condition of women

- To enumerate and analyse the problems and challenges
- To generate awareness about the whereabouts and conditions of women, and the rights of a woman
- To provide suggestions to the government and UN working for the welfare of women

HYPOTHESIS

- It was hypothesized that there is inverse relationship between Women's Empowerment and Gender Inequality in access to land, education, jobs, salary, workplace safety, political rights, financial independency and social acceptance as stipulated in Goal #5 of the SDGs constitute the predictor variables.

METHODOLOGY

The study is based on information and data collected through primary and secondary sources-

- A study of UN Policies, national policies for women, cases, judgements, Government reports, and different magazines articles and newspaper clippings.
- A study of the policies enforced by the central government, state governments, their plans and programmes concerning the issues, constitutional provisions case-study, books, magazines, journals and Internet articles.

Analytical Method has been used in this project.

CONCEPT OF WOMEN EMPOWERMENT

Women's empowerment is the way or a social

action in which women elaborate and recreate what it is to be in a circumstance that they previously were denied. Empowerment can be defined in many ways, however, when talking about women's empowerment, empowerment means accepting and allowing people (women) who are on the outside of the decision-making process into it. "This puts a strong emphasis on participation in political structures and formal decision-making and, in the economic sphere, on the ability to obtain an income that enables participation in economic decision-making." Empowerment is the process that creates power in individuals over their own lives, society, and in their communities. People are empowered when they are able to access the opportunities available to them without limitations and restrictions such as in education, profession and lifestyle. Feeling entitled to make your own decisions creates a sense of empowerment. Empowerment includes the action of raising the status of women through education, raising awareness, literacy, and training. Women's empowerment is all about equipping and allowing women to make life-determining decisions through the different problems in society.

Women's knowledge, agency and collective action has huge potential to improve resource productivity, enhance ecosystem conservation and sustainable use of natural resources, and to create more sustainable low carbon food energy, water and health systems. Failure to capitalize on this would be a missed opportunity. Women should not be viewed as victims, but as central actor in moving towards sustainability.

In the context of women and development, empowerment must include more choices for women to make on their own. Without gender equality and empowerment, the country could not be just, and social change wouldn't occur. Therefore, scholars agree that women's

empowerment plays a huge role in development and is one of the significant contributions of development. Without the equal inclusion of women in development, women would not be able to benefit or contribute to the development of the country.

CONCEPT OF GENDER EQUALITY

Gender equality, also known as sexual equality or equality of the sexes, is the state of equal ease of access to resources and opportunities regardless of gender, including economic participation and decision-making; and the state of valuing different behaviours, aspirations and needs equally, regardless of gender.

Gender equality is the goal, while gender neutrality and gender equity are practices and ways of thinking that help in achieving the goal. Gender parity, which is used to measure gender balance in a given situation, can aid in achieving gender equality but is not the goal in itself. Gender equality is more than equal representation; it is strongly tied to women's rights, and often requires policy change.

On a global scale, achieving gender equality also requires eliminating harmful practices against women and girls, including sex trafficking, female feticide, wartime sexual violence, and other oppression tactics. UNFPA stated that, "despite many international agreements affirming their human rights, women are still much more likely than men to be poor and illiterate. They have less access to property ownership, credit, training and employment. They are far less likely than men to be politically active and far more likely to be victims of domestic violence."

PERSPECTIVE OF UNITED NATION ON GENDER EQUALITY AND WOMEN EMPOWERMENT:

Gender equality is the fifth Sustainable

Development Goal of the UN. SDG 5 emphasises to achieve gender equality and empower all women and girls. The UN facilitates to empower women and girls in all its programmes. It believes that with stepped-up action on gender equality, every part of the world can move towards sustainable development by 2030, leaving none behind. The realisation that sustainable development is not possible without equality between men and women is a relatively recent finding and directly linked to sustainability issues. A holistic, comprehensive approach to sustainability is one of the most important ways to support and maintain gender justice and equality.

While the world has achieved progress towards gender equality and women's empowerment under the Millennium Development Goals (including equal access to primary education between girls and boys), women and girls continue to suffer discrimination and violence in every part of the world. SDG goals support gender equality, which are as follows-

GOALS

- 5.1 End all forms of discrimination against all women and girls everywhere
- 5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation
- 5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation
- 5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate

5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences

5.6.A Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

5.6.B Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

5.6.C Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels.

FACTS AND FIGURES

Global Report of Equal Measures 2030 reports that 2019 SDG Gender Index finds that nearly 40 percent of the world's girls and women live in countries failing on gender equality... No country has reached the "last mile" on gender equality.

SDG-5 gender index 2019 has covered the following factors in its report-

- Child, early and forced marriage
- Perceptions of partner violence

- Legal grounds for abortions
- Women in parliament
- Women in ministerial roles

ISSUES:

GENDER INEQUALITY AT DIFFERENT PHASES

Gender inequality acknowledges that men and women are not equal and that gender affects an individual's living experience. These differences arise from distinctions in biology, psychology, and cultural norms. Some of these distinctions are empirically grounded while others appear to be socially constructed. Studies show the different lived experience of genders across many domains including education, life expectancy, personality, interests, family life, careers, and political affiliations. Gender inequality is experienced differently across different cultures.

GENDER STEREOTYPES

From birth males and females are raised differently and experienced different environments throughout their lives. In the eyes of society, gender has a huge role to play in many major milestones or characteristics in life; like personality. Males and females are led on different paths due to the influences of gender role expectations and gender role stereotypes before they are able to choose their own.

SEXUAL DISCRIMINATION

Sexism is prejudice or discrimination based on a person's sex or gender. Sexism can affect anyone, but it primarily affects women and girls. It has been linked to stereotypes and gender roles, and may include the belief that one sex or gender is intrinsically superior to another. Extreme sexism may foster sexual harassment, rape, and other forms of sexual violence. Gender discrimination may encompass sexism, and is discrimination toward people based on their gender identity or

their gender or sex differences. Gender discrimination is especially defined in terms of workplace inequality. It may arise from social or cultural customs and norms.

OBJECTIFICATION

In social philosophy, objectification is the act of treating a person as an object or thing. Objectification plays a central role in feminist theory, especially sexual objectification. Feminist writer and gender equality activist Joy Goh-Mah argues that by being objectified, a person is denied agency.

GENDER INEQUALITY IN ADVERTISEMENT

While advertising used to portray women and men in obviously stereotypical roles (e.g., as a housewife, breadwinner), in modern advertisements, they are no longer solely confined to their traditional roles. However, advertising today nonetheless still stereotypes men and women, albeit in more subtle ways, including by sexually objectifying them. Women are most often targeted of sexism in advertising. When in advertisements with men they are often shorter and put in the background of images, shown in more 'feminine' poses, and generally present a higher degree of 'body display'.

PORNOGRAPHY

Anti-pornography feminist Catharine MacKinnon argues that pornography contributes to sexism by objectifying women and portraying them in submissive roles. MacKinnon, along with Andrea Dworkin, argues that pornography reduces women to mere tools, and is a form of sex discrimination.

SEXUAL SLAVERY/PROSTITUTION

Prostitution is the business or practice of engaging in sexual relations in exchange for payment. Sex workers are often objectified and are seen as existing only to serve clients, thus

calling their sense of agency into question. There is a prevailing notion that because they sell sex professionally, prostitutes automatically consent to all sexual contact. As a result, sex workers face higher rates of violence and sexual assault. This is often dismissed, ignored and not taken seriously by authorities.

MEDIA PORTRAYALS

In an attempt to study the effect of media consumption on males, Samantha and Bridges found an effect on body shame, though not through self-objectification as it was found in comparable studies of women. The authors conclude that the current measures of objectification were designed for women and do not measure men accurately. Another study also found a negative effect on eating patterns and body satisfaction of consumption of beauty and fitness magazines for women and men respectively, but again with different mechanisms, namely self-objectification for women and internalization for men.

SEXIST JOKES

Frederick Attenborough argues that sexist jokes can be a form of sexual objectification, which reduce the butt of the joke to an object. They not only objectify women, but can also condone violence or prejudice against women. "Sexist humours-the denigration of women through humour-for instance, trivializes sex discrimination under the veil of benign amusement, thus precluding challenges or opposition that non-timorous sexist communication would likely incur."

GENDER IDENTITY DISCRIMINATION

Gender discrimination is discrimination on the basis of actual or perceived gender identity. Gender identity is "the gender-related identity, appearance, or mannerisms or other gender-related characteristics of an individual, with or without regard to the individual's designated sex at birth". Gender discrimination is theoretically

different from sexism. Whereas sexism is prejudice based on biological sex, gender discrimination specifically addresses discrimination towards gender identities, including third gender, gender queer, and other non-binary identified people.

DOMESTIC VIOLENCE

Although the exact rates are widely disputed, there is a large body of cross-cultural evidence that women are subjected to domestic violence mostly committed by men. In addition, there is broad consensus that women are more often subjected to severe forms of abuse and are more likely to be injured by an abusive partner. The United Nations recognizes domestic violence as a form of gender-based violence, which it describes as a human rights violation, and the result of sexism.

HONOR KILLINGS

Honour killings are another form of domestic violence practiced in several parts of the world, and their victims are predominantly women. Honour killings can occur because of refusal to enter into an arranged marriage, maintaining a relationship relative disapprove of, extramarital sex, becoming the victim of rape, dress seen as inappropriate, homosexuality etc. The United Nations Office on Drugs and Crime states that, "Honor crimes, including killing, are one of history's oldest forms of gender-based violence".

DOWRY DEATHS

Dowry deaths are the result of the killing women who are unable to pay the high dowry price for their marriage. According to Amnesty International, "the ongoing reality of dowry-related violence is an example of what can happen when women are treated as property".

FEMALE INFANTICIDE

Female infanticide is the killing of new-born female children, while female selective abortion

is the terminating of a pregnancy based upon the female sex of the foetus. Gendercide is the systematic killing of members of a specific gender and it is an extreme form of gender-based violence. Female infanticide is more common than male infanticide, and is especially prevalent in South Asia, in countries such as China, India and Pakistan. Recent studies suggest that over 90 million girls and women are missing in China and India as a result of infanticide.

FEMALE GENITAL MUTILATION

Female genital mutilation is defined by the World Health Organization (WHO) as "all procedures that involve partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical reasons". WHO further state that, "the procedure has no health benefits for girls and women" and "procedures can cause severe bleeding and problems urinating, and later cysts, infections, infertility as well as complications in childbirth increased risk of new-born death," and "is recognized internationally as a violation of the human rights of girls and women" and "constitutes an extreme form of discrimination against women". The European Parliament stated in a resolution that the practice "clearly goes against the European founding value of equality between women and men and maintains traditional values according to which women are seen as the objects and properties of men".

WAR RAPE

Sexism is manifested by the crime of rape targeting women civilians and soldiers, committed by soldiers, combatants or civilians during armed conflict, war or military occupation. This arises from the long tradition of women being seen as sexual booty and from the misogynistic culture of military training.

CHILD AND FORCED MARRIAGE

A child marriage is a marriage where one or both spouses are under 18, a practice that disproportionately affects women. Child marriages are most common in South Asia, the Middle East and Sub-Saharan Africa, but occur in other parts of the world, too. The practice of marrying young girls is rooted in patriarchal ideologies of control of female behaviour, and is also sustained by traditional practices such as dowry and bride price. Child marriage is strongly connected with the protection of female virginity. UNICEF states that:

"Marrying girls under 18 years old is rooted in gender discrimination, encouraging premature and continuous child bearing and giving preference to boys' education. Child marriage is also a strategy for economic survival as families marry off their daughters at an early age to reduce their economic burden."

EDUCATION

Women have traditionally had limited access to higher education. In the past, when women were admitted to higher education, they were encouraged to major in less-scientific subjects; the study of English literature in American and British colleges and universities was instituted as a field considered suitable to women's "lesser intellects".

CONSCRIPTION

Conscription, or compulsory military service, has been criticized as sexist. Prior to the late 20th century, only men were subjected to conscription, and most countries still require only men to serve in the military.

EARNINGS GAP

Studies have concluded that on average women earn lower wages than men worldwide. Some people argue that this is the result of

widespread gender discrimination in the workplace. Others argue that the wage gap is a result of different choices by men and women, such as women placing more value than men on having children, and men being more likely than women to choose careers in high paying fields such as business, engineering, and technology.

STATUS OF WOMEN IN INDIA

The status of women in India has been subject to many changes over the span of recorded Indian history. Their position in early society was of very high position in India's ancient period, especially in the Indo-Aryan speaking regions, and their subordination continued to be reified well into India's early modern period. Practices such as female infanticide, dowry, child marriage and the taboo on widow remarriage, have had a long duration in India. However, many women in India continue to face significant difficulties. The rates of malnutrition are exceptionally high among adolescent girls and pregnant and lactating women in India, with repercussions for children's health. Violence against women, especially sexual violence, has been on the rise in India

In modern India the status of women has improved at various levels, but still it is not up to satisfactory level.

Crime against women such as rape, acid throwing, female infanticide and sex selective abortions, dowry deaths, honour killings, and the forced prostitution of young girls has been reported in India at various levels.

REPORT OF WORLD ECONOMIC FORUM (WEF) IN THE ANNUAL GENDER GAP INDEX FOR 2020

India has been ranked 112th among 153 countries in the annual Global Gender Gap Index for 2020, published by the World Economic Forum (WEF).

The Global Gender Gap Index benchmarks 153 countries on their progress towards gender parity in four dimensions:

- Economic Participation and Opportunity
- Educational Attainment
- Health and Survival and
- Political Empowerment

India- Specific Findings

India has slipped to the 112th spot from its 108th position in the last edition. India was ranked relatively higher at 98th place in 2006 Report.

India has been ranked below countries like China (106th), Sri Lanka (102nd), Nepal (101st), Brazil (92nd), Indonesia (85th) and Bangladesh (50th).

Performance on Four Indicators: India has improved to 18th place on political empowerment but it has slipped to 150th on health and survival, to 149th in terms of economic participation and opportunity and to 112th place for educational attainment.

- Economic
- Among the 153 countries studied, India is the only country where the economic gender gap (0.354) is larger than the political gender gap (0.411).
- India is among the countries with very low women representation on company boards (13.8%), while it was even worse in China (9.7%).
- On health and survival, four large countries -- Pakistan, India, Vietnam and China -- fare badly with millions of women there not getting the same access to health as men.

GLOBAL GENDER GAP INDEX RANKINGS 2020

Rank	Country	Score
1	Iceland	0.877
2	Norway	0.842
3	Finland	0.832
4	Sweden	0.820
5	Nicaragua	0.804
6	New Zealand	0.799
7	Ireland	0.798
8	Spain	0.795
9	Rwanda	0.791
10	Germany	0.787
21	United Kingdom	0.767
50	Bangladesh	0.726
53	United States	0.724
81	Russian Federation	0.706
92	Brazil	0.691
101	Nepal	0.680
102	Sri Lanka	0.680
106	China	0.676
112	India	0.668
121	Japan	0.652
151	Pakistan	0.564
153	Yemen	0.494

Ref-World Economic Forum Annual Gender Gap Index 2020

This data shows the latest overall ranking of India among 153 countries of the world. It is really alarming and it is an eye-opener for all of us.

FINDINGS

The Report of World Economic Forum Annual Gender Gap Index 2020 has proved the hypothesis that there is inverse relationship between Women's Empowerment and Gender Inequality in access to land, education, jobs, salary, workplace safety, political rights, financial independency and social acceptance as political structures and formal decision-making and in the

economic sphere, on the ability to obtain an income that enables participation in economic decision-making. It has been observed in the report that the country where gender gap index has been minimised the progress in four dimensions, such as economic participation and opportunity, educational attainment, health and survival and political empowerment has been improved in comparison to other countries, where gender parity is lacking.

SUGGESTIONS

There can be many things to be done, if any one of it will be implemented it will change the fate of not only women, but also, the fate of society, country and the world, because they are interdependent to each other.

Some of the suggestions are: -

- Educating girls and women, and promoting their participation in science, digital technology, engineering and mathematics
- Obtaining public and private sector commitment to buy from and invest in women entrepreneurs, including government procurement quotas for women-owned businesses
- Changing patriarchal societal perceptions and discriminatory attitudes
- Dismantling legal barriers faced by restrictions on land ownership and banking
- Sensitising girls and women for making them emotionally strong
- The National Commission for Women should be strengthened so that it may take initiative in combating injustice against women rather than acting only after a complaint has been registered with it
- The laws regarding minimum age for marriage should be strictly enforced

- The Training-cum-Employment for women should be launched to strengthen and improve the skills and employment opportunities for women
- The Indira's Mahila Yojana should be geared up towards women's Self Employment.
- The promotion of self-esteem and leadership among girls. Providing employment and job training, as well as literacy training, for women past traditional school age should be an area of special focus, as should enabling pregnant adolescents to continue their schooling

CONCLUSION

Gender inequality persists worldwide, depriving women and girls of their basic rights and opportunities. The UN 2030 Agenda for sustainable Development stated that "The achievement of full human potential and of sustainable development is not possible if one half of humanity continues to be denied its full human rights and opportunities."

There cannot be sustainable development if there is no gender equality and empowerment of women. Gender equality is integral to each and every sustainable development goal. Women's empowerment is a precondition to solving poverty and resource issues and peace. Equality will require vigorous efforts and legal frame work, to counter deeply rooted gender based discrimination. Social norms also can and do change in this regard. The greatest need of the hour is change of social attitude to women. "When women move forward the family moves, the village moves and the nation moves".

Empowering the female gender to reach full potential requires equal opportunities and equality.

Finally we can conclude with the words of Kofi

Annan "There is no tool for development more effective than the empowerment of women."

Finally we can conclude by SDG statement that "achieving gender equality and realizing the human rights, dignity and capabilities of diverse groups of women is a central requirement of a just and sustainable world."

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IMPACT OF GLOBALIZATION ON CHILD LABOUR IN INDIA

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ABSTRACT

This article studies the relationship between Globalization and Child Labour. Child labour is a complex problem basically rooted in poverty. The Government of India has formulated policies since the economic reforms of the early 1990s. Children under fourteen comprise 3.6 percent of the total labour force in India. Nearly eighty-five per cent are engaged in the traditional agricultural sector, less than nine per cent in manufacturing, services and repairs and only about 0.8 per cent are in factories. The elimination of child labour is a priority and is being implemented at the grass roots level in India. A large number

of non-governmental and voluntary organizations are involved in this process along with national and international organizations. This paper reviews the child labour situation in India and analyses the effect of globalization on child labour.

Key word : Child labour, Globalization

INTRODUCTION

Global movement against child labour has emerged as an important international debate since the 1990s. This is starting period of globalization in developing country. According to the International Labour Organization (ILO), there are more than 350 million children 'economically active' around the world. Discussion on child labour has been stimulated as a contemporary issue on globalization and international labour standards. Incidence of total child labour in India is around 10.4 million and has been declining in recent decades. There are enormous regional variations in its incidence and pace of decline. The current wave of globalization started after World War II, but accelerated since the 1980s in

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developed and some developing countries. Is there a direct link between globalization and child labour? The literature on this issue cannot provide a definitive conclusion. Both the proponents and opponents of globalization have explained the effect of globalization on child labour with arguments. According to the proponents, the international free market will reduce the necessity of child labour with overall economic development through higher income and standard of living. According to the opponents, globalization increases the opportunity of exploiting cheap labour particularly from poor countries. Countries like Vietnam, Thailand and Mexico have experienced a clear decline in child labour; while other countries like Bolivia and Zambia have witnessed a decline in schooling and a rise of child labour. According to some studies and available data, labour participation rates for children have declined significantly in different regions of the world. India is slightly above the world average in the case of the children participation rate.

Most of the theoretical literature on child labour (Basu and Van 1998, Basu 2002) focuses on poverty and credit constraints as the main causes of child labour. Other studies based on the impact of trade, technological changes and economic conditions and their effects on incidence of child labour. In India, parental poverty and illiteracy; lack of awareness; social and economic circumstances; lack of access to basic and meaningful quality education; high rates of adult unemployment and underemployment; cultural values of the family and society are the major factors generating child labour. In this paper, we identify various background factors related with the persistence of child labour in India and their changes over the years.

Status of Child labour in India (Since 1950s):

Child labour is a colossal problem in India and is deep rooted with poverty. Over 400 million

people live below the poverty line and 90 per cent of its active population work in the informal sector. According to the 1991 census, there are 11.2 million working children out of a total 210 million children aged 5-14 years. Amongst them, 9.8 million are classified as 'main' workers and 2.2 million as 'marginal' workers. There are vast disparities in literacy rates across gender since the 1950s. Overall the literacy rate has increased from 16 per cent to 65 per cent between 1951 and 2001. Between 1991 and 2001, the number of illiterates has, in absolute terms decreased by 31.9 million. The number of literates, on the other hand, has increased by 203.6 million within 10 years. During this period, the female literacy rate has increased by 14.87 per cent as against 11.72 per cent in the case of males, hence reducing the gap between males and females to 21.7 per cent.

The educational status of working children in rural and urban areas is different. In 1991, only 13.61 per cent of male child workers and 8.19 per cent of female child workers had primary level education. A Public Report on Basic Education (PROBE) was produced by the Centre for Development Economics in the Delhi School of Economics along with other institutions. They conducted a survey in 188 randomly selected villages in Bihar and Madhya Pradesh enquiring about schooling facilities in late 1996. The PROBE team also interviewed 1,221 households. Sending children to school was found to be expensive for poor parents. Moreover, the quality of schooling in rural areas discourages parents from making such effort.

During 1993-94, over 80 per cent boys and girls amongst working children are employed in the rural agricultural sector. More than 56 per cent of them are self-employed without any social protection. In urban areas, 82 per cent of children work in the non-agricultural sector such as manufacturing, mining, housing and are engaged

in all sorts of industrial work. Child servitude is both a tradition and a status symbol in India, particularly involving girls. Child workers are mostly from deprived sections of society: with parents living in urban areas with high unemployment and underemployment, from poor or landless rural communities, minorities and immigrants. Along with these factors, the existence of the caste system and sexual discrimination against girls - are also quite common to force children particularly girls to start working from an early age.

Child labour is most common in rural areas and mostly in the informal sector. Children often perform hazardous tasks. In the leather tanning industry, children are exposed to corrosive chemicals and bacterial contamination from hides. In the glass manufacturing industry of Firozabad, in northern India, children work under exploitative conditions in small workshops or private homes for low wages. Children weld the ends of glass bangle bracelets, sort bangles, engrave them on grinding wheels, and collect melted glass from boiling stations with iron rods. In the footwear industry of Agra, children work in small workshops and homes for up to 12 hours per day and are exposed to glue fumes and other chemicals. Child labour is used in the labour-intensive hand-knotted carpet industry in India, where children frequently work in a confined, area and often develop respiratory illnesses and spinal deformities from long hours crouched at the looms. In the stone quarries of the southern state of Tamil Nadu, children break stones into small pieces and carry explosives. Children also labour in brick-kiln operations and the construction industry. In the gemstone industry, children work in private homes or small workshops. The International Labor Organization (ILO) estimates that at least 20,000 children are involved in processing diamonds by cutting and polishing the stones in hazardous conditions.

Impact of Globalization:

Following Chaudhri (1996), four major reinforcing factors are considered here which generate a 'vicious spiral' resulting in a pervasive and high incidence of child labour in India. These are high fertility and infant mortality rates, high rates of illiteracy and non-participation in school education, outdated technology attempting to survive in the face of technical progress and globalization, and inappropriate public policies dealing with social infrastructures. The child population within 0-14 years, as projected for 2001, accounts for 33.8 per cent of the total population, where 49.3 per cent are female children. Of this amount, 31.2 per cent of the total population is in the 0-14 age group. Birth and death rates in 2001 were 26.1 and 8.7 respectively per thousand. The infant mortality rate has declined sharply from 93 in 1988 to 70.8 in 1999. The 9 gross enrolment ratio for primary and middle level has increased significantly. During the period from 1950-51 to 1999-2000, the number of primary schools has increased by more than three times from 210,000 in 1950/51 to 642,000 in 1999/2000 whereas the number of upper primary school (grades VI to VIII) has increased by about 15 times from 13,600 in 1950/51 to 198,000 in 1999/2000. The parental decision to make a school-age child work depends on the costs and benefits of education. Developing countries like India can enjoy the benefits of globalization in reducing child labour by spending more on education and public health. In the case of India, Swaminathan (1998) finds an increase in the numbers of working children due to recent economic growth in Gujarat, a fast growing state of India. Kambhampati and Rajan (2004) also establish that economic growth increases child labour using data from 15 Indian states with a bivariate probity model in analyzing the probability of work and schooling for boys and girls. In other studies Cigno et. al. (2002), a

negative relation is found between economic development and the incidence of child labour. In summary, some of these major factors affecting child workers have improved significantly in India since recent years. There are regional disparities

amongst various states and union territories.

The table, given below, presents State-wise Distribution of working Children according to 1971, 1981, 1991, 2001 and 2011 Census in the age group 5-14 years

S. No.	Name of the State/UT	1971	1981	1991	2001	2011
1	Andhra Pradesh	1627492	1951312	1661940	1363339	404851
2	Assam	239349		327598	351416	99512
3	Bihar	1059359	1101764	942245	1117500	451590
4	Gujarat	518061	616913	523585	485530	250318
5	Haryana	137826	194189	109691	253491	53492
6	Himachal Pradesh	71384	99624	56438	107774	15001
7	Jammu & Kashmir	70489	258437		175630	25528
8	Karnataka	808719	1131530	976247	822615	249432
9	Kerala	111801	92854	34800	26156	21757
10	Madhya Pradesh	1112319	1698597	1352563	1065259	286310
11	Maharashtra	988357	1557756	1068427	764075	496916
12	Chhattisgarh				364572	63884
13	Manipur	16380	20217	16493	28836	11805
14	Meghalaya	30440	44916	34633	53940	18839
15	Jharkhand				407200	90996
16	Uttaranchal				70183	28098
17	Nagaland	13726	16235	16467	45874	110629
18	Orissa	492477	702293	452394	377594	92087
19	Punjab	232774	216939	142868	177268	90353
20	Rajasthan	587389	819605	774199	1262570	252338
21	Sikkim	15661	8561	5598	16457	2704
22	Tamil Nadu	713305	975055	578889	418801	151437
23	Tripura	17490	24204	16478	21756	4998
24	Uttar Pradesh	1326726	1434675	1410086	1927997	896301
25	West Bengal	511443	605263	711691	857087	234275
26	Andaman & Nicobar	572	1309	1265	1960	999
27	Arunachal Pradesh	17925	17950	12395	18482	5766
28	Chandigarh	1086	1986	1870	3779	3135
29	Dadra & Nagar Haveli	3102	3615	4416	4274	1054
30	Delhi	17120	25717	27351	41899	26473
31	Daman and Diu	7391	9378	941	729	774
32	Goa			4656	4138	6920
33	Lakshadweep	97	56	34	27	28
34	Mizoram		6314	16411	26265	2793
35	Pondicherry	3725	3606	2680	1904	1421
	Total	10753985	13640870	11285349	12666377	4353247

Source: Ministry of labour, Govt. of India

As per Census 2011, the total child population in India in the age group (5-14) years is 259.6 million. Of these, 10.1 million (3.9% of total child population) are working, either as 'main worker' or as 'marginal worker'. In addition, more than 42.7 million children in India are out of school. However, the good news is that the incidence of

child labour has decreased in India by 2.6 million between 2001 and 2011. However, the decline was more visible in rural areas, while the number of child workers has increased in urban areas, indicating the growing demand for child workers in menial jobs. Child labour has different ramifications in both rural and urban India.

Policies Implications and Conclusion:

Major question is : How is the Indian Government performing in combating the child labour problem in the era of globalization? The answer is mixed. Challenges have been met in some areas like education, health and overall development of children in improving the situation since the early 1990s. India has not yet ratified ILO Conventions 138 and 182 on banning child labour and eliminating the worst forms of exploitation. A national law enacted in 1986 (The Child Labour Prohibition and Regulation Act), introduced compulsory education for under 14s and prohibited child labour in dangerous sectors. The Government prohibits forced and bonded child labour but not able to enforce this prohibition. The law prohibits the exploitation of children in the workplace. There is no overall minimum age for child labour. Work by children under 14 years of age was barred completely in "hazardous industries," which includes among other things, passenger, goods, and mail transport by railway. Child labour is prohibited in certain hazardous industries where there are specific age limits for specific jobs. In occupations and processes in which child labour is permitted, work by children is permissible up to maximum of 6 hours between 8 a.m. and 7 p.m., with 1 day's rest weekly. The enforcement of child labour laws is the responsibility of the state governments; however, enforcement is inadequate, especially in the informal sector in which most children are employed. Recently, a Supreme Court decision increased penalties for employers of children in hazardous industries to \$US 430 (20,000 Rs) per child employed and established a welfare fund for formerly employed children. The Government is required to find employment for an adult member of the child's family or pay \$US 108 (5,000 Rs) to the family. According to the South Asian Coalition on Child Servitude (SACCS) the authorities pursue thousands of cases every year against

employers. The Supreme Court ruling also help the local government officials to be more aware of the prohibitions against child labour in hazardous industries. This in some cases helped improve cooperation between local officials and NGOs like SACCS that removed children from hazardous workplaces. Over 80 per cent of child labour in India is found in occupational categories for which neither regulation nor prohibition is contemplated by the ILO and the Government of India. Policy-makers, if they are serious about reducing deprivation of children and child labour in India, they need to devote a substantial part of their efforts in this area to enforce the existing laws in reality. The Government participated in the ILO's International Program on the Elimination of Child Labor (IPEC). Approximately 145,000 children were removed from work and received education and stipends through IPEC programs since they began in the country in 1992. State government laws set minimum wages, hours of work, and safety and health standards. The Factories Act mandates an 8-hour workday, a 49-hour working week, and minimum working conditions. These standards were generally enforced and accepted in the modern industrial sector; however, not observed in informal sector and in less economically stable industries. In 1994, government created a National Authority for the Elimination of Child Labour (NAECL). The Ministry of Labour and Employment has been implementing the National Child Labour Policy (NCLP) through the National Child Labour Projects (NCLPs). Around 100 projects were launched under the NCLPs across the country during the Ninth Five-Year Plan (1997/02). The government has committed to extend the coverage of the NCLPs to an additional 150 districts with a budgetary allocation to over Rs 6 billion during the Tenth Five-Year Plan (2003/07). The ILO's IPEC programme along with the NCLPs scheme has started both integrated and state based approaches. The

Integrated Area Specific Programme (IASP) started in 2000, looked at all interlinked issues that cause child labour at the district level. This has been completed. The state based programme covers a state as a whole. The Andhra Pradesh State Based Project (APSBP) is one example addressing the issue of child labour covering geographical boundary of the state with all sectors. The United Nation's Children Fund (UNICEF) supported initiatives are also operating in different districts. A great number of Non Governmental Organizations (e.g. Action Aid India, Butterflies, CARE India, CINI ASHA, Prayas, World Vision India among others) both local and international also exist in assisting working children. The process of monitoring and evaluating various schemes sometimes suffers from serious drawbacks. There is a lack of timely and effective feedback from high to lower levels, large amount of paperwork at all levels, and finally, the failure to establish a link between costs and benefits. The existing evaluation techniques used by the government to assess schemes like the Integrated Child Development Scheme (ICDS) are criticized and there is a need for independent agencies which can be more reliable in monitoring these schemes. During the period of the tenth five-year plan, the ICDS will be extended to 5652 projects covering 54.3 million children and 10.9 million mothers. Strategies are being implemented to improve the child labour situation under the current five-year plan. Major schemes for educational improvement include the Universal Elementary Education (UEE), 'Sarva Shiksha Abhiyan', mid-day meals scheme, the schemes for female and under privileged child workers. Also various schemes, such as 'Operation Blackboard' scheme, establishment of Colleges of Teacher Education (CTEs) and Institutes of Advanced Studies in Education (IASEs) for pre-service and in-service training for secondary school teachers have been introduced to improve the quality of

teachers. To improve the supply, quality and retention power of of education system, the authorities must act at central, state and district levels. More collaborative efforts with the private sector and expansion of the role of private initiatives will help in this respect.

Finally, We can say that the impact of globalization on child labour are interesting, but not beyond the controversy. Studies are limited on this topic though substantial literature exists on child labour. This study reveals that theoretical arguments could be made on both sides: globalization increases child labour and globalization decreases child labour. The empirical evidences on different countries and regions also give us mixed results with regard to child labour-globalisation nexus. The actual effects probably depend on country/region specific other socio-economic factors and government policies.

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IMPACT OF WESTERN CULTURE ON YOUTHS : REFERENCE TO PATNA DISTRICT

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Presentation : 17 / 01 / 2020

Supervisor : Priyanka Kumari

ABSTRACT

This research project traces the trajectory of impact of western culture on youths. In the Modern era, it has been observed the greater involvement of western culture in Indian Society, largely influence on youths. The process of globalization may have increased the value of western Culture. The research is collection of necessity of following western culture among youths, why they are deeply concentrated toward the western culture. Influence of technology, and taking into considerations, the youth

mindset deeply enhanced and becomes more attractive towards western culture.

Key word : Westernization, Globalization, Technology, Indian Culture.

INTRODUCTION

Western culture is equated with western civilization, western lifestyle or European civilization. Western culture refers to the culture that has developed in the western world. Its concept is generally linked to the classical definition of Western World.

Important Traditions are:-

- Scholasticism
- Age of Enlightenment
- Secularization
- Scientific Method
- Renaissance

Influence of western culture on India

India is secular country where the people have the freedom to practice any religion and also to

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convert into another religion of their choice. All the culture are freely accepted and respected by the Indians. It is an environment to cultivate or build oneself ethically socially and in all other aspect that lead on all over human development. But, the influence of western culture started in India during the 19th century when the British establish their colony in the country. Western culture considered as the most advanced culture on globe and has started surmounting its flavor on Indian roots.

Impact of western culture on youths

The western culture is impacting on the Indian culture and especially Indian youths in many ways. Like Goods, Festivals, Culture, Dressings, Foods, Public health, Labor, Education, Films and Thinking.

The western culture has brought many negative as well as positive impacts upon Indian youths. (However, it has also brought many benefits as well.)

Positive

- **Modernization**

Western culture helps Indian youth, to think logically and modern rather than of our superstitious believes of Indian myths.

- **Public health**

Lots of increment in the medical line, providing sanitary pads for periods and making aware about hygienic.

- **Labor**

The presence of western traders in India has increased the demand for goods & services among youths.

- **Education**

Vigorously change in field of any society. Launched; vocational courses, traditional courses, degree of doctrine policy, etc. It brought enlightenment in the field of education.

The western culture virtually trained the Indian's youth mind set up. In fact some went so far as to endeavor to build p a new Europe on the soil of India. "Western influence created a class of indent's who were near neither Hindu nor British in their outlook" - a class of which Pandit Jawaharlal Nehru was perhaps the outstanding example.

India was known as "Sone ki chidiyan" but the shine has faded away gradually with the change in time. Indian Society has evolved into a mixed breed of western and Indian culture these things must be understand by or youth, they are only the upcoming generation of our country. We all should appreciate and integrity of our heritage of our culture that makes us unique in all over the world as a 'secular country'.

Negative

- **Dressings**

Impact of western culture is ruining the traditional clothing of the Indian culture. Influence of Jeans, T-shirts, Shorts, Sleeveless, backless, etc.

- **Festivals**

Today large no. of people in India are not celebrating their own festivals like Holi, Dewali but inspite of these the youth celebrate Christmas day, valentine's day, Mother's day, Birthday, Halloween etc.

- **Love relationship**

Casual relationship, one night-stand, pre-marital affairs, lusty relationship, live-in relationship has been increased.

- **Foods**

The Indian plate has welcomed many western foods e.g. Pizza, Burgers, French-fries etc. and Indian foods are being less popular in India only.

- **Growing use of drugs**

Youths use Cigarette, tobacco, Alcohol, etc. according to Article of 'The Times of India' march

30, 2018, Bihar reported the highest increase in seizures of opium and hashish among all states.

- **Lifestyle of people**

Preferring Nuclear Family rather than of Joint Family. Forgetting our culture and changing them into so-called western culture.

RESEARCH METHODOLOGY

Research methodology is a systematic way to solve the research problem. It refers to search for knowledge, a scientific and systematic search for information, which are divided into some stages:-

- Objectives
- Selection of Universe
- Selection of sample and sample units
- Research design
- Sources of Data
- Interpretation of Data

OBJECTIVES

- To identify the stereotypical perception of youth development towards western society.
- To understand the logic behind of individualistic thought among youth.
- To study the influenced of globalization on mind of youth.
- To determine the influence of western culture on the perceptions of youth towards fragile relationship.

UNIVERSE

For this research 'Gandhi Maidan' area of Patna district has been taken.

SAMPLE

The sample was comprised of 50 youths in which 25 female and 25 male who were between 18 to 30 years.

SAMPLE DESIGN

For the research we have used the Purposive sampling and Stratified sampling.

RESEARCH DESIGN

For the research we have used the Exploratory research design and Explanatory research design.

SOURCES OF DATA

There are two important sources of data :

1. Primary sources of data : Interview Schedule will be used to collect the primary data. This is firsthand information and the data collected from the expertise on this field.

2. Secondary sources of data : secondary data is collected by other published and public data which is already found by others. Secondary data is collected from Published reports, newspaper, websites and articles.

CLASSIFICATION OF DATA

In this research there are total 50 respondents are selected in which 25 male and 25 female respondents who were between 18-30 years.

Table - 1

Q. Reliable factors that influences youth to follow the traditions of Western society?

s. no.		No. of respondent		Percentage
		Male	Female	
1.	Fascinating ideas	10	5	30%
2.	Becoming cool as them	5	12	34%
3.	Individualistic thought	10	8	36%
	TOTAL	25	25	100%

From the above table we find out that all those factors purposively affect the western ideas but individualistic thought scores highest from them all.

Table - 2

Q. How does Globalization affect the life of youth?

s. no.		No. of respondent		Percentage
		Male	Female	
1.	Varieties of goods and foods we all are aware of	2	9	22%
2.	Only Vantage to private Sectors	8	6	28%
3.	Globalization opened many sector & jobs	15	10	50%
	TOTAL	25	25	100%

Above table shown that the globalization affect on the youth mainly due to its opened many sector and jobs as well as incensement of private sector

Table - 3

Q. Does Globalization have affected the nutrition of food among youth?

s. no.		No. of respondent		Percentage
		Male	Female	
1.	Yes, increase of fast food (bad for health)	15	19	68%
2.	Yes, it provide may healthy food	10	6	32%
	TOTAL	25	25	100%

From the above table Globalization has affected the nutrition of food among youth by increasing the diet of fast food, which is bad for the health of youngster.

Table - 4

Q. Do you think concept of being individual values are the reasons of failure relationships?

s. no		No. of respondent		Percentage
		Male	Female	
1.	Yes	18	17	70%
2.	No	7	8	30%
	TOTAL	25	25	100%

From the above table it is clear that individualistic concept or thought are responsible among youth.

Table - 5

Q. Are all the youths dependent on the technology thoroughly?

s. no.		No. of respondent		Percentage
		Male	Female	
1.	Yes	19	21	80%
2.	No	6	4	20%
	TOTAL	25	25	100%

From the above table it is clear that yes, youth can't imagine their life without technology.

CONCLUSION

Adopting western culture is not a problem but youth should be very careful that whatever they are adopting is good or bad as per the current social standard. It is seen that the most important reason of increment of western culture is Globalization and increment of technology. Like most of the youth has the habit of using mobile 24

hour that hamper their time as well as their health. Addiction of any things is bad or we can say excess of anything will causes several mental issues that one cannot live their life without particular things.

However, everything has its two phases, negative as well as positive. Western culture has also its positive impact on youth, like it changes the mentality of youth to not to accept the false traditions like early marriage, dowry system, female violence and many more. They do not follow as well as do not support such thing. They believe in equality among every gender.

Increase of technology also helps us to do our work easier and faster, it just had made our life comfortable. Through globalization we are able to say, by and produce goods. Import and export of knowledge, changes the growth of our country

SUGGESTION

Adopting western culture is not bad but youth should not forget their culture. And it should always

keep in our mind that limited use of anything is good. Somehow western culture made youth very competitive and useful product in field of privatization and globalization as well. Hence, government of India has also put the efforts to make our youth skillful and intellectual.

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साइबर अपराध का किशोर-किशोरी के मानसिक, सामाजिक विकास पर प्रभाव : पटना जिले के संदर्भ में

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Presentation : 17 / 01 / 2020

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शब्दकुंजी: साइबर, साइबर अपराध, इंटरनेट, सोशल मिडिया, कंप्यूटर, किशोर-किशोरी

परिचय :

सारांश : साइबर एक ऐसा माध्यम है, जिससे व्यक्ति घर बैठे सारे कार्यों को ऑनलाइन कर पाता है। जिस गति से तकनीक ने उन्नति की है, उसी गति से मनुष्य की इंटरनेट, मोबाइल फोन, कंप्यूटर, आदि पर निर्भरता बढ़ी है। आज के समय, में हर वो चीज जिसके बारे में इंसान सोच सकता है, उस तक उसकी पहुँच इंटरनेट, कंप्यूटर, सोशल मिडिया के माध्यम से हो सकती है। लेकिन व्यक्तियों द्वारा लिए जा रहे इसके लाभ के साथ ही साइबर अपराधों की अवधारणा विकसित हुई। जिससे कि समाज के सारे व्यक्ति प्रभावित हो रहे हैं।

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आज दुनिया का प्रत्येक व्यक्ति प्रौद्योगिकी पर निर्भर होता जा रहा है। जैसे कि मोबाइल फोन, सोशल मिडिया, कंप्यूटर इंटरनेट आदि। यह व्यक्तियों के जीवन का हिस्सा बन चुका है। वर्तमान में सभी व्यक्ति इसका प्रयोग कर रहे हैं लेकिन मुख्य रूप से किशोर-किशोरी वर्ग इंटरनेट, मोबाइल फोन, सोशल मिडिया का प्रयोग कर रहे हैं। ये वर्ग इसका इतना प्रयोग कर रहे हैं कि ये इसके अभ्यस्त हो गए हैं। किशोर-किशोरी वर्ग (12-20) ज्यादातर इंटरनेट, मोबाइल फोन, सोशल मिडिया का प्रयोग ऑनलाइन स्टडी, ऑनलाइन गेमिंग ऑनलाइन शॉपिंग के लिए कर रहे हैं। किशोर-किशोरी वर्ग का इसका जितना लाभ मिल रहा है, वही ये सारी चीजें इनको, साइबर अपराध के क्षेत्र में ले जा रही है।

साइबर अपराध एक ऐसा अपराध है, जो कि कंप्यूटर, इंटरनेट सोशल मिडिया, मोबाइल फोन आदि के जरिए किया जाता है। साइबर जैसी चीजे मानव की सुविधा के लिए बनाई गई हैं, लेकिन इसका गलत प्रयोग साइबर अपराध को जन्म दे रहा है। इसकी भुरुआत सबसे पहले अमेरिका में हुई थी “एनसीआरबी” के आँकड़ों के

अनुसार पिछले दस वर्षों में भारत में साइबर अपराध 19 गुना बढ़ा हैं। साइबर अपराध के मामले में अमेरिका, चीन के बाद भारत तीसरे स्थान पर है। साइबर अपराध से मुख्य रूप से किशोर-किशोरी वर्ग प्रभावित हो रहे हैं। समान्यतः 18 वर्ष के नीचे वाले किशोर-किशोरी को साइबर धमकी का शिकार बनाया जाता है। साइबर अपराध को बहुत तरीकों से अंजाम दिया जाता है, जैसे कि साइबर धमकी, हैकिंग, चाइल्ड पोर्नोग्राफी, मैलेसियम सॉफ्टवेयर आदि।

मुख्य रूप किशोर-किशोरी वर्ग पर साइबर अपराध का सामाजिक मानसिक विकास पर प्रभाव पड़ रहा है। जो कि किशोर वर्ग बहुत कमजोर बना रहा है। इस प्रकार स्पष्ट होता है कि साइबर अपराध एक सामाजिक समस्या है, जो कि समाज के सभी व्यक्तियों को बहुत बुरी तरह से प्रभावित कर रहा है।

- इंटरनेट, सोशल मिडिया, कंप्यूटर का ज्यादा प्रयोग
- आर्थिक स्थिति
- व्यक्तियों का साइबर अपराध के तरफ कम जागरूकता
- मनोवैज्ञानिक स्थिति

साइबर अपराध की समस्या

व्यक्तिगत विघटन : साइबर अपराध जिस प्रकार किशोर-किशोरी वर्ग को प्रभावित कर रहा है, इससे इसका व्यक्तिगत विघटन हो रहा है। साइबर-अपराधी मानसिक रूप से किशोरी-किशोरी वर्ग को गुमराह करते हैं, जिससे उसका मानसिक दशा बुरी तरह प्रभावित होता है। वह अपने-आप को भूल जाते हैं।

पारिवारिक विघटन : जिस प्रकार किशोर-किशोरी वर्ग व्यक्तिगत रूप से प्रभावित होते हैं। जाहिर है, कि उसका पारिवारिक विघटन होगा ही वह साइबर अपराध इस प्रकार प्रभावित हो जाते हैं, कि अपने माता-पिता के साथ भी कुछ भी भोयर नहीं करते हैं, क्योंकि वह मानसिक रूप से प्रभावित होते हैं, यही कारण उसका

परिवारिक विघटन होता है।

सामाजिक विघटन : जब व्यक्तिगत, पारिवारिक विघटन होगा तो सामाजिक विघटन होना ही है, क्योंकि किशोर-किशोरी वर्ग जब अपना व्यक्तित्व, परिवार को भूल जाएंगे तो उसका समाज में कोई अनुदान नहीं होगा

साइबर कानून

सोशल मिडिया या किसी संचार के माध्यम से ब्लैकमेलिंग और धमकी देना धारा 66 ए के तहत दंडनीय कारवाई।

- पहचान की चोरी 66 सी तहत दंडनीय कार्य
- पोर्नोग्राफी –आईटी कानून 2008 की धारा सजा पाँच साल एवं 10 लाख जुर्माना।
- सोशल मिडिया पर तंग करना-आईटी (संशोधन) कानून 2009 की धारा 66 (ए) की सजा-तीन साल तक की जेल एवं जुर्माना

अध्ययन पद्धति

प्रस्तुत शोध की अध्ययन प्रणाली निम्न चरणों पर आधारित है।

- अध्ययन क्षेत्र का चयन पटना शहर में स्थित बाँकीपुर बालिका उच्च माध्यमिक विद्यालय गाँधी मैदान एवं बी0 डी0 पब्लिक स्कूल बुद्धा कॉलनी को लिया गया।
- अध्ययन इकाइयों का चयन उद्देश्यपूर्ण निर्देशन द्वारा किया गया है जिसके अंतर्गत 25 किशोर एवं किशोरी ने जिसकी उम्र 12 से 20 के बीच है।

अध्ययन के उद्देश्य का निर्धारण

1. साइबर अपराध को जानना।
2. साइबर अपराध के स्वरूपों को जानना।
3. साइबर अपराध के पीछे होने वाले कारणों को जानना।
4. साइबर अपराध का किशोरों पर प्रभाव को जानना।
5. साइबर अपराध किशोरों के मानसिक एवं सामाजिक विकास को किस रूप में प्रभावित कर रहा है इसको जानना।
6. साइबर अपराध के पीछे किशोरों की मनोवृत्ति को

जानना।

किशोर साइबर अपराध से किस रूप से शिकार हो रहे हैं, इसको जानना।

तथ्यों का आकलन

तथ्यों का संकलन प्रमुखतः दो स्त्रोतों के माध्यम से प्राप्त किया है :

● प्राथमिक स्त्रोत

जिन स्त्रोतों से अनुसंधानकर्ता प्रथम बार स्वयं अपने द्वारा विभिन्न सूचानाओं और सामग्री का संकलन करता है। उसे प्राथमिक स्त्रोत कहा जाता है। उसे प्राथमिक स्त्रोत कहा जाता है। इस अध्ययन में प्राथमिक स्त्रोत में निम्न पद्धति का उपयोग किया गया है :

अवलोकन, साक्षात्कार, अनुसूची

● द्वितीयक स्त्रोत

द्वितीयक स्त्रोत वे स्त्रोत हैं, जो किसी भी रूप में प्रकाशित अथवा अप्रकाशित समस्त लिखित सामग्री का प्रतिनिधित्व करते हैं। तथा अध्ययनकर्ता को तैयार सामग्री के रूप में आवश्यक तथा महत्वपूर्ण सूचनाएँ उपलब्ध कराते हैं। इसके अंतर्गत निम्न चीजें आते हैं। जैसे— किताबें, इंटरनेट, सामाचार —पत्र मैगजीन, रिपोर्ट इसके द्वारा अनुसंधानकर्ता अपने अध्ययन से संबंधित तथ्य सामग्री को प्राप्त करता है।

तथ्यों का वर्गीकरण, सारणीयन एवं विश्लेषण

● तथ्यों का वर्गीकरण किसी भी वैज्ञानिक पद्धति का महत्वपूर्ण चरण है इसके बिना तथ्यों का विश्लेषण नहीं किया जा सकता है और न ही निश्चित निष्कर्ष पर पहुँचा जा सकता है।

1. क्या आप साइबर अपराध के बारे में जानते हैं?

तालिका संख्या-1

विकल्प	किशोर	किशोरी	संख्या
हाँ	14	11	25
नहीं	11	14	25
कुल	25	25	50

उपर्युक्त सारणी में 14 किशोर एवं 11 किशोरी

उत्तरदाताओं ने हाँ एवं 11 किशोर एवं 14 किशोरी ने नहीं में जबाव दिया।

2. क्या साइबर अपराध किशोर-किशोरी के मासिक, सामाजिक विकास को प्रभावित कर रहा है?

तालिका संख्या-2

विकल्प	किशोर	किशोरी	संख्या
हाँ	25	25	25
नहीं	0	0	25
कुल	25	25	50

उपर्युक्त सारणी में 25 किशोर एवं 25 किशोरी उत्तरदाताओं हाँ में एवं 0 में नहीं में जबाव दिया।

3. किशोर-किशोरी ज्यादातर किस तरह के साइबर अपराध के शिकार होते हैं?

तालिका संख्या-3

विकल्प	किशोर	किशोरी	संख्या
साइबर बुलिंग	14	18	31
बैंकिंग फ्रॉड	2	0	2
ई-मेल स्पूफिंग	3	2	5
सभी	6	5	11
कुल	25	25	50

उपर्युक्त सारणी में 14 किशोर एवं 18 किशोरी उत्तरदाताओं ने साइबर बुलिंग, 2 किशोर एवं 0 किशोरी ने बैंकिंग फ्रॉड, 3 किशोर एवं 2 किशोरी ने ई-मेल स्पूफिंग, 6 किशोर एवं 5 किशोरी उत्तरदाताओं ने सभी में साइबर अपराध के शिकार होने का कारण को बताया।

4. क्या आपने कभी सोशल मिडिया पर फेक प्रोफाइल बनाया है?

तालिका संख्या-4

विकल्प	किशोर	किशोरी	संख्या
हाँ	22	17	39
नहीं	3	8	11
कुल	25	25	50

उपर्युक्त सारणी में 22 किशोर एवं 17 किशोरी उत्तरदाताओं ने हाँ में, 3 किशोर एवं 8 किशोरी ने नहीं में जबाव दिया।

5. क्या कभी भी आपके मन में साइबर-अपराध करने की इच्छा उत्पन्न हुई ?

तालिका संख्या-5

विकल्प	किशोर	किशोरी	संख्या
हाँ	9	4	13
नहीं	16	21	37
कुल	25	25	50

उपर्युक्त सारणी में 9 किशोर एवं 4 किशोरी उत्तरदाताओं ने हाँ में, 16 किशोर एवं 21 किशोरी ने नहीं में उत्तर को बताया।

निष्कर्ष

आज आधुनिक समय में साइबर अपराध किशोरो के लिए बहुत बड़ी समस्या बन गयी जो कि इसको बुरी तरह प्रभावित कर रहा है किशोरों के मानसिक एवं सामाजिक विकास को भी प्रभावित कर रहा है। लेकिन आज जितनी ज्यादा यह समस्या उत्पन्न हो रही है। इसके लिए सरकार ने बहुत ठोस कदम उठाए हैं इस अपराध को रोकने के लिए बहुत सारे कानून बने हैं। जन हमने पटना के किशोरों से बातचीत की तो हमने उसे इसके प्रति जागरूक किया ताकि वह ऐसे अपराध से प्रभावित होने से बच सके।

सुझाव

प्रस्तुत कार्य हेतु हमलोग बिहार राज्य पटना जिला के विभिन्न क्षेत्रों में गए जहाँ हमलोगो ने किशोरो से बातचीत की जिससे हमें बहुत सारी जानकारीयों प्राप्त हुई किशोर साइबर अपराध से किस तरह से प्रभावित हो रहे इसका उनके सामाजिक मानसिक विकास पर क्या प्रभाव पड़ रहा है ये सारी बातों को पता चला।

अतः साइबर अपराध से प्रभावित होने वाले किशोरों के लिए निम्न सुझाव :

- सरकार को इसके ठोस कदम उठाने चाहिए ताकि किशोर साइबर अपराध होने से बच सके।
- किशोरों द्वारा सोशल नेटवर्किंग का सही प्रयोग साइबर अपराध पर अंकुश लगा सकता है।
- जब भी कोई साइट खोले तो जाँच लें कि वह साइट रजिस्टर्ड हो, अन्यथा न खोलें।

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सरकारी स्कूलों की प्राथमिक शिक्षा व्यवस्था का अध्ययन

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Presentation : 17 / 01 / 2020

Supervisor : अंजू कुमारी

सारांश : आज के आधुनिक गतिशील व यांत्रिक समाज में शिक्षा की आवश्यकता तथा महत्व दिन-प्रतिदिन बढ़ती जा रही है। प्राथमिक शिक्षा पर ही हमारा आगामी शिक्षा निर्भर करता है। शिक्षा संतुलित तौर पर बच्चों का समाजीकरण करती है और सांस्कृतिक विरासत को सफलतापूर्वक पीढ़ी दर पीढ़ी हस्तांतरित करती है। यह न केवल नए विचारों और मूल्यों को जन्म देती है बल्कि उन्हें शिक्षा के माध्यम से नई पीढ़ी तक प्रसारित भी करती है। वर्तमान समय में सरकारी स्कूलों की प्राथमिक शिक्षा व्यवस्था काफी सोचनीय बन गयी है।

अस्मिता सिन्हा

बी.ए., द्वितीय वर्ष, समाजशास्त्र (प्रतिष्ठा) सत्र : 2018-2021

मगधमहिला कॉलेज, पटना विश्वविद्यालय, पटना

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नासरा तारा

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मगधमहिला कॉलेज, पटना विश्वविद्यालय, पटना

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शब्दकुंजी: गतिशील, यांत्रिक, समाजीकरण, हस्तांतरित।

परिचय :

शिक्षा वह प्रक्रिया है जिसके द्वारा बच्चों के व्यक्तित्व और उनके भीतर छिपी प्रतिभाओं का विकास होता है। शिक्षा प्रत्येक बच्चों का समाजीकरण करता है। शिक्षा के द्वारा बच्चों के मस्तिष्क का विकास होता है। इसका उद्देश्य ज्ञान रूपी प्रकाश को प्राप्त कर अज्ञान रूपी अंधकार को दूर करना है। इसके बिना ज्ञान और विज्ञान दोनों का अभाव होता है।

शिक्षा का महत्व

किसी भी विकासशील देश को प्रगति की राह पर बढ़ने के लिए साक्षरता और शिक्षा के महत्व को समझना आवश्यक है। अशिक्षा, निरक्षरता मनुष्य को पीछे खींचता है और शिक्षा को आगे ले जाता है। भारतीय संदर्भ में भी अशिक्षा ने तरक्की की राह में अनेक मुश्किलें खड़ी की हैं। सामाजिक विकास की इमारत का मुख्य द्वार यदि शिक्षा है तो साक्षरता उस तक ले जाने वाला जनपथ। शिक्षा जिंदगी की बुनियादी जरूरत है। इसके बगैर प्रभावी लोकतंत्र और सहभागी विकास संभव नहीं है।

प्राथमिक शिक्षा

प्राथमिक शिक्षा को किसी मकान की नींव की तरह देखा जाता है जिसके कमजोर होने पर एक मजबूत मकान की कल्पना नहीं कर सकते। ठीक उसी प्रकार प्राथमिक शिक्षा के बिना व्यक्ति के उज्ज्वल भविष्य की कल्पना नहीं की जा सकती। भारत में प्रत्येक नागरिक को प्राथमिक शिक्षा पाने का मूल अधिकार प्राप्त है। 1997 में सभी राज्यों के शिक्षा मंत्रियों की सैकिया समिति के सुझावों के आधार पर शिक्षा को मौलिक बनाने के लिए 83वीं संविधान बिल पारित किया, जिनके अनुसार 6-14 वर्ष आयु वर्ग के सभी बच्चों को शिक्षा का मूल अधिकार दिया गया है।

प्राथमिक स्कूल की मूलभूत समस्याएं

मूलभूत सुविधाओं की कमी : विद्यालयों में सुविधाओं का काफी अभाव दिखाई पड़ता है जैसे—शौचालय का न होना, टेबल-बेन्च का न होना, अच्छी श्यामपट का न होना, कक्षाओं की कमी, जगह की कमी इत्यादि।

अभिभावकों का अपने बच्चों के भविष्य के प्रति उदासीनता : अभिभावक भी अपने बच्चों के भविष्य (शिक्षा) को लेकर खास रूची नहीं दिखाते हैं। वे भी सिर्फ सरकारी योजनाओं का लाभ उठाने के लिए बच्चों को विद्यालय भेजते हैं तथा प्राथमिक शिक्षा को नजरअंदाज करते हैं।

शिक्षकों के द्वारा अपने दायित्व को पूरा न करना : शिक्षक नौकरी पाने के बाद अपनी तमाम जिम्मेदारियों को भूल जाते हैं, वे विद्यालय तो आते हैं, परन्तु उनका ज्यादातर समय अपने निजी कार्यों को करने तथा आपस में हँसी-मजाक करने में निकल जाता है। शिक्षकों द्वारा ध्यान न देने के कारण छोटे-छोटे बच्चों का शिक्षा के प्रति रूची लगातार घटता चला जा रहा है।

योजनाओं का लाभ बच्चों को न मिल पाना : सरकार ने शिक्षा व्यवस्था तथा शिक्षा के स्तर को ऊँचा उठाने के लिए कई योजनाओं का निर्माण किया है परन्तु

योजनाएँ बच्चों तक बहुत कम ही पहुँच पाती हैं। कहीं मध्याह्न भोजन के गुणवत्ता पर सवाल उठता है तो कहीं योजनाओं की जानकारी लोगों को प्राप्त नहीं हो पाती है जिसके कारण बच्चे सरकार की योजनाओं के लाभ से वंचित हो जाते हैं। इसका मुख्य कारण भ्रष्टाचार है, जो बड़ें-बड़ें अधिकारियों से लेकर छोटे-मोटे स्कूल के प्रधानाचार्य भी घुसखोरी तथा लालच से खुद को वंचित नहीं कर पा रहे हैं।

योग्य शिक्षकों की कमी

तत्कालिन सर्वेक्षण में यह पाया गया है कि कुल शिक्षकों में से सिर्फ 21: ही प्राथमिक विद्यालयों के शिक्षक ऐसे हैं जिन्होंने अपने मैट्रिक का प्रमाण-पत्र सरकार को जमा किया है। यह सर्वे (NUEPA) के द्वारा किया गया था। आए-दिन हमारे मीडिया कर्मी विद्यालयों के निरीक्षण में जाते हैं तथा वहाँ के शिक्षकों द्वारा ऐसे उत्तर सुनते हैं जो काफी शर्मनाक हैं। बहुत से शिक्षक को देश के प्रधानमंत्री का नाम तक नहीं पता होता है, तो बहुत लोगों को (Sunday, Monday) तक की स्पेलिंग नहीं आती है।

बच्चों की शिक्षा की गुणवत्ता में कमी

सर्वे में यह पता चला है कि 44.6% बच्चें ऐसे हैं जो कक्षा 5 में होकर भी कक्षा 2 का ही किताब को पढ़ पाते हैं। सरकारी स्कूलों में तो यहाँ तक कहा जाता है कि VIIIth तक के विद्यार्थी को अंग्रेजी समझना तो दूर अंग्रेजी पढ़ने में भी कठिनाई होती है। 2000 ई० से पहले की स्थिति तो ऐसी थी जहाँ बच्चों को कक्षा टप्पी से अंग्रेजी का पहला अक्षर A, B, C... सिखाया जाता था। इन्हीं सभी कारणों के वजह से बिहार बोर्ड के इंटरमिडियट के रिजल्ट 2017 में लगभग 60% बच्चे फेल कर गए थे। अगर परीक्षा सही से लिया जाए तो इस संख्या में और वृद्धि हो सकती है। परीक्षा प्रणाली में गड़बड़ी के कारण बच्चों की कक्षा तो प्रत्येक वर्ष बढ़ती है परन्तु उनकी योग्यता वही के वही रह जाती है।

• सरकारी स्कूलों में प्राथमिक शिक्षा की कमी के प्रमुख कारण :

1. बच्चों तथा शिक्षकों का प्राथमिक शिक्षा में रूची न

लेना

2. अभिभावकों का बच्चों के प्राथमिक शिक्षा के प्रति जागरूक न होना
3. आधुनिकीकरण का अभाव
4. रचनात्मक तरीकों से बच्चों को न पढ़ाना

● बिहार सरकार द्वारा प्राथमिक शिक्षा के संदर्भ में किए गए प्रयत्न

सर्व शिक्षा अभियान

सर्व शिक्षा अभियान का क्रियान्वयन वर्ष 2000-2001 से किया जा रहा है जिसका उद्देश्य सार्वभौमिक सुलभता एवं प्रतिधारण, प्रारंभिक शिक्षा में बालक-बालिका एवं सामाजिक श्रेणी के अंतरों को दूर करने तथा अधिगम की गुणवत्ता में सुधार हेतु विविध अंत क्षेत्रों में अन्य बातों के साथ-साथ नए स्कूल खोला जाना तथा वैकल्पिक स्कूली सुविधाएँ प्रदान करना, स्कूलों एवं अतिरिक्त कक्षा का निर्माण किया जाना था।

प्राथमिक शिक्षा से जुड़ी योजनाएँ

- मिड डे मील योजना
- छः से चौदह वर्ष के बीच प्रत्येक बच्चे को मुत एवं अनिवार्य शिक्षा का अधिकार
- प्रोत्साहन व पुरस्कार योजनाएं
- छात्रवृत्ति व पुरस्कार
- राष्ट्रीय खेल प्रतिभा खोज योजना
- बालिका शिक्षा
- पोशाक योजना

अध्ययन पद्धति

किसी भी अनुसंधान कार्य में अध्ययन पद्धति का महत्वपूर्ण स्थान है। अनुसंधान कार्य प्रारम्भ करने से पहले समस्या से संबंधित अध्ययन पद्धति का चुनाव करना आवश्यक है। इसके अंतर्गत अवलोकन, परीक्षण, तथ्यों का संकलन, वर्गीकरण तथा सामान्यीकरण पर आधारित एक व्यवस्थित पद्धति को अपनाया जाता है। प्रस्तुत अध्ययन का विषय “सरकारी स्कूलों की प्राथमिक

शिक्षा व्यवस्था का अध्ययन” है। इस अध्ययन के अंतर्गत इकाइयों का चयन और तथ्यों का संकलन करने के लिए प्राथमिक एवं द्वितीयक स्रोत का प्रयोग किया गया है। इस शोध की अध्ययन प्रणाली पाँच चरणों पर आधारित है—

- अध्ययन की इकाई का चयन,
- अध्ययन क्षेत्र का चयन,
- अध्ययन के उद्देश्यों का निर्धारण,
- तथ्यों का संकलन (प्राथमिक एवं द्वितीयक स्रोत)
- तथ्यों का वर्गीकरण, सारणीयन एवं विश्लेषण

अध्ययन की इकाई का चयन

इस शोध कार्य के दौरान सूचनाओं को प्राप्त करने के लिए शोध के अंतर्गत कुल 50 विद्यार्थियों को लिया गया है।

अध्ययन क्षेत्र का चयन

इस शोध में अध्ययन-क्षेत्र के रूप में पटना शहर में गाँधी मैदान स्थित “बाँकीपुर गर्ल्स हाई स्कूल” और दूसादी पकड़ी स्थित “प्राथमिक विद्यालय” को कार्य हेतु लिया गया है।

अध्ययन के निम्न उद्देश्य हैं :

- सरकारी स्कूलों में प्राथमिक शिक्षा की स्थिति को जानना।
- सरकारी योजनाओं के बारे में जानना।
- सरकारी स्कूलों की बुनियादी सुविधाओं के बारे में जानकारी प्राप्त करना।
- शिक्षक अपने दायित्वों का निर्वाह कर रहे हैं या नहीं, इसकी जानकारी प्राप्त करना।

तथ्यों का संकलन

तथ्यों का संकलन दो स्रोतों के माध्यम से प्राप्त किया जाता है :

1. **प्राथमिक स्रोत** : जिन स्रोतों से कोई अनुसंधानकर्ता प्रथम बार में ही स्वयं अपने द्वारा विभिन्न सूचनाओं और

सामग्री को संकलित करता है उसे ही प्राथमिक स्रोत कहा जाता है।

2. द्वितीयक स्रोत : द्वितीयक स्रोत वे स्रोत हैं, जो किसी भी रूप में प्रकाशित अथवा अप्रकाशित समस्त लिखित सामग्री का प्रतिनिधित्व करते हैं तथा अनुसंधानकर्ता को तैयार माल के रूप में आवश्यक तथा महत्वपूर्ण सूचनाएँ उपलब्ध कराते हैं।

तथ्यों का वर्गीकरण, सारणीयन एवं विश्लेषण

तथ्यों का वर्गीकरण किसी भी वैज्ञानिक पद्धति का महत्वपूर्ण चरण है। इसके बिना न तो तथ्यों का विश्लेषण किया जा सकता है और न ही इसके द्वारा किसी निश्चित निष्कर्ष पर पहुँचा जा सकता है।

तथ्यों के वर्गीकरण का तात्पर्य उस प्रक्रिया से है जिसके अन्तर्गत तथ्यों को उनकी समानता और भिन्नता के आधार पर कुछ निश्चित वर्ग समूहों में रखते हैं। वर्गीकरण के बाद सारणीयन के द्वारा वर्गीकृत तथ्यों को व्यवस्थित एवं स्पष्ट किया जाता है जिससे वर्गीकृत तथ्य अधिक अर्थपूर्ण एवं स्पष्ट हो जाते हैं। तथ्यों का विश्लेषण सामाजिक शोध की एक प्रविधि है जिसके द्वारा विभिन्न क्षेत्रों से गुणात्मक तथ्यों को इस प्रकार व्यवस्थित और श्रेणीबद्ध किया जाता है कि उसी आधार पर परिमाणात्मक निष्कर्ष प्रस्तुत किये जा सकें।

सारणी संख्या-1

क्या शिक्षक प्रतिदिन उपस्थित रहते हैं?

विकल्प	संख्या	प्रतिशत
हाँ	40	80
नहीं	10	20
कुल	50	100

उपर्युक्त सारणी से यह स्पष्ट होता है कि शिक्षक प्रतिदिन उपस्थित रहते हैं या नहीं इसके संदर्भ में 40 बच्चों ने हाँ और 10 बच्चों ने नहीं में जवाब दिया।

सारणी संख्या-2

क्या आपके विद्यालय में शिक्षकों की संख्या विद्यार्थियों के अनुसार पर्याप्त है?

विकल्प	संख्या	प्रतिशत
हाँ	24	48
नहीं	26	52
कुल	50	100

उपर्युक्त सारणी से यह स्पष्ट होता है कि विद्यालय में शिक्षकों की संख्या विद्यार्थियों के अनुसार पर्याप्त है या नहीं इसके संदर्भ में 24 बच्चों ने हाँ और 26 बच्चों ने नहीं में जवाब दिया।

सारणी संख्या-3

क्या आपके विद्यालय में प्रत्येक विषय के अलग-अलग शिक्षक हैं?

विकल्प	संख्या	प्रतिशत
हाँ	30	60
नहीं	20	40
कुल	50	100

उपर्युक्त सारणी से यह स्पष्ट होता है कि विद्यालय में प्रत्येक विषय के अलग-अलग शिक्षक हैं या नहीं इसके संदर्भ में 30 बच्चों ने हाँ में और 20 बच्चों ने नहीं में जवाब दिया।

सारणी संख्या-4

क्या विद्यालय में शौचालय की सुविधा है?

विकल्प	संख्या	प्रतिशत
हाँ	35	70
नहीं	15	30
कुल	50	100

उपर्युक्त सारणी से यह स्पष्ट होता है कि विद्यालय में शौचालय की सुविधा है या नहीं इसके संदर्भ में 35 बच्चों ने हाँ में और 15 बच्चों ने नहीं में जवाब दिया।

सारणी संख्या-5

क्या आप मिड डे मील का लाभ उठा पाते हैं?

विकल्प	संख्या	प्रतिशत
हाँ	42	84
नहीं	8	16
कुल	50	100

उपर्युक्त सारणी से यह स्पष्ट होता है कि 42 बच्चों ने कहा हाँ हम मिड डे मील का लाभ उठाते हैं और 8 बच्चों ने कहा नहीं हमें इसका लाभ नहीं मिलता है।

निष्कर्ष

उपर्युक्त तथ्यों के संकलन के आधार पर यह स्पष्ट होता है कि सरकार की तमाम कोशिशों के बाद भी सरकारी स्कूलों की प्राथमिक शिक्षा नीति काफी दयनीय है जिसमें अनेक सुधार की आवश्यकता है। बिहार अपने शिक्षा के इतिहास के लिए संपूर्ण विश्व में जाना जाता था। यहाँ नालंदा तथा विक्रमशीला जैसे ज्ञान के केन्द्र थे, परन्तु आज जो शिक्षा की स्थिति है वो काफी असंतोषप्रद है। शिक्षकों के द्वारा बच्चों की शिक्षा की गुणवत्ता को सुधारने के जगह सरकारी योजनाओं के तरफ उनका ध्यान आकर्षित किया जा रहा है तथा अपने कर्तव्यों का निर्वाहन नहीं किया जा रहा है। सरकार भी काफी हद तक इसके लिए ज़िम्मेदार है, साथ-ही साथ अभिभावकों का भी इस समस्या के संदर्भ में समान भागीदारी है।

सुझाव

प्राथमिक विद्यालय के सुधार के लिए निम्नलिखित कदम उठाया जाना चाहिए :

- सभी प्राथमिक विद्यालय में मूलभूत जरूरतों जैसे—टेबल, बेंच इत्यादि होना आवश्यक है।



- विद्यालय में पर्याप्त स्थान अर्थात् कक्षाओं की संख्या बच्चों के अनुसार होना चाहिए तथा शौचालय निर्माण के पश्चात् उसकी साफ-सफाई की ज़िम्मेदारी किसी व्यक्ति विशेष को दे देना चाहिए।
- सरकारी स्कूलों में नियुक्त शिक्षकों की संख्या विद्यार्थियों के अनुसार पर्याप्त होनी चाहिए तथा विद्यालयों में योग्य शिक्षकों की नियुक्ति होनी चाहिए।
- बच्चों के लिए जो योजनाएँ सरकार द्वारा भेजी जाती है वो उन्हें मिल रही है या नहीं इसका रिपोर्ट सरकार को समय-समय पर लेनी चाहिए।
- बच्चों को रचनात्मक तरीकों से पढ़ाया जाना चाहिए।

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