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St. Xavier's College Jaipur



Inspiring Innovative Intelligence

Xavier's Research Projects Committee

Session 2021-22

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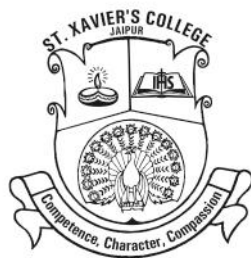
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St. Xavier's College Jaipur



Xavier's Research Projects Committee

Session 2021-22

FOREWORD

After a pandemic-imposed hiatus of two years, we are pleased to finally host the fourth edition of *InQuest “Inspiring Innovative Intelligence”*. This book, is a research endeavor by Xavier’s Research Projects Committee of St. Xavier’s College, Jaipur and has become a venue for novel research conversations among Undergraduate & Postgraduate students and research scholars. This book is a compilation of research works of scholars from different fields of knowledge.

Our theme for this year, “*The Impact of Socio-economic Policies on Global Development*” seeks to interrogate our responses to all facets of Global development. This endeavor is to discover how Socio-economic Policies contributes largely on the development of various segments in and around the Globe. While researchers worked in different fields and on different topics, they all share the same giving philosophy. Living with a focus on contributing to the world of knowledge through research isn’t just a nice goal but it can be a way of life.

The primary purpose of the Research exertion is to provide an open forum where students can present their work. This book provides several papers that are excellent examples of empirical work applied to relevant policies, framework and other Socio-economic parameters which communicates a series of dialogue in order to evaluate Global development. Research is ubiquitous in institutions of higher learning and this book is a testimony to various initiatives undertaken by the college to promote research at undergraduate level.

Research projects undertaken by the students will help them to get better in their own core subjects and explore in depth related topics. All the research papers included in this book are not only contemporary but also thought provoking. Constructive comments and suggestions from our readers are welcome for further improvement of the quality and usefulness of the book.

Finally, we hope that the readers will make good use of this valuable research material and continue to contribute their research finding for publication in this book. All efforts will continue to disseminate the research book among related communities and attract other outstanding authors and readers.

XAVIER’S RESEARCH AND PROJECT COMMITTEE

MESSAGE

I am pleased to learn that the fourth edition of *InQuest “Inspiring Innovative Intelligence”* a research endeavor by Xavier’s Research Projects Committee of St. Xavier’s College, Jaipur is been published on the theme “*The Impact of Socio-economic Policies on Global Development.*” Research is the key parameter of an institution ‘s academic growth. As a part of the team that was constituted to cater to the research-oriented needs of the students and to promote an environment of innovative learning in the college, it was a proud privilege to steer students towards the polyphonic area of critical thinking to discover new phenomena, arrive at novel conclusions and add to the existing treasure of knowledge. In the globalized context of today ‘s educational scenario, the importance of research is ever more prominent. Xavier ‘s Research Projects Committee is constituted with the aim to instill a spirit of independent research amongst the students. The purpose is ambitious: a pursuit of methodical search for relevant problems and to seek solutions through intellectual creativity as well as to create an educational environment that fosters challenging researches.

I believe that this tiny effort in a field of oceanic proportions will contribute to catalyzing a positive change in the lives of our students by nurturing versatility that is needed to succeed in this highly volatile global environment. The Committee has been successful in engaging young scholars in meaningful research activities through various projects and has utilized college education as a means to promote and foster *out -of -the -box* thinking capabilities of our students. This year’s theme “*The Impact of Socio-economic Policies on Global Development*” will probe a plethora of issues some strategic in nature, some tactical, some others more existential. Our pivot is on inclusive and human-centric development, and re-balancing of the global order. This endeavor is to discover how Socio-economic Policies contributes largely on the development of various segments in and around the Globe. We are during a perfect storm, and our assumptions are shaken. It is no longer the time to hark upon our pre-pandemic ‘*normal*’—riddled as it was with inequality and exclusion.

It is time for a ‘*new world*’, a time to talk coherently about what is substantive and sustainable, and thereby, make the right choices. This exposure to an environment of creative thinking through pedagogical tools will eventually enhance students ‘knowledge of the field, writing skills and research ability thus preparing them for future. I applaud the faculty members for their untiring efforts and congratulate the students for their innovative work. I wish you all insightful and thought-provoking research thrusts that may yet pave the way for a more inclusive future.

Rev Fr Dr A Rex Angelo SJ
Principal



St Xavier's College - Jaipur

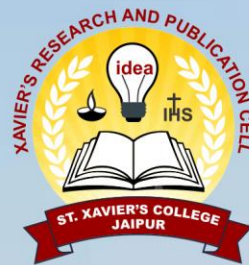
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NATIONAL SYMPOSIUM

on

"The Impact of Socio-economic Policies on Global Development"

10-11 March 2022

DECENT JOBS &
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EQUALITY

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REDUCED
INEQUALITIES

DIGITAL SERVICES
TO EMPOWER SOCIETIES

NO
POVERTY

Transforming
India's Development

Important Dates

Last Date of Abstract Submission:

5 February 2022

Last Date of Registration and Payment:

10 February 2022

Last Date of Full Paper Submission:

25 February 2022

Last Date for Presentation Submission:

1 March 2022

We are aware that the situation regarding COVID-19 is a cause for apprehension. There will be an option for Hybrid participation.

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ANNUAL REPORT' 22

XAVIER'S RESEARCH AND PUBLICATION CELL (RESEARCH AND PROJECT COMMITTEE)

The Jaipur Xavier Educational Association (JXEA) in its endeavour to Impart Quality Education has established Xavier's Research and Publication Cell (XRPC) in St. Xavier's College, Jaipur for promoting quality research work, innovation, lateral, critical and analytical thinking, in various disciplines.

Having achieved a reputation as an excellent academic institute, there has been a paradigm shift to achieve excellence in research. As a measure to create a forum to discuss emerging research trends in various domains of promote research, multidisciplinary conferences are part of the college activity for promoting research.

Research and Projects Committee (RPC) has been established at college level to promote undergraduate and postgraduate research among students, projects based on field survey are evaluated by outside experts and quality projects are published in the form of chapters in the College Research book INQUEST.

The Research and Project Committee (RPC) has been quite active in the Year 2021- 22. XRPC aims to accelerate the research for faculties and students through publications, projects, symposiums to enhance the quality of and capacity to conduct research. It is the special endeavour of RPC to promote every noble idea that the faculty thinks has great potential for research. The faculties are also encouraged to groom research skills of those students who show inclination towards research even at the undergraduate level.

Research and Project Committee (RPC)

- Dr Vaishali Singh (Coordinator)
- Mr Yashwardhan Singh (Assistant Coordinator)
- Dr Nitasha Khatri (Member)
- Dr Neelu Sharma (Member)

Major Activities held in 2021-22

- National Level Symposium for Students 2021-22
- Fundamentals of Research Methodology: Paper Writing Skills and Publication Ethics
- Publication of Inquest- Student Research Book 2019-20
- Publication of Inquest Student Research Book 2020-21

Keeping in mind the above objectives, The Research and Project Committee (RPC), St. Xavier's College - Jaipur had organized a National Symposium in hybrid mode on 10- 11 March 2022.

The Symposium aimed to provide a platform to the student researchers (UG and PG courses) to share and discuss the various aspects of 'Transforming India & Development' in the present day socio-cultural-economic contexts.

The Symposium hosted eminent speakers from academia in various technical sessions (Dr Satyabrata Roy, Assistant Professor, Department of Computer Science and Engineering, School of Computing & Information Technology, Manipal University Jaipur, Dr Saurabh Sharma Associate Professor Head, Department of Commerce School of Business and Commerce Manipal University, Jaipur, Dr Girdhari Lal Meena, Assistant Professor, Department of Economics, University of Rajasthan, Dr Urvashi Sabu, Associate Professor, Department of English, PGDAV College, University of Delhi.) along with the presentation of selected peer-reviewed articles researched under the mentorship of their teachers.

The sessions were organised parallelly under broad sub-themes of the symposium where diverse range of topics were discussed on Restructuring Business and Management Practices with Innovation, Knowledge, Technology and Complexity in Scientific Growth, Political and Economic discourse towards sustainable development and its psychological implications and Changing Dimensions of Literature: Impact of Rapid Globalization on Literature.

There were two plenary sessions on both the days on ‘Fundamentals of Research Methodology: Paper Writing Skills and Publication Ethics’ by Dr Satish Kumar Associate Professor Department of Management studies from MNIT Jaipur. The session was tailor made for the participants to apprise themselves of research techniques.

The key highlights of the symposium were evidence based synthesised research and its presentation on various aspects. Over 96 abstracts were received from student researchers across the country and more than 90 presentations were chosen to be presented in the sessions spread over two days followed by the distribution of awards for Best Paper Award in each technical session, Certificate of Participation to every. The selected papers will be published in the Edited Volume of INQUEST (Students’ Research Publication) with ISBN number.

SPECIAL THANKS AND GRATITUDE

Xavier’s Research and Project Committee (RPC) express our gratitude and conveys a special thanks to the Management, Staff and Students of college for the Academic session 2021-22 for the support and guidance in publishing this endeavor of research.

RESOURCE PERSONS

❖ Workshop on Fundamental of Research Methodology

- Keynote Speaker: Dr. Satish Kumar, Associate Professor, Dept of Management Studies, Malaviya National Institute of Technology, Jaipur

❖ Paper Writing Skills

- Session Coordinator(s): Dr Nitasha Khatri and Mr. Yashwardhan Singh

❖ Publication Ethics

- Session Coordinator(s): Mr. Yashwardhan Singh and Dr Nitasha Khatri

❖ Technical Session (I) titled ‘Restructuring Business and Management Practices with Innovation’

- Session Coordinator(s): Dr Leena Sharma and Dr Ekta Puri
- Keynote Speaker: Dr Saurabh Sharma, Associate Professor, Head, Department of Commerce, School of Business and Commerce, Manipal University, Jaipur

❖ Technical Session (II) titled ‘Knowledge, Technology and Complexity in Scientific Growth’

- Session Coordinator(s): Dr Aparna Dixit and Ms Keren L Daniel
- Keynote Speaker: Dr Satyabrata Roy, Assistant Professor, Department of Computer Science and Engineering, School of Computing & Information Technology, Manipal University Jaipur

❖ Technical Session (III) titled ‘Political and Economic discourse towards sustainable development and its psychological implications’

- Session Coordinator(s): Dr Meeta Sharma and Ms Poorvi Medatwal
- Keynote Speaker: Dr Girdhari Lal Meena, Assistant Professor, Department of Economics, University of Rajasthan

❖ Technical Session (IV) titled ‘Changing Dimensions of Literature: Impact of Rapid Globalization on Literature’

- Session Coordinator(s): Dr Atiqa Kelsy and Dr Rama Hirawat
- Keynote Speaker: Dr Urvashi Sabu, Associate Professor, Department of English, PGDAV College, University of Delhi.

LIST OF CONTRIBUTORS

<i>Chapter</i>	<i>Title of Paper</i>	<i>Students</i>	<i>Supervisor</i>	<i>Page No</i>
Chapter 1	Analysis of Unreliable Single Server in Markovian Queueing Model With Working Breakdown	<i>Anshu Yadav</i>		
Chapter 2	Role of Spirulina in Boosting Immunity	<i>Misha Katewa Merlin V Varghese</i>	Dr. Neelu Sharma	
Chapter 3	Mending Stem Cell Lineage Through Artificial Intelligence- A Critical Review	<i>Rituman Sharma Ishita Tiwari Jeevant Adaniya</i>	Dr. Aparna Dixit	
Chapter 4	Impact Of Modern Technology on Society and Culture of India	<i>Rishabh Yadav Dushyant Pareek Payal Choudhary</i>	Sr. Dr. Ligimol Louis	
Chapter 5	The Pan Religion Caste Question	<i>Nameera Anjum</i>	Dr. Denny Shaji	
Chapter 6	The shift in paradigms of education - National education policy 2020 and the post pandemic scenario	<i>Anandita Singh Bhavisha Manglani</i>		
Chapter 7	Research Paper Title - Right to Information: Diluted Outstretch in Electoral Reforms	<i>Manu Garg Neha Pascal</i>	Dr Meeta Sharma	
Chapter 8	Revisiting The DDOS Attacks: Problems And Prospects	<i>Divyanshu Pareek Sourabh Joshi</i>	Dr Vaishali Singh	
Chapter 9	Attachment Styles Among Youth: An Exploratory Study	<i>Suhani Khandelwal Tarisha Badaya</i>	Ms Shiromi Chaturvedi	

Chapter 10	The Impact of Sustainable Fashion on The Global Economy	<i>Nimisha Sinha</i>	Dr. Ekta	
Chapter 11	Impact of Social Networking sites on Academic performance of Collegiate: A Sociological Study	<i>Kirat Rathore Kratika Dhoundiyal</i>	Dr. Saloni Singhania	
Chapter 12	A Substantial Strain on College Students	<i>Jash Jaiswani Mansi Bhandari</i>	Dr. Gurneet Kaur Suri	
Chapter 13	A Study on Comparative Analysis of Cryptocurrency And Stock Market In India	<i>Palak Verma Ritseh Kalyani Jaya Bothra</i>	Ms. Anjali Pareek	
Chapter 14	Sufferings Of Anne Frank As An Adolescent During Nazism	<i>Ananay Vishwas</i>		
Chapter 15	Portrayal Of Women In 'Hamlet': A Feminist Evaluation	<i>Devangna Yadav</i>	Dr Atiq Kelsy	

CHAPTER 1

ANALYSIS OF UNRELIABLE SINGLE SERVER IN MARKOVIAN QUEUEING MODEL WITH WORKING BREAKDOWN

Anshu Yadav

ABSTRACT

In this paper, single server Markovian queueing model with working breakdown has been considered. Busy state, breakdown state and repair state has been analyzed with different service rates. Arrival rate of customer (λ) is following the poisson distribution where service rate during busy state and breakdown is following the exponential distribution. During busy service state server provides the service by μ_1 rate and during breakdown state server provides the service by μ_2 rate. Breakdown effects the service rate negatively ($\mu_2 < \mu_1$). Matrix Geometric method is used to frame this model. Performance measures are derived by using inflow and outflow process. Some practical applications are analyzed for performing modal.

Keywords: Single Server, Markovian Queue, Working Breakdown, Matrix Geometric method.

INTRODUCTION

Queueing theory is the well recognize mathematical tool for solving the important problems in logical and technical design, capacity planning, performance evaluation, static and dynamic optimization of many real world objects and processes, especially in telecommunications, manufacturing, computer engineering, etc. Essential feature of the majority of real life systems and devices is their unreliability, i.e., their ability to fail at a random moment and require repair or replacement. So, the existing literature in theory of unreliable queueing systems is huge. For recent references see, Seenivashan and Abhinaya (2022) presented machine repair problem with single working and server breakdown. P. Vijaya Laxmi et.al (2018) presented analysis of a variant working queue with customer and server breakdown and to phase service by matrix method. Ezeagu et. al (2018) examined M/M/1 model with working breakdown and recovery policies on the basis of K-threshold recovery period and set up recovery. Practically, the existence of perfect reliable server is not possible due to the fact that the server may face failure at any instant in time. To recover the server from breakdown state to working state we study the impact of repair setup to overcome the situation. That is very useful for reducing the waiting time of the customers. There may be many reasons for the server's failure like power supply failures, hardware problems, etc. This interruption in service affects the service rate negatively. The model performed in this paper facilitates valuable insights for reducing the congestion in real-time service system having failure prone server such as in the banking sector, production factories, call centers, etc.

To recover the services urgently, repair setups in any form like threshold, backup, restart, etc. are required. Together with the concept of server breakdown and vacation presented by Jiya Kunwarand Senthilnathan (2012) analyze server breakdown without interruption in an M/G(a, b)/1 queueing system with multiple vacations. Ye and Liu (2017) analyzed Markovian arrival single server queueing model with working breakdown by employing the matrix geometric method to determine the steady state equations.

Markovian queueing model where the first phase of service is for all waiting customers in batch mode and second phase of service is in individual mode. Many authors applied the matrix geometric method for the queueing models and by using this a concrete solution is derived to overcome the problems long queues. Because the failure of a server may lead to the break in providing the service to customers, reservation of the server is highly desirable. So, complementary to the main server, some back-up server should be ready to resume the service when the main server breaks down. Such situation occurs, e.g., in modelling hybrid communication systems where the ultra-high speed atmospheric optic channel (FSO-Free Space Optics) has a millimeter-wave (71-76 GHz, 81-86 GHz) radio channel as a backup communication channel for situations of the unfavorable weather conditions, e.g., fog or mist, see [2]. This model suits also for description of processing of some low priority flow of customers with occasional possibility of use additional bandwidth of a channel at periods when the high priority customers are absent in the system. In this short paper, we analyze an unreliable single-server queueing system with a reliable reserve (back-up) server which suits for modelling operation of the hybrid communication systems. The rest of the paper consist of the following. Mathematical model is described in section 2. The process of the system states is described in section 3. Necessary and sufficient condition for ergodicity of this process is presented. Stationary distribution of the process states is derived in the form of generating functions. Problem of computation of stationary distribution of sojourn time of an arbitrary customer in the system is solved in terms of Laplace transform in section 4.

- **Model Description**

We consider a single server finite capacity Markovian M/M/1 queueing system with server breakdown, and repair. This model is applicable in various fields like banking sector, telecommunication, power Supply Corporation, etc. In such systems, the server breakdown is a common phenomenon as such immediate repair along with set up is required. The cost benefit study can be done by evaluating the metrics in particular when the impatient behavior of customers is prevalent. It is very necessary to deal with impatient behavior of customer because it can directly affect the system negatively. For a better understanding of the queueing situation, a state transition rate diagram is shown in figure. The following assumptions are made to formulate Markovian M/M/1 and to perform mathematical analysis.

- Customers arrive in the system according to Poisson process with rate λ_1 . Due to the unavailability of the server, the customer may join the queue with probability ξn or balk with the probability $1 - \xi n$ ($0 \leq n \leq N$). The joining probability of customers and the effective arrival rate during operational vacation.

During the busy state, broken down state and repair state of the server, the customers also arrive according to Poisson process with arrival rates λ_1 .

The service time in the vacation state is exponentially distributed with mean μ_1 .

After joining the queue, the customer waits for a certain time (τ) to get service. The customer in the queue may get impatient and leave the system without getting service.

The service time during the busy state (operational vacation state) is exponentially distributed with rate $\mu_1(\mu_1 \geq \mu_2)$.

When the server does not find any customer for service it randomly moves for an operational vacation with the rate 'a'.

The failure of the server during the busy period may arise. We assume that the server may fail in Poisson fashion with rate 'b' and immediately sent for repair; the repair time is also exponentially distributed with rate 'c'.

After repair, the server again starts providing services to the customers and moves to the busy state with rate 'r'.

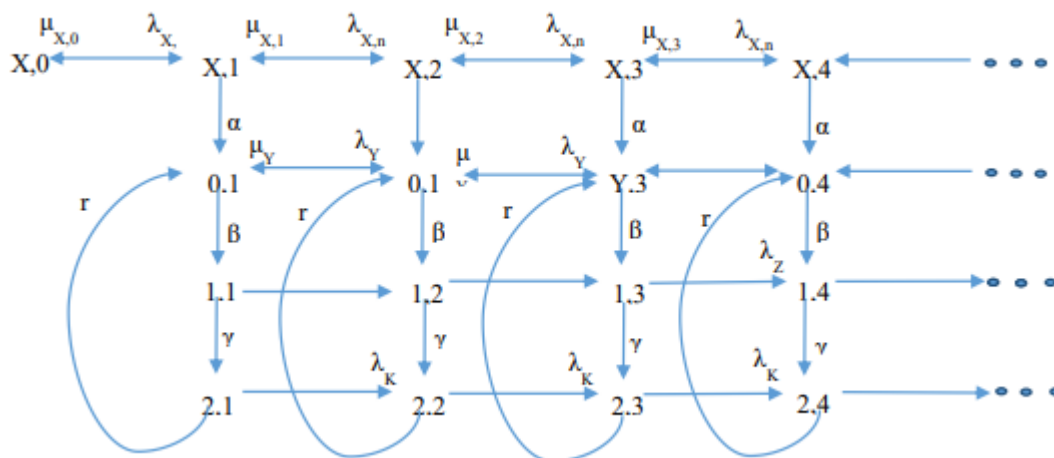
The server provides the service on a first-come-first-served (FCFS) basis.

Markovian queueing model with an operational vacation can be modelled by two dimensional continuous-time Markov process $\{G(t), N(t); t \geq 0\}$, where $N(t)$ is the number of customers in the system at time t is the server state time t with $G(t) = \{0,1,2\}$ operational vacation state busy state breakdown state repair state.

The state space of Markov Process is $S = \{(G, n) \mid i = 0, 1, 2, 1 \leq n \leq N\}$.

Following steady state probabilities are defined for formulating the model mathematical

- $P_{0,n}$ ≡ Probability of 'n' no. of customers in the system when the server is in operational vacation state, $n=0, 1, 2, \dots, N$.
- $P_{1,n}$ ≡ Probability of 'n' no. of customers in the system when the server is in busy state, $n=1, 2, \dots, N$.
- $P_{2,n}$ ≡ Probability of 'n' no. of customers in the system when the server is in broken down state, $n=1, 2, \dots, N$.



Here A_n , B , D_n are square matrices of order 4 and are given by where $n=1,2,3,\dots,N$

$$A_0 = [-\lambda_{X,n}] \quad B_0 = [\lambda_{X,n} \ 0 \ 0 \ 0] \quad D_1 = \begin{bmatrix} \mu_{X,N-1} \\ \mu_Y \\ 0 \\ 0 \end{bmatrix}$$

$$A_n = \begin{bmatrix} -(\lambda_{X,n} + \mu_{X,n-1} + \alpha) & \alpha & 0 & 0 \\ 0 & -(\lambda_Y + \mu_Y + \beta) & \beta & 0 \\ 0 & 0 & -(\lambda_Z + \gamma) & \gamma \\ 0 & r & 0 & -(\lambda_K + r) \end{bmatrix}$$

$$B = \begin{bmatrix} \lambda_{X,n} & 0 & 0 & 0 \\ 0 & \lambda_Y & 0 & 0 \\ 0 & 0 & \lambda_Z & 0 \\ 0 & 0 & 0 & \lambda_K \end{bmatrix} \quad D_n = \begin{bmatrix} \mu_{X,n-1} & 0 & 0 & 0 \\ 0 & \mu_Y & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{bmatrix}$$

and the generator $B + A_n + D_n$ is equal to

$$B + A_n + D_n = \begin{bmatrix} -\alpha & \alpha & 0 & 0 \\ 0 & -\beta & \beta & 0 \\ 0 & 0 & -\gamma & \gamma \\ 0 & r & 0 & -r \end{bmatrix}$$

The quasi birth and death process are represented by this block-tridiagonal

This method is used to formulate results for the probability vector at the steady- state. The probability vector P is determined according to generator matrix Q given by

Here A_n , B , D_n are square matrices of order 4 and are given by where $n=1, 2, 3,\dots,N$

3. Stability Condition

Stability condition known as Neuts mean drift condition defined by Neuts (1981) in theorem 6.4 states that Markov process Q is stable if and only if

$$\pi B e < \pi D n e$$

The equilibrium distribution π with generator $E = B + A_n + D_n$ satisfies the following properties

$$\pi E = 0 \text{ And } \pi e = 1$$

For our model, (9) yield

$$\pi\lambda Y + \pi\lambda Z + \pi\lambda K < \pi\mu Y$$

Performance Measures

Some important performance measures of the system are mentioned below:

System State Probabilities

To understand the distribution of customers in the system, the system state probabilities are evaluated as-

- Probability that sever is in a busy state $P(0) = \sum_{n=0}^{\infty} P_{0,n}(\tau)$
- Probability that sever is in a breakdown state $P(1) = \sum_{n=0}^{\infty} P_{1,n}$
- Probability that sever is in repair state $P(2) = \sum_{n=0}^{\infty} P_{2,n}(\tau)$

The probability of n customers in the system at time $t > 0$ is obtained by

$$P_n(\tau) = P(0) + P(1) + P(2)$$

Expected Numbers of Customers in the System

An average number of customers waiting in the queue at different state is defined as:

- The average number of customers in the busy state $E(Y) = \sum_{n=0}^{\infty} n P_{0,n}(\tau)$
- The average number of customers in the repair state $E(Z) = \sum_{n=0}^{\infty} n P_{1,n}(\tau)$
- The average number of customers in the repair state $E(K) = \sum_{n=0}^{\infty} n P_{2,n}(\tau)$

The average of the customers in the system is determined as

$$E(N) = E(0) + E(1) + E(2)$$

The output is obtained as $OP = \mu_1 \sum_{n=0}^{\infty} P_{1,n} + \mu_2 \sum_{n=0}^{\infty} P_{2,n}$

$$\text{Average time of waiting } E(W) = \frac{E(N)}{\lambda_{eff}}$$

$$\text{where } \lambda_{eff} = \lambda_{0,0} P_{0,0} + \sum_{n=0}^{\infty} (\lambda_{0,n} P_{0,n} + \lambda_{1,n} P_{1,n} + \lambda_{2,n} P_{2,n})$$

$$\text{The average delay time is } E(D) = \frac{E(N)}{OP}$$

Cost Model

In this section, we drive the cost function to make this model economically applicable. The cost model is constructed to find the total cost per unit of time. To build the cost function we consider all chosen parameters with the required recovery rate with the help of the M-threshold repair set up.

We assume that service rate quick reform with M recovery rate that is required to maintain frequent functioning of queueing system. Following cost elements are introduced for constructing the cost function:

C_h :holding cost per unit time per customer in the system

C_{00} : cost per unit time when the server is in busy mode

C_{11} : cost per unit time when the server is in breakdown mode

C_{22} : cost per unit time when the server is in repair mode

C_0 : cost per unit time when the service rate is μ_1

C_1 : cost per unit time when the service rate is μ_2

C_2 : cost per unit time when the repair rate is r

On the bases of these parameters expected cost function

$$F(M, \mu_0, \mu_0, r) = C_h E(N) + C_{00}P(0) + C_{11}P(1) + C_{22}P(2) + C_0\mu_0 + C_1\mu_1 + C_2r$$

CONCLUSIONS

We studied a queueing model of the type M/1/1 in the context of the server going on vacations, the server breaking down due to external shocks, the server repairs, and the server being helped by a backup server during vacations and repairs. A qualitative study of the model in steady-state through a number of system performance measures including the tail probabilities of the sojourn time for various scenarios is performed. The model can be generalized to multi-server case, but the dimension of the problem will increase significantly. One can also relax exponential assumptions for the breakdown, repair, and vacation times by assuming them to be of phase type. Once again, the dimension of the problem will considerably increase. These extensions can be explored in the future.

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CHAPTER 2

ROLE OF SPIRULINA IN BOOSTING IMMUNITY

Misha Katewa and Merlin V Varghese

Dr. Neelu Sharma

ABSTRACT

Spirulina is a blue-green algae and is also known as cyanobacteria. It is a food source that is rich in nutrients (mainly protein) and contains amino acids and can be consumed in many forms like capsules, powder, tablets. It is a microscopic-algae, that flourishes in the warm climate and warm alkaline water. It is found in soil, sea water, fresh water, brackish water, where there is high level of solar radiation in the tropics. They can be rod or disc shaped. Their main pigment is blue in color because of phycocyanin. It was found by a French researcher at lake Texcoco, Mexico.

There are many different Spirulina species but only some of them are identified on labels of commercially available products. The most popular are Spirulina maxima (cultivated in Mexico) and Spirulina platensis (cultivated in California).

Spirulina helps in controlling the pollution level by absorbing the toxicant pollutants and by reducing Sulphur, carbon dioxide and nitrogen in the air. It is also capable in generating some amount of oxygen so to reserve the greenhouse effect. It is also used for cleaning of DDT in polluted water to make water pure. Widely it is considered safe to use. It is used by space astronauts when they are in space as a source of food in the form of capsules and it is approved by NASA. It has been promoted as food for the future because it can synthesize more efficient food as compared to other algae. It is considered a very suitable food by WHO. It is used in more than 70 countries and is produced in more than 22 countries. The largest concentration of Spirulina can be found at lake Chad and rift valley (Africa), lake Texcoco (Mexico) requires non fertile land for the production of Spirulina. It has a vast beneficial impact in medical field because of the antioxidants found in it. It is used in the treatment of cholesterol, diabetes, high triglycerides, weight loss, allergic rhinitis, allergies (like sneezing, itching, stuffy nose), oral/mouth cancer, increases energy, helps in viral infections by stimulating the immune system. Spirulina alone has been equally beneficial as medication alone over two months period in treating mild to moderate asthma. It shows a trend of reducing the incidence of pneumonia, severe fever. Spirulina increased Glutathione (GSH) concentrations. GSH is an antioxidant that is found in Spirulina that prevents damage to the cellular components. Spirulina is also known as Arthrospira platensis (it is the scientific name). As Spirulina have the above benefits side by side it may have some side effects as it may cause headache, muscle pain, insomnia, if the person is allergic, they may face the allergic reactions of it. If Spirulina is contaminated it may cause weakness and danger to liver. Many antioxidants in Spirulina may have anti-inflammatory effects in the body. But most of the people experience no side effects from Spirulina.

INTRODUCTION

One should not consume more than 10 grams (approx.) of Spirulina in a day. Spirulina is also having Vitamin B (mainly Vitamin B2 Vitamin B6), Vitamin E, Vitamin K, Vitamin A, manganese, zinc, beta carotene, selenium, iron, copper, gamma linoleic acid.

Spirulina helps in boosting the production of antibodies and WBCs (White Blood Cells) that fights viruses, colds, infections and bacteria present in the body. Spirulina contains a high amount of iron that is more as compared to spinach (58 times more), meat (18 times more). 158% of iron needed in a day can be consumed by 100 grams of Spirulina.

Spirulina can also increase the hemoglobin in Red Blood Cells (RBCs) for the improvement of the immune system and it brings oxygen to tissues in the body. To help in improvement of anemia symptoms the person needs to take spirulina for about 6-12 weeks.

Spirulina constitutes of about 7% of lipids, it contains 10% of polysaccharides. Minerals, vitamins, carbohydrates, lipids and proteins are its nutritional composition.

Spirulina are single cell protein (SCP), it refers to source of proteins that is extracted from organisms that are single cell like algae, bacteria and fungi. It contains about 60% of protein, and also is a good source for minerals and vitamins. Proteins take longer to digest than simple carbs hence Spirulina can keep you full for longer period of time. Spirulina contains thyroid supporting minerals like iodine, amino acid tyrosine that together makes up one form of thyroid hormone. It enhances striatal dopamine recovery and induce a rapid transient microglia activation.

Spirulina shows potential to prevent carcinogenesis and to shrink tumors in animal models. There was evidence published that a combination of Spirulina and Dunaliella micro algae extracts induced the regression of tumors in the mouth of rodents. Total tumor regression was found in 30% of the animals receiving the Spirulina and Dunaliella extracts, while partial tumor regression was found in all of the remaining 70% of the animals, in control group no tumor regression was found. The further study showed that Spirulina and Dunaliella extract could prevent tumor development in rodent mouths. It shows both the preventative and a curative potential for micro algae against the cancer.

In 1940, the French phycologist Dangeard noticed that the people near Lake Chad use algae as food, later they found some women's collecting greenish soup of algae that grows there. They pour the algae paste into depressions in the sand, where it dries quickly in the sun to produce a crumbly green cake called dihe. These cakes will be cut into pieces and sold at the market then it was later added to the traditional food for flavor and nutrients. Later, in 1967 Spirulina was established as the future food source. In the 16th century Mexico made cakes of Spirulina, drying them by the banks of the Lake Texcoco, selling them as a common food of source. It was used to treat those people who were suffering from radiation sickness. It was found that the radioactivity level in the children were reduced by 50 percent in approx. less than a month of dosing them with five grams of Spirulina per day.

Spirulina boosts liver function as it is known to be alkalizing to the body. It contains chlorophyll which is used for the detoxification by removing the toxins that includes

pollutants and metals. A person should avoid taking Spirulina if they are already taking blood thinners, if have blood disorder/thinner. One should avoid taking B12 supplements or foods that are high in B12 if they are taking Spirulina as the analogues in the Spirulina can hinder B12 absorption. Pregnant women or breast-feeding women, people suffering from different allergies (like allergies to seafood or seaweed), people who have genetic condition phenylketonuria should avoid the use of spirulina or must consult their physicians for the consumption and use of it.

The external use of Spirulina can speed up the growth of hair and helps in hair re-growth. Spirulina is used as an ingredient in shampoos and conditioning treatments. Spirulina may provide anti-aging and anti-inflammatory effects because of the antioxidants it contains. Spirulina contains a high concentration of zeaxanthin, an important nutrient which is linked to the eye health. Spirulina may help reduce the risk of macular degeneration.

Spirulina support the immune system by creating a strong bolster for the body to use when faced with daily troubles such as pollution, stress, lack of exercise, poor diet, etc. clinical research has shown that spirulina boosts immunity by positively impacting antioxidant activities and immune variables in the body. Beside the basic nutrients such as essential fatty acids, amino acids, vitamins, proteins and minerals Spirulina supplies many phytonutrients that are lacking in most of our diets. Many diets are heavily lacking in many of the important nutrients necessary for immune system health. Hawaiian Spirulina is a terrific supplement for supporting immunity and should be taken by anyone who is looking for an effective immune system boost. Spirulina increases healthy lactobacillus in the intestine, enabling the production of vitamin B6 (that also helps in energy release).

A Japanese team identified the molecular mechanism of the human immune capacity of Spirulina by analyzing blood cells of volunteers with pre and post oral administration of hot water extract of Spirulina platensis. United Nations has proposed Spirulina as a food source for malnourished communities such as the Lake Chad region where arable land is difficult to cultivate. According to the Micro Organics UK (the supplier for the finest quality Hawaiian Pacifica Spirulina), Spirulina is far more water efficient than other crops and takes up far less space as compared to beef, soybeans and corns. As the Lake Chad shrinks due to the lack of rain and tensions in the region rise, malnutrition and famine are becoming more prevalent. The people have traditionally harvested Spirulina on the shores of the Lake Chad for hundreds of years.

Spirulina is used as an additive in pasta, drinks, candy, cakes and other number of products. Spirulina produces phycocyanin (spirulina contains between ten to twenty percent phycocyanin) the blue colored protein complex used as food coloring in pastry, ice cream and drinks. Spirulina has poor heat stability and fades after prolonged exposure to light. The color has been known to be unstable in highly acidic environment and fades in solution with high water activity. Tests in Belgium have demonstrated that Spirulina has healing, antiseptic and antibiotic properties and as well as the power to enhance cell regeneration. Spirulina extracts are widely used in a range of cosmetics, skin creams, anti-acne treatments, skin cleansers and make up removers. A special cream is produced for veterinary medicines to heal wounds in horses. Spirulina is used to feed ornamental carp and in agriculture, shrimps, mussels, trout

and salmon. It enhances the color of egg yolks and chicken meat. It is widely used as food additive for birds to brighten the color of feathers. It is given to horses and cattle in order to faster growth and muscle tone. Animal and test tube studies suggest that Spirulina may protect against allergies reaction of histamines, substance that contribute to allergy symptoms. But whether these preliminary studies will help people with allergies is not known till yet. European Union have also approved the color, making it one of the first natural blue color available. Spirulina processing products are employed in agriculture, food industry, pharmaceuticals, perfumery and medicines.

Antioxidation capacity supports cellular health and immunity. Spirulina (Hawaiian) has 3900% more of the immune boosting antioxidant beta carotene than carrots. Spirulina has 31 times more antioxidant activity than the immune boosting superfood blue berries. Positive results have also been seen in performance and stamina levels when Spirulina is taken as a sports supplement, the blue green algae have a high level of biotin, which is an inhibitor of lactic acid in muscles. While no micro-organism is the source of cheap protein, Spirulina continued to give rise to research and increasing production, reflecting its perceived nutritional assets.

The hot tropical climate in Tamil Nadu, India is the perfect spot for Spirulina cultivation. Spirulina is easy to cultivate, flourishes only in alkaline lake with an extremely high pH (between 9.5 to 9.8) and in large outdoor ponds under controlled conditions. It can be used in ayurvedic medicine manufacturers or the herbal medicine manufacturers. Lonar Crater Lake is a wet land of important biodiversity especially for highly proteinous alga Spirulina. Spirulina algae naturally occurs in the Lonar water. The lake water can be used for mass cultivation of Spirulina as a bio industry.

Majority of commercial Spirulina has been grown in Asia, but since it was approved as food colorant it has begun to be cultivated more in Europe and the United States. The global market for Spirulina is estimated to grow from \$719 million in 2016 to approx. \$1,800 million in 2026 with a compound annual growth rate of 10%. The demand of Spirulina increased during the Covid 19 pandemic due to the focus on the nutrition content. By 2027, it is estimated the Spirulina market will be growing more than the double of 2020 in all the regions including North America, Europe, Asia-Pacific, Middle East and Africa. It is highly consumed in the powder form followed by the tablet and capsule, liquid and then the granule and gelling agent.

Vegetarian consume products that contains ingredients or components derived from plant sources. The high amount of complete vegetable protein and various vitamins makes Spirulina dietary supplements prevalent among vegetarians and vegans. The dried Spirulina contains 70% protein by weight, almost three times more amount of protein than the beef. Thus, with the growing vegetarianism trend, the demand for Spirulina as a great source of protein is also expected to increase significantly in the upcoming years. It is like an additional boost to the diet. Researchers found that about five grams of Spirulina have 180% more amount of calcium than whole milk and 670% more protein than tofu. More antioxidant and anti-inflammatory activity in three grams of Spirulina than in five servings of the fruits and vegetables. Spirulina can get contaminated when it is grown in contaminated water with

heavy metals, bacteria, pesticides, herbicides, microcystins (harmful particles) or other damaging toxins. Eating two different foods at once will help the body to absorb nutrients better than if the person ate the foods separately.

Several pre-clinical animal studies have shown good immunostimulatory effect in a variety of species. In humans, mammals, chicken and fish Spirulina produces an immunostimulatory effect by enhancing the resistance to infections, the capacity of influencing hemopoieses, and stimulating the production of antibodies and cytokines.

Several reports suggest that Spirulina may have a beneficial effect in the prevention of cardiovascular diseases. Decreases in blood pressure and plasma lipid concentrations, especially triacylglycerols and low-density lipoprotein cholesterol have been demonstrated as a result of oral consumption of Spirulina. Total cholesterol and triacylglycerols were significantly decreased in the Spirulina group and systolic and diastolic blood pressure decreased. It is demonstrated that Spirulina not only has beneficial effects on the development of the neural system but also neuro protective effect through attenuating oxidative stress and antioxidant properties. It is a rich source of PCB. A hot water extract of Spirulina has shown promising effects on the human immune system. A study done in Japan; blood analysis of volunteers given a hot water Spirulina extract showed significant improvement in immune markers. These Spirulina extracts potentiate the immune system leading to suppression of cancer development and viral infection.

Totally 25 Spirulina samples in the form of tablets (16 samples) and capsules (9 samples) were obtained from seven different countries of origin. The tablet form of samples was ground well aseptically using a mortar and pestle and capsules were removed from the capsular form of samples and the powder were directly used for the analysis. The result of analysis of the 25 Spirulina products were heavy metal in dry weight. The order of metal concentration that was determined by this for the sample showed the content of Platinum, Mercury, Magnesium, Manganese, Nickel and Zinc. The most abundant heavy metal in Spirulina samples are Zinc and Nickel and the least abundant are usually Mercury and Platinum. Mercury and platinum were all below the detection limit in most of the globally collected Spirulina sample.

The Spirulina powder segment is estimated to remain the largest product type through 2028 in the Spirulina market. Moreover, this segment is also expected to witness rapid growth during the forecast period. The growing demand for Spirulina powder in the global market is from nutraceutical and food manufactures, where it is consumed as a dietary supplement and added in different food recipes such as salads, breakfast, desserts and many other food products.

North America is estimated to command the largest share of the overall Spirulina market in the year 2021. However, the Spirulina market in Asia-Pacific, especially in China, India, and Japan is expected to witness high growth during the forecast period. The growth in this market is expected to be driven by the presence of local and regional players, growing dietary supplement industry, growing need to eradicate malnutrition and favorable climatic conditions and low production cost.

Most commercial production systems are based on shallow raceways in which *Spirulina* cultures are mixed by a paddle wheel. However, there are still examples of *Spirulina* being harvested commercially from naturally occurring populations. In Mexico many institutes have been harvesting the *Spirulina maxima* from an area of the Lake Texcoco above the sea level in a semi tropical environment with an annual average temperature of 18 degree Celsius. Another semi-natural lake in Myanmar has been reported to be used as a production site for the *Spirulina*. In the beginning of 1984, there was a study of four volcanic lakes that had natural *Spirulina* blooms. About more than the half is harvested from the boats on the surface of lake and the rest of it is grown in outdoor ponds alongside the lake. The culture of *Spirulina* is practiced in different media especially in inorganic and decomposed organic nutrients. Different type of *Spirulina* was cultured to evaluate growth and biochemistry under similar controlled conditions. They cultured three species of *Spirulina* that are *Spirulina platensis*, *S. laxissima* and *S. lonar*. From these three species, *Spirulina platensis* showed highest growth rate, biomass, pigment concentration and low intercellular phenolics. The result indicates this that *S. platensis* reached the highest growth level in the shortest time period. The intermittent addition of urea in the autotrophic culture of *Spirulina platensis* yielded similar results to those obtained by the continuous feeding.

Spirulina cultivated has a number of advantages over traditional agriculture. *Spirulina* rapid growth means it yields more protein per unit area than other crops also it does not require fertile land for the cultivation and can actually benefit from the saline condition. *Spirulina* require less water during cultivation and brackish or saline water can be used also requires less energy input including solar and generated energy. The small-scale production of *Spirulina* is considered as a potential income generating activity. In Bangladesh during 1980, *Spirulina* was produced through a pilot project using paddle-wheel under transparent shades in the campus of council for scientific and industrial research later it established a system for the rural culture of *Spirulina*. In India, the Murugappa Chettiar Research Centre in Chennai has developed the technology and this has been successfully propagated on a large scale in the rural area of Tamil Nadu. The major cost involved in such small-scale production is the growth medium. One of the main barriers to the small-scale culture of *Spirulina* is the cost and availability of inorganic nutrients. However, there is the alternative of using organic nutrient sources, especially from waste effluent, that may be available in the rural area. Waste effluent from a fertilizer company in Nigeria was used for cultivation of *Spirulina*. The fertilizer factory waste on an average contained phosphate, nitrate, sulfate and electric conductivity. This physico chemical status of fertilizer factory waste is suitable for the growth of *Spirulina* (and also *Chlorella*).

Assuming that the rate of photosynthesis can be used as an indication of the metabolic activity of the outdoor algal cultures, the day time changes in oxygen concentration in the pond are correlated with diurnal changes in light and temperature. In summer, the main limiting factor for growth of *Spirulina* in outdoor culture is light, the daily peak in oxygen concentration is reached at the same time as light intensity is maximum. In winters, the main limiting factor is temperature because of the shift in the peak of oxygen which follows the peak in the pond temperature rather than light intensity.

The FAQ in 1981 documented the possibilities of blue green algae replacing chemical fertilizers and rebuilding the structure of depleted soils. Blue green algae are grown in shallow earthen ponds in India. When the water evaporates the dried algae are scooped up and sold to the rice farmers. This natural nitrogen source is only one third to the cost of chemical fertilizers and it increases annual rice yield in India by an average of around 22 percent. Where chemical fertilizers are not used algae give the same benefits. Algae use allows the reduction of equivalent amount of inorganic fertilizer. Spirulina is used in combination with other fertilizers gave good yield of tomato. Spirulina can be used as a replacement for protein in aquafeeds. It was found that the growth of silver seabream fed on Spirulina meal at up to 50 percent was usually not different from and feed conversion efficiency not superior to those given control diets with the solely fishmeal. At 75 percent inclusion level, growth reduces significantly, but feed conversion efficiency still comparable to the control diet which sharply reduces at 100 percent inclusion level. Spirulina is a cheaper feed ingredient than others of animal origin. China is using Spirulina as a partial substitute of imported feed to promote the growth, immunity viability of prawns. Spirulina containing feed was found to reduce the cultivation time and mortality and increase shell thickness of scallop, and also improves the survival rate of abalone, abalone shows good growth when fed a diet containing spirulina meal. Feeding on Spirulina helped to improve disease resistance of high value fish resulting in an improvement in their survival rate from 15 to around 30 percent.

One should be careful about where the Spirulina consumed by them comes from as all its potential goodness may be compromised due to contamination from toxic metals. Like the Spirulina grown in Japan may have absorbed radiation (due to the nuclear disasters), Spirulina grown in China may have been contaminated with lead, mercury and arsenic. It is also important to make sure that Spirulina wasn't grown more in the sea water, since it may have absorbed unhealthy level of iodine from the salty water. To ensure that the Spirulina one wants to consume is pure and clean the best way is to opt for an organically certified product. Spirulina grown in microscopic spirals that tends to stick together makes it easier to harvest. Spirulina has a unique quality to neutralize or to detoxify toxic minerals, a characteristic that is not yet confirmed in any other micro algae. Spirulina has a unique quality to detoxify arsenic from water and food. Beijing university has extracted bioactive molecules from Spirulina which could neutralize the toxic and poisonous effect of heavy metal and which showed the anti-tumor activity. Several institutions in China are focusing on the biomolecules which show anti-tumor, anti-age and anti-radiation properties.

Spirulina is produced in 22 different countries Benin, Brazil, Burkina Faso, Chad, China, Costa Rica, Ivory Coast, Cuba, Ecuador, France, India, Mexico, Madagascar, Myanmar, Peru, Israel, Spain, Thailand, Togo, Vietnam and United States. According to the data and reports in 2004, the total industrial production of Spirulina was about 3000 tons a year. In the United States, India, Thailand, China, Taiwan and Vietnam two types of open raceway ponds are used the first which is more capital intensive it is lined by concrete (Thailand and India). The second is a shallow earthen tunnel lined with other durable plastic. The cost and durability of the lining significantly influences the capital costs and thus the economic feasibility of this biotechnology.

METHODOLOGY

We did an experiment in a hospital on ten patients who were suffering from different diseases like diabetes, high blood pressure, fever, cold, allergies, infections, high triglycerides, low energy level, high cholesterol level, high blood pressure and mild to moderate asthma. These patients were given Spirulina mixed with three juices i.e., Ginger, Lemon and mint for two months.

RESULT

After one month of intake of Spirulina – the disease level of these patients went down there was improvement in their health condition to much extent. After two months of intake of Spirulina these patients mainly recovered from their diseases and there was an increase in their immunity level.

CONCLUSION

Spirulina showed a 100% result in these diseases of the patients and there was an increase in their shelf life also. Spirulina is highly nutritious and show higher concentration of nutrients compared to the other food sources. It is the most nutritious concentrated whole food sources found in the nature. It shows potent immune system stimulating effect. It also shows anti-viral activity against a variety of harmful bacteria and virus and cardiovascular benefits including improvement of blood lipid profile, control of hypertension. NASA included Spirulina in the diets of astronauts during the space missions. United Nations declared it to be the best food for the future and WHO recommended it specially for nourishing the children.

REVIEW OF LITERATURE

Many researches have been done till now about Spirulina. A person said that spirulina helped him in boosting his energy level, other said that Spirulina helped her in her blood pressure level and also the sugar level, another one said that Spirulina helped in his asthma. There are many people who have got the benefits of Spirulina and Spirulina helped them overcoming their diseases and in increasing their energy level with boosting their immunity.

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CHAPTER 3

MENDING STEM CELL LINEAGE THROUGH ARTIFICIAL INTELLIGENCE- A CRITICAL REVIEW

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ABSTRACT

Stem cells are precursors to all the cells in a human system; these are undifferentiated cells that proliferate to form specialized tissues and organs. Based on origin stem cells are of two types embryonic and adult stem cells which can be manipulated using streams of Artificial Intelligence that are machine learning and deep learning and could be helpful in tissue engineering or regenerative medicine. The point of concern to hoist this topic is not only its exclusivity but also the need of humankind, the biomedical system, and especially the posterity who can be victims of many unfortunate medical conditions, having seen the present scenario.

This paper is a review focused on the relevance and significance of altering stem cell lineage through Artificial Intelligence in the domain of scientific research. Subsuming Artificial Intelligence with the regeneration of stem cell lineage can provide a cutting edge advantage in the translation of regenerative medicine into clinical procedures, which is much needed in medical science to replace exhaustive surgical procedures that might not assure absolute recovery of the tissue or organ.

This technology can simulate the optimal environment required for cell growth and can replace putrefied cells with spanking new healthy cells that perform the same functions better. Encompassing Artificial Intelligence in stem cell treatment can make advancements in tissue regeneration, treating autoimmune, traumatic, orthopedic, neurological disorders; cardiovascular, blood disease treatment, and cell deficiency therapy which can revolutionize the face of biomedical sciences. Atypical cell proliferation is the root cause of conditions like malignancy and congenital disabilities, being armed with this knowledge we can discover the cure of some incurable conditions, not only this, stem cells can help in drug development and testing, rather than human drug trials we can assess the drugs on the tissue grown from stem cells by which it can contribute to research purposes.

The fusion of artificial intelligence with stem cell lineage is transformative yet a skeptical thought but has the utmost potential to revolutionize the field of regenerative and biomedical sciences. A wide range of possibilities justifies this methodology as a turning point in modern medicine, providing hope to irremediable diseases.

Keywords: stem cell lineage, Artificial Intelligence, regenerative medicine, putrefaction, proliferation

INTRODUCTION

In today's era, the fame of regenerative medicine and experimentation with stem cell treatment has proved to be a breakthrough in treatments indulging repair response of any diseased, damaged, or wounded tissue. It would be the successor in organ transplantation as it employs cells rather than donor organs, confirming the refreshed version of the tissue. The modern era of medicine has introduced such concepts of healing, that rather than reacting to the syndrome it has metamorphosed to regenerate the whole putrefied tissue. In current times stem cell treatment is being used to treat autoimmune, inflammatory, neurological, orthopedic, and traumatic disorders.

It would change the face of medicine if it could answer to anti-aging and a disease-free state. Stem cells could be differentiated based on the potential that they sustain, the categories are totipotent, pluripotent, multipotent, and unipotent. The pluripotent stem cells contain a greater amount of potency comparatively as they are isolated from the inner cell mass of the embryo's blastocyst, thus they are the most suitable for therapeutic purposes. Regardless of being an impeccable technique, unwanted or unexpected errors could prevail while nursing patients with stem cells.

“Artificial intelligence is defined as the science and engineering of making intelligent machines, intelligent computer programs”, this was given by Computer Scientist John Mc Carthy at Dartmouth in 1956. Medicine is approaching Artificial Intelligence to get to grips with regenerative medicine and abolish convoluted errors. The significance of AI in health care is as prominent as it not only can scrutinize multiplex medical data but promises to employ meaningful connections within a dataset helping in the early diagnosis and treatment of fatal diseases.

The precision, efficiency, and accuracy of technology have created an elbow room to rehabilitate the corroding flesh. Therapeutic cloning with the help of stem cells has a strong evidential history for considering it to serve mankind and biomedical sciences. Stem cell therapy began, about 60 years ago with a bone marrow transplant by a French oncologist, Georges Mathé, he treated six patients who were exposed to nuclear radiation and a patient who suffered from Leukemia (2).

This technique uses stem cells or their derivatives to mend dysfunctional tissues by creating new cells or self-renewing themselves further eliminating the need for donor organs that are low in availability. Though these types of cells contain immense potential, some consequences may lead to the development of a dangerous situation indulging in stem cell therapy. To obtain embryonic stem cells, the human embryo has to be compensated, which is ethically not appropriate, thus Artificial Intelligence and its protocols are being used to convert stem cell lines to differentiate into stem cell lineages incorporating more potency and less immorality. Integration of Artificial Intelligence with that of regenerative medical sciences inspires to treat irrecoverable diseases like Parkinson's, Alzheimer's, Multiple Sclerosis, Spinal cord injuries, Ocular diseases, dentistry-related dysfunctional, etc.

LITERATURE REVIEW

Stem cells are undifferentiated cells that have the potential to proliferate into any type of cells of the body and have the potential to regenerate the entire organism. On the grounds of origination stem cells are classified into two major types: adult stem cells and embryonic stem cells.

ADULT STEM CELLS

These cells are also known as somatic cells and tissue-specific cells, adult stem cells are present throughout the body from the time an embryo starts developing. The cells are in a nonspecific state, but are more functionally specialized than the embryonic stem cells, as they are particularly responsible for making skin and muscle cells.

Adult stem cells work on the maintenance and repair mechanism of the body, everyday living means constant renewal of cells and over time body entirely renews itself and that's what stem cells do in the adult body.

Stem cells are present inside different types of tissues. stem cells could be found in tissues including:

- The brain
- Bone marrow
- Blood and blood vessels
- Skeletal muscles
- The liver

Adult stem cells can proliferate indefinitely, subsequently, they can generate a variety of cells from the originating organ and can even regenerate the entire organ in the same way as it heals wounds or the way the liver regenerates itself.

EMBRYONIC STEM CELLS

Embryonic stem cells come into play from the initial stages of gestation, after the fertilization when an embryo starts developing. These are the cells that are responsible for the formation of the entire organism and can differentiate into any type of cell.

Embryonic stem cells can be derived from the following organs of the embryonic body:

- Fetal tissue
- Amnion
- Amniotic fluid
- Umbilical cord
- Placenta

But deriving embryonic stem cells might claim the life of an embryo and may stir up ethical concerns so that is where artificial intelligence comes into play and impart pluripotency to the adult stem cells as they could be derived without any risks.

Further, the stem cell could also be classified based on their ability to differentiate into multiple cell types:

Totipotent: These stem cells can differentiate into all possible cell types. The first few cells that appear as the zygote starts to divide are totipotent.

Pluripotent: These cells can turn into almost any cell. Cells from the early embryo are pluripotent.

Multipotent: These cells can differentiate into a closely related family of cells. Adult hematopoietic stem cells, for example, can become red and white blood cells or platelets.

Oligopotent: These can differentiate into a few different cell types. Adult lymphoid or myeloid stem cells can do this.

Unipotent: These can only produce cells of one kind, which is their type. However, they still stem cells because they can renew themselves. Examples include adult muscle stem cells.[1]

Embryonic stem cells are pluripotent so they can differentiate into a variety of cells on the other hand adult stem cells are restricted to only some cell types and extraction of embryonic stem cells may lead to some complexities in fetal development, that is why we require fusion of artificial intelligence with stem cell therapy which can impart pluripotency to the adult stem cells and regenerative medicine could extract benefits from this.

SUBSUMING ARTIFICIAL INTELLIGENCE WITH STEM CELL LINEAGE-

Artificial intelligence refers to the intelligence of software and machines and encompassing it in stem cell therapy can amplify the natural repair mechanism of an organism by simulating the optimal environment required for cellular regeneration.

For inducing pluripotency in adult stem cells scientists have followed the reprogramming methodology, in which differentiated cells of the body are reprogrammed into undifferentiated cells to produce induced pluripotent stem cells. These reprogrammed stem cells are artificially produced cells with properties of embryonic stem cells. Induced tissue-specific stem cells have recently been produced by incomplete reprogramming and tissue-specific selection.

Functional studies on induced pluripotent stem cells involve the inspection of these stem cell-derived tissues through manual identification, which makes this process error-prone, time-consuming, and training-dependent. To replace this process and make it an efficient one, there is a need to employ an automated instrument for the analysis of induced pluripotent stem cells.

The latest artificial intelligence has emerged as a novel technology to tackle this challenge. In particular deep learning, offers an automated platform for analyzing induced pluripotent stem cells. Deep learning rectifies data features using a convolutional neural network (CNN), a type of multilayered neural network that can play an innovative role in image recognition.

This stream of artificial intelligence is capable of identifying cells with high accuracy based on morphological and textural amendments.

As per the latest studies in this direction, emphasis is laid on recognizing and employing this method to develop predictive models for customizing the treatment as per the patient requirement and immune system responses. Artificially intelligent machinery could dissect the whole genome and isolate the immune particularities of an individual patient's disease in a matter of no time and create the treatment that is customized to the patient's genetic specificity and immune system capability.

AREAS WHERE THIS TECHNIQUE IS EMPLOYED:

Tissue Regeneration:

Tissue engineering is the field that is rearing maximum benefits of this procedure. Until now there was long waiting for organ donation and in case of shortage, there was complete organ failure and collapsing. By employing this technique and using artificially intelligent pieces of machinery just by instructing stem cells to differentiate in a certain way, it can be used to regenerate entire organs and specific tissue. This technique can also be used in making skin grafts.

Cell Deficiency Therapy:

Researchers are also looking up to this technique for developing healthy heart cells in a lab to transplant into people with heart issues; these new cells could repair heart damage by repopulating the heart with healthy tissue. Similarly, type1 diabetic people could also be treated with this technique and could receive new pancreatic cells for insulin production.

Cardiovascular Disease Treatment:

At Massachusetts General Hospital in the year 2013, a team of researchers reported that they had created blood vessels in laboratory mice, using human stem cells. Within 2 weeks of implanting the stem cells, a network of blood-perfused vessels was formed. The quality of these new blood vessels was as good as the nearby natural ones. Medical science can approach this with artificial intelligence and CNN technology to harness successful outcomes and easy recovery.

Brain Disease Treatment:

This could also be used to replace cells of the brain in conditions like Parkinson's and Alzheimer's.

The uncontrolled muscle movement in Parkinson's could be treated by replenishing the damaged brain tissues with stem cells and artificial intelligence might act as a cherry on the cake by imparting precision to this procedure and fastening the recovery. Researchers have already tried differentiating embryonic stem cells into these types of cells and the treatment turned out to be promising.

Blood Disease Treatment:

For treatment of leukemia, sickle cell anemia, and other blood-related immunodeficiency problems, adult hematopoietic stem cells are frequently used in medical science.

Pediatrics and drug development are also the fields in which this fusion of artificial intelligence and stem cell therapy has been efficacious. This technology has the potential to be employed in regenerative medicine and emerge as a rescuer in the unforeseen catastrophic situations

CONCLUSION

This narrative was to review the potential use of AI approaches and their integration into stem cell therapy and regenerative medicine which will also serve the need of humankind, the biomedical system, and especially the posterity who can be victims of many unfortunate medical conditions having seen the present scenarios. Stem cells are master cells of the body and they are the building block of all the organs, tissues, blood, and the immune system. The major search in stem cell therapy appeared in 2006 when it was possible to reprogram multipotent adult stem cells to pluripotent stem cells with the help of AI and its sub-field CNN. Despite being an epitome of perfection there have been some unknown, unwanted, and unexpected fears to come as they always do in any other technique relating to the healthcare industry as predictability of an organism's body- functions and its response to different kinds of stimuli could not be judged easily and on an early note. This technique of Artificial intelligence is a newbie in the industry of Regenerative medical science, the field attracting millions of regular patients each ticking hour, the only demand of them is the reliability of this technique, coupling of stem cell therapeutics and technology still needs decades of infield performance to gain the trust of the customers of Healthcare industry. Isolation of stem cells is a very complex procedure, hence making it a big issue, therefore resulting in the need for collaboration of international firms concentrating on tissue culturing and related activities.

With the involvement of AI in Therapeutic cloning, prolonged human life has been guaranteed. The induced pluripotent stem cells which are the result of Artificial intelligence programming, have proved to be a magnificent game changer for this system as they carry the victim's genetic material and eliminate the risk of immune reaction or rejection, it also avoids the controversial issue of not being ethical as it does not use the embryos for experimental purposes.

AI and its sub-field including algorithms, machine learning, data mining, deep neural networking, and Convolutional neural networking have assisted in increasing accuracies and pre-determining a faithful substructure for the classification of iPSCs and cellular morphologies. It has also been a participant in the customization trend of today as it ensures that the specificity of a patient's genetic scheme and particular immunological capability is fulfilled.

The enthusiastic fusion of man-made achievements and the human body has the potential to be an efficient and progressive experience in the field of biology. Integrating Artificial intelligence into tissue regeneration and engineering can take us to a bright future it not only

is significant for harnessing biomaterial to regenerate tissue and organ but also offers a strong perception of how clinical outcomes could be better in this field of reconstruction of our body segments. The significant advancement in Artificial Intelligence and its reflections as seen in the growth of tissue regeneration via stem cells has been an important aspect to satisfy the need and greed for medical care & therapeutics

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CHAPTER 4

IMPACT OF MODERN TECHNOLOGY ON SOCIETY AND CULTURE OF INDIA

Rishabh Yadav, Dushyant Pareek and Payal Choudhary
Sr. Dr. Ligimol Louis

INTRODUCTION

Society and culture are two major domains which some or the other way are linked by any sector be it economy or administration which revolutionize by the use of technology. These two measures are reflection of the prosperity, development and the views and norms of society which either are propagated or changed by use of technology and it ultimately leads to enormous progress when one realizes the full potential of it.

Once developed a technology changes the culture that itself gave birth to it, also it helps to propagate the culture inherited in the form of media. Society in the new era critically analyses the legacy passed on to it and further improves, which makes it balanced with the culture already in existence which is well evolved and there are new developments by learning through them.

LITERATURE REVIEW

History

While discussing impacts of technology on society, the first question that arises is- Does technology really affect society and culture significantly? As Qaisar(1982) made an attempt to understand the treatment of European technology by Indians during Mughal period, he also gave us our answer. While ancient Indians had been interacting with Mesopotamians, Greeks and Romans, the first notable transformation that occurred to the Indian culture came during the Mughal rule. It was European technology that allowed the Mughals to conquer practically the whole Indian subcontinent.

But still, Mughal rule simply added to the existing Indian culture, rather than change it. Similarly, when the Europeans(particularly the British) conquered India using new advanced technology, they also added to our culture, rather than change it-like they did in North America and Australia. We still retained our culture and traditions. What truly transformed us from village-dwelling, simple-minded, religious folk to urban, nuclear, sophisticated and scientific people was the advent of modern technology.

Influence of Technology

As Krainyukov(2019) theorized, technology- due to several psychological reasons- alters our perception of the world. The way we see, hear and feel the world has changed drastically in several- relatively- short centuries. That is the perhaps the widest influence of technology.

Literature and Arts have also changed due to technology, as proven by the research of Singh(2009). This is quite noteworthy as literature and art are the mediums through which ideas are exchanged and thus, our worldview is formed. Money is yet another important aspect of society that technology has changed. Be it currency printing machines or automatic teller machines, technology has completely revolutionized economy and banking, as discussed by Reeshma and Rajkumar(2017). Education and medicine have also been modified through technology. Both life expectancy and life quality have increased exponentially since the introduction of modern technology.

But what has perhaps changed society the most is the introduction of media. As Reddi(1989) mentions in her research, “the relationship between media and culture is all-pervasive and symbiotic. The boundary between the two is difficult to demarcate.” What we can infer is that while technology may decide the rate of change of society, it is media which decides the direction which the changing society will take. It is after all media which defines and shapes the opinion of the people regarding anything and everything, including society itself.

Discussion of few technologies

Many technologies are emerging with very versatile uses, many are in progress to reach their full potential in future. Few of them are discussed below:

Artificial Intelligence

Artificial intelligence is a virtual programmed intelligence which is able to perform tasks and computations on its own. They have the intelligence ability similar to any human for taking decisions to organize and coordinate a set of tasks which need high accuracy and efficiency as of any machine along with the decisive intelligence of a human. It is a virtual software system that can be installed in any machine, robot or a system of linked devices for efficient and smart handling and utilization of resources without much human intervention.

AI can be categorized into three types:

- 1) Weak AI - This technology is restricted to specific sets of task and is more of a specialist in its approach. It is very frequently used around us as Google assistant, siri, alexa, and software in Google, YouTube and social media feed which tracks our surfing data and provides with more recommendations similar to our activities.
- 2) General AI - It is a mimic of human intelligence and has the capacity to understand emotions and has sense of intelligence in general without command.
- 3) Super AI- hypothesized state of intelligence superior to humans.

AI has far lot implications as it has capacity to enhance other technologies if combined with them. If used with IOT platform can run multiple functions synergistically with their best and efficient utilization.

Gene Editing

Gene editing basically involves modifying certain regions of DNA or genome of a living organisms which can cure genetic diseases as part of gene therapy with the help of some molecular tools. The advancements in molecular tools allows greater control for genome edits that a lot of searches have been made to find a molecular tool more errorless and less clunky such as CRISPR and prime editing tool which is markedly important in gene therapies.

CRISPR stands for Clustered Regularly Interspaced Short Palindromic Repeats where “Palindrome” region in a DNA is where both the paired strands reads same from left or right (if reading frame is kept same) as in “MADAM”. They are incorporated in bacterial genome by copying the target DNA of a virus(bacteriophage) when it infects for the first time as a reference or PHOTO to recognize the virus for protection from any future infection by the same virus, basically a defense mechanism. So, on next infection the CAS9 protein synthesized by bacteria along with the CRISPR rna which recognizes the region of viral DNA binds there and the CAS9 protein cuts or deletes that sequence which prevents the infection. Congrats!!

Now what scientists thought ...that if this successful CRISPR-cas9 duo is used to identify a particular target gene we want to remove or edit, it would bind to that region and cut that gene. Now we can introduce another gene which is favored due to self-healing property of DNA, this could be used in medicine to treat genetic diseases and in other fields with greater versatility and precision.

Internet of Things

Connection of everyday things to the internet embedded with electronics, software and sensors to enable them collect analyse and exchange data. When all the features, devices of personal and official use interact with each other they bring in a better system than they provide individually.

Let us take an example of a patient at home who is at constant life support. His health status is being checked by a health monitoring system of a nearby hospital, which is connected to the internet cloud. In case of any irregularity in health issues or emergency condition the information alert will be notified to concerned doctor and hospital. Without much delay an ambulance may be dispatches to receive the patient with doctors on standby who already are aware of the medical history and current status of the patient. In this case a lot of time and effort is saved in getting the test done to know the patient's condition and preparation for treatment or operation.

IOT leads to better resource utilisation by collaborating the data sharing on one single platform. It helps to save human effort and time to get a task done without much chaos, which leads to better management and high efficiency. Developing AIsoftwares that can monitor and utilise the devices, software and shared data for efficient organisation and security.

Immersive technologies

It includes virtual reality and augmented reality and a balance of both which is mixed reality. Augmented and virtual reality are not something novice or unknown. Augmented reality was first made possible to some extent by Morton Heilig in 1957.

Virtual Reality- It is an immersive environment where anyone is totally disconnected from the real world and experiences the made up world of one's imagination or a replica of the real world in some other place. It has far more implications than just gaming, soothing experience and entertainment. It could be used for research, therapy, tutoring typical operations to medical students and other types of trainings also could be used as lounges and artificial meeting spots for good experiences to establish business relations.

Augmented Reality- It is a technology that projects computer generated augmentation on top of our reality which helps assists us to perform our tasks better. AR falls in between reality and VR and is a method used to render real world data and present it intuitively so that virtual elements present reality in a more informative and interactive way. AR could be used to manual for any car repair as VolkswagenMata app, to extract information about any particular, place person or thing by just looking at it, or as assistant for efficient driving or parking. This technology is in quite frequent use than we are aware of it and has further future implications. It is used in Googlelens translates, lens cart website, snapchat features, also in Google map.

METHODOLOGY

To answer the proposed research question, we are utilizing survey researches. The survey can inform us about people's views regarding the way technology is affecting today's world, the progress of our country in terms of technology as well as how they expect technology to influence our society.

SAMPLE SELECTION

Our sampling method is convenience sampling. For our sample, we have kept the age limit from 10 to 60 year old. We have used online survey form to reach out to as many people as possible to improve the quality of data.

PROCEDURE

For our study, we have used a survey which answers some basic questions regarding the fields which technology has influenced and the sectors the respondents expects technology to further influence in the future. There are also some questions regarding the current pace of development of technology in India. We will then combine and analyze the data we collected and make conclusions concerning our research question.

RESEARCH ANALYSIS

To understand more clearly we did an online survey based on convenience sampling on 55 people and analysing the data gives us some clues to reach to a conclusion.

In the sampling done 50.90% people were from 10-20 age group, 38.20% from 20-30 age group, 7.30% from 30-40 age group and the remaining from 40-50 age group. Hence most of the respondents were from young age group and the responses were influenced by modern ideologies.

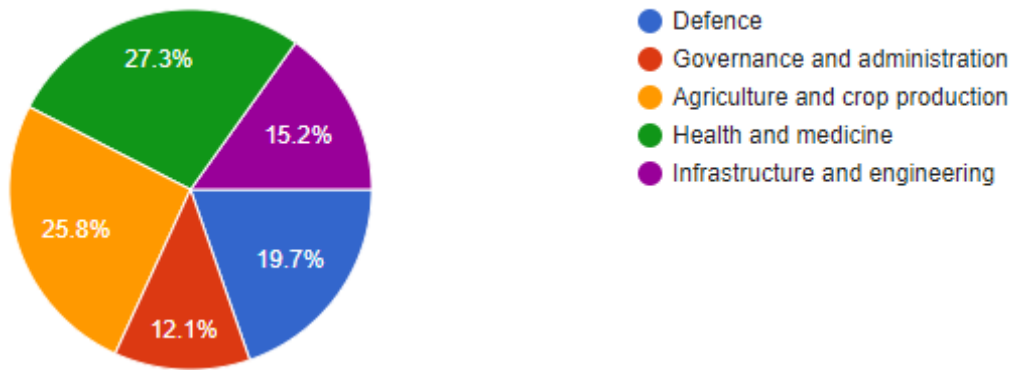


Fig.1 - Sectors first to use any emerging technology

Among the respondents a maximum of 27.3% respondents wanted that health and medicine should be the first priority sector to implement emerging technologies of today's scenario, 25.8% voted for agriculture and crop production, 19.7% stood for defence and 12.1 % for governance and administration. This shows that majority of them welcome the changes emerging technologies have on health and agricultural sector as our culture of food production and medicinal practices changes which faced challenges till now due to ethical, social, emotional concerns as in IVF or any new medicine practice.

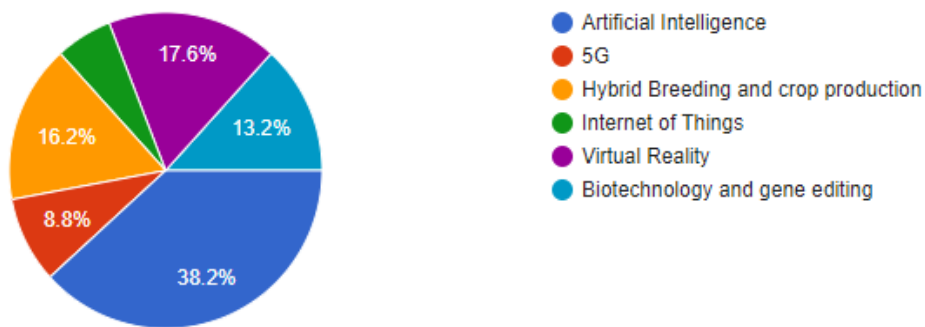


Fig.2-Technologies having a major boost to the country

Among the respondents 38.2% believed that artificial intelligence will give a major boost to the country, 17.6% believed it will be immersive technologies, 16.2% believed it will be hybrid breeding for crop production, 13.2 % stood for biotechnology and gene editing, 8.8% voted for 5G and the remaining for Internet of Things. This clears that what the respondents want in future is that there should be intelligent software handling to make the tasks more efficient and there is a better resource utilization.

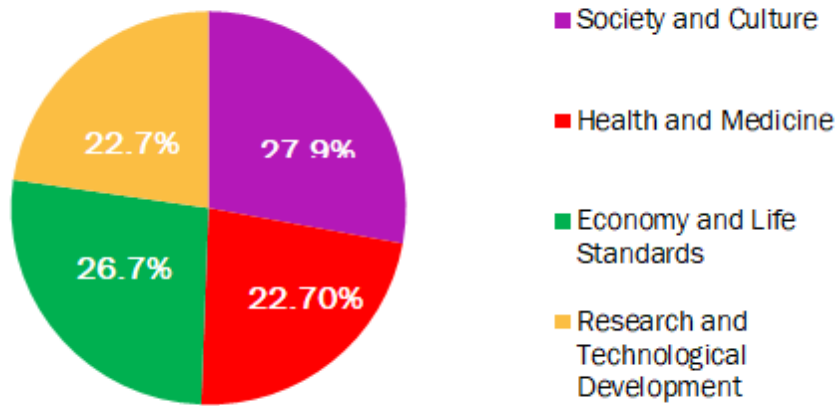


Fig.3 -Major impact of emerging technologies

A majority of 27.9% respondents believed society and culture will get a major impact by introduction of emerging technologies, 26.7% believed economy and life standard to have major impact as a front, 22.7% believed it to be health and medicine and 22.7% claimed for research and technological development. This reflects that majority of people believe society and culture are some or the other way are linked to every fronts be it economy, social norms, research, development and influence it when they revolutionise.

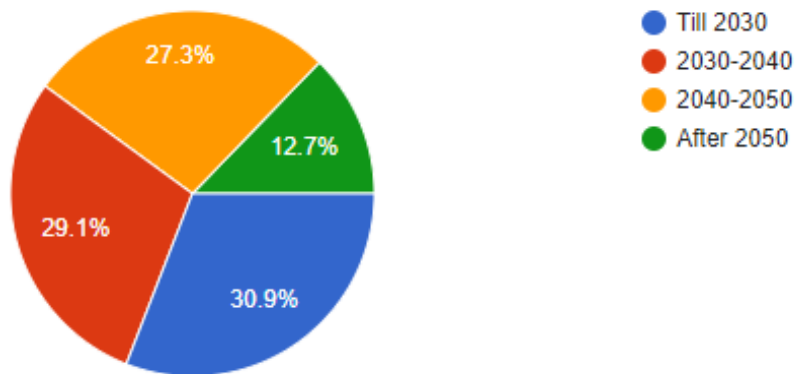


Fig.4 - India will become a superpower

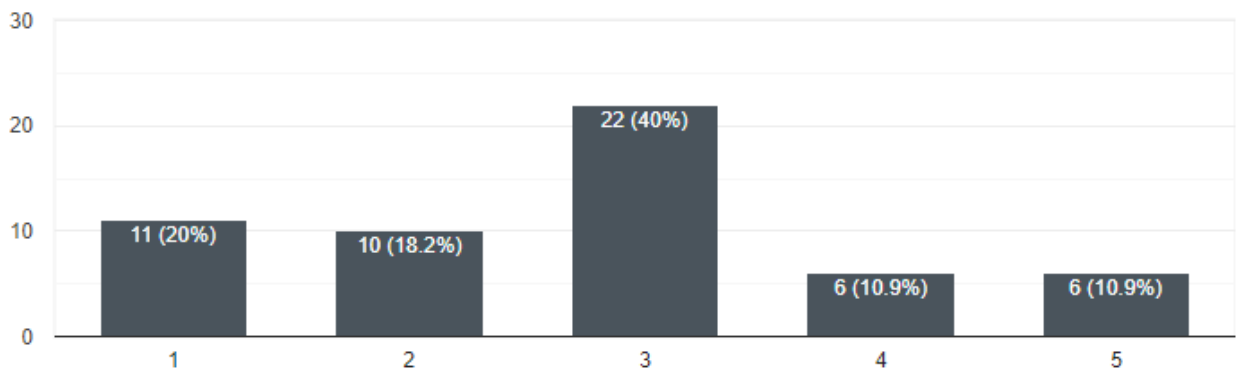


Fig.5- Satisfaction ratings of respondents regarding growth of India in terms of technology

When it was asked by which time India will become a superpower 27.3% responded it as by 2030, 29.1% of them believed it to happen by 2040, and 30.9% claimed it to happen by 2050 and remaining rest choose after 2050. Majority of the respondents believed that the current pace of our country's progress in terms of technology is average with the highest vote of 40% , while 38.2% people were either unsatisfied or highly unsatisfied with country's growth, 22% people were content or happy with the growth initiatives taken for establishment and utilisation of technology.

Thus we can conclude that future citizens of our country are willingly welcome to revolutionizing emerging technologies especially in those sectors which affect the very core of human society and culture as health, food and economy.

BENEFITS OF RESEARCH

Growth of technology and intellectual society has already led to the rise of feminism and improvement in women's role in the society. Predicting how technology will affect the society and culture in the future can be very useful. We can control the emergence of technology in such a way that it influences the society and serves the people in the best way possible.

Also, understanding people's perspective regarding emerging technology can be very useful. For example, if people believe that Health and Medicine sector should be the first to use any new technologies, then we can take steps to ensure that this actually happens, so that people are served in a way they wish.

FUTURE WORK

We seek to create a more detailed and widespread survey to gain a more refined public opinion regarding the rising technologies to ensure that better services are provided to the people of the country.

We aim to ensure that technology has a more fruitful impact on the society by properly understanding technology's effects on the society. On a more ambitious note, we also aim to develop better technologies in our country itself which will certainly lead to tremendous growth in the economy and society of our country.

CONCLUSION

We can draw several conclusions from this data. Technology in itself is a practical solution to any kind of challenge we face to achieve prosperity, harmony and growth be it on the economic front, communication, health, research or efficiency in any field. There are many positive prospects of newly emerging technologies as they influence our lives in every way possible on any grounds which become an acceptable part of our society and culture. It adds to the growth of a country and radically changes the way we live hence bringing a new

culture or correctly quoting, furthers to what exists already as improvement. If driving harmoniously it creates more job opportunities of developing, understanding, marketing and maintaining the technology introduced and this itself is passed on as a legacy by learning which creates further employment. Hence it adds even to employment which is falsely considered a major drawback of it. In other words, technology develops itself.

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CHAPTER 5

THE PAN RELIGION CASTE QUESTION

Nameera Anjum

Dr. Denny Shaji

ABSTRACT

*“Pichhra Pichhra ek samaan Hindu ho ya Musalmaan” - Dalits and backwards are the same whether they are Hindus or Muslims; this is the Pasmada Movement’s Slogan. Pasmada refers to the Muslim converts who were earlier considered to be from a lower caste. They accepted Islam to get rid of the caste system however the problem of caste is deeper than any religion. The Muslim and Christian Dalits are considered to be Dalit minorities. They are excluded from the SC category which had been extended to Sikhs and Buddhists but still excludes Muslims and Christians who happen to constitute nearly **3.2 Million** as per a **2008 report**. In **January 2020**, the Supreme Court of India agreed to consider a petition by ‘National Council of Dalit Christians’ to remove religion as a ground for belonging to the SC category. Under the Kaka Kelkar Committee (1955), the first backward class commission; Dalit Sikhs were extended the SC status in 1956. Similarly, under the recommendation of a report in 1983; the Buddhists were also accorded the SC status in 1990. But due to the mixed reactions from political parties and the lack of support from the States the SC status that had almost been extended in 1996 by the Center which had planned to make law recognizing SC’s as religion-neutral; never came to fruition. The aim of this paper is to evaluate the existence and the reasons for neglect of the Dalit minorities by highlighting various paradigms. The Pasmada Muslims and the Christian Dalits are more often than not, unheard of by the populace. Thus, it becomes a necessity to bring them up in the contemporary discourse. This paper will also establish the fact that the caste system in India extends beyond the boundaries of one particular religion.*

Keywords: Pasmada, Dalit Minorities, Caste, Religion.

INTRODUCTION

“Turn in any direction you like, caste is the monster that crosses your path. You cannot have political reform; you cannot have economic reform, unless you kill this monster.” – Annihilation of caste by Dr. B.R Ambedkar.

What Dr. Ambedkar had talked about almost a decade ago has materialized into prototypes of the monster called ‘Caste’. The Constitution of India abolished the practice of untouchability in the year 1955 through the Untouchability (offenses) Act. However, a documentary by BBC titled ‘Muslim Dalits of India’ stood for a more complex reality. Similarly, a petition filed by the ‘National Council of Dalit Christians’ that demanded the SC status conferred upon

individuals to be made ‘religion-neutral’¹ also contributes to the fact that our country’s political system thrives upon caste as much as it does on religion.

When it comes to the political sphere, Muslim and Christian Dalits have a very negligible presence. In fact, the lack of SC status strips them of their reserved rights and many other amenities. It is a common belief that since both Christianity and Islam are egalitarian in nature, caste system cannot form a part of it. This, in turn, is one of the many reasons why Dalits convert to these religions, seeking to escape the shackles of a caste system.

This paper focused on highlighting some important factors about the caste system in India. The very first one being that the caste system is a tradition that has nothing to do with religion. Secondly, the impact that keeping the Christian and Muslim Dalits out of the reserved category has on them also forms an integral part of this paper. By referring to reports from credible sources such as the Minorities Commission of India and other organizations who are working for this cause; as well as by conducting a survey to assess a general mindset and attitude about Christian and Muslim Dalits – we arrived at the following observations:

- Christian and Muslim Dalits should come under the SC/ST purview by making its prerequisite ‘religion-neutral’.
- The reservation policy, also the much debated policy in India, is still a need for those who are not able to avail it. However, we must also explore other options.
- There is a lack of awareness on Dalit rights and existence – both among those who suffer and those who live in oblivion. Education on this topic is a must and the rights of the deprived should reach them without any hindrances.

REVIEW OF LITERATURE

“On the one hand, Dalit converts to Christianity exercised their agency collectively for liberation from caste-based oppression owing to the perceived liberatory and egalitarian elements in Christianity which, unlike a certain dominant strand of Hinduism, did not possess the ritual justification for the practice of caste-based discrimination. On the other hand, Dalit converts found the remnants of the culture of caste—which is by default a hierarchical and discriminating system of rules and privileges that differ based on caste identity—lingering within the world-view of Christians.”²

“There can be no doubt whatsoever that DMs and DCs are socially known and treated as distinct groups within their own religious communities. Nor is there any room for disputing the fact that they are invariably regarded as ‘socially inferior’ communities by their co-religionists. In short, in most social contexts, DMs and DCs are Dalits first and Muslims and Christians only second.”³

"However, in 1950 a Presidential Order was passed according to which these special benefits would be available only to those Scheduled Castes who professed to be Hindu, and, accordingly, an amendment was made to Article 341 of the Constitution of India that

authorises the President to declare certain castes as Scheduled Castes for special benefits. With one stroke of the pen, non-Hindu Scheduled Castes were henceforth denied the benefits that the 1935 Government of India act had provided for them. "⁴

"Dalit Christians are presently categorised as BC in Tamil Nadu. "In 13 other states too, such as Kerala and Andhra, they are in the BC/Other Backward Class (OBC) or Most Backward Class (MBC) list. In the remaining states, they are in the General category," says Supreme Court advocate and activist, Franklin Caesar. This is a consequence of the Constitution (Scheduled Castes) Order, 1950 that explicitly excludes Christian and Muslim Dalits from being granted SC status, he further points out."⁵

IS CASTE EQUAL TO RELIGION?

The term 'Christian Dalit' isn't commonly heard of. However, about 42 per cent of Indian Christians happen to be Dalit. The concept of egalitarianism often dismisses any existence of a caste system but in India, the problem of caste is ingrained within the tradition. When it comes to the reservation aspect, the Dalit Christians are deprived of it as are the Muslim Dalits.

"But caste and untouchability is a lived reality for Muslims living in India and South Asia," states Dr Aftab Alam, a political scientist who has worked on the subject, "And untouchability is the community's worst-kept secret."⁶

A writ petition was filed by the National Council of Dalit Christians in January 2020 to make reservations religion-neutral in India because only Dalits from the Hindu, Sikh, and Buddhist communities come under the ambit of the reserved castes.

After assessing the multifarious factors that are at play here, it becomes vital to ask the right questions. *Is caste equal to religion?* There is evidently a clear distinction between the two. Hence, it'd be unwise to couple them in the same boat. Even though Islam and Christianity are religions based on universal brotherhood that promote equality, the Indian tradition or, in layman's terms the practice of 'casteism' infuses itself within each and every community.

There exists a certain level of hierarchy and social practices that clearly demarcate the difference between various castes. It may not be as defined as the Hindu caste system, but the practice of social exclusion and untouchability still reflects an idea, a thought-process that has deprived generations from attaining basic rights, education and economic stability.

PROBLEMS AND CHALLENGES

Upon further research one starts to notice a pattern - social exclusion of certain castes, age old professions, separate burial grounds, economically weak and educationally deprived communities within communities - and all this leads us to our pan religion caste question.

Furthermore, the **lack of data** is forever the achilles heel with regards to the Dalit minorities and their exclusion. What it also fails to account for is the discriminatory practices that are adopted against these minorities, the extent of their predicament and the struggles that consumes each generation. The last official report that entailed an in-depth study of the rights of Dalit minorities was published by the government in 2008 titled 'Dalits in the Christian and Muslim Communities: A Status Report on Current and Social Scientific Knowledge'. Hence, the solutions have remained stagnant and we are still struggling to even make this problem a part of the current discourse.

When it comes to contemporary social and political studies as well as the country's jurisprudence, **ignorance** is a major problem that surfaces first and foremost. As the government fails to please one section of the community, it creates a rift visible in pockets of protests here and there. Especially after the 2020 petition in the SC, the Dalit minorities are slowly learning about their rights and the duties of the State. Moreover, if these minorities convert to any of the religions that are accorded the SC/ST status, then they have the right to those privileges. This produces two important notions: i) that inclusivity exists in name and has no proper definition to it and ii) that it depends on the community one belongs to. It also brings to the fore many facets of the upper caste individuals within a religion who do not want the name of their community to be tarnished. Which is why Muslims Dalits and Christian Dalits are majorly unheard of even by UC Christians and Muslims. The ignorance is at a very systematic level and there's hardly an easy solution to the problem unless inclusivity isn't considered to be the responsibility of the government alone, but that of the society as well. We have to magnify these seemingly little problems that devour the communities from within.

Caste, sect, religion & ideology are terms that are interchangeably used. It was evident from the findings that most of the respondents do not recognise the nitty gritty of these, very similar yet subtly differing terms. Moreover, when one respondent says that 'There is no caste system in my religion' whereas right after that, another mentions 'Pathan' then 'Syed' e.t.c we observe how people are not ready to see the reality either because they neglect the fact that religion and tradition deeply mirror each other in the Indian society or they simply do not agree.

The concept of '**Sociology of Absences**' by Professor Boaventura de Sousa Santos who said in one of his lectures that sometimes we fail to look on the other side of the line and to acknowledge those problems that we don't necessarily face firsthand. So, it causes the absence of those who are affected from the mainstream to such an extent that they are left with neither political representation nor social inclusion. However, when we do happen to observe these factors, we enter into a stage called '**Sociology of emergency**' according to the professor. It compels one to take action. This stage is the pan religion challenge in front of us.

SURVEY

A questionnaire was shared that targeted a sample size of 100 individuals belonging to various religions, castes, ideologies, e.t.c. The nature of the questions framed was general so as to assess the basic perception of the masses.

Focus Areas:

- Dalit rights
- Caste system
- Castes within religions
- Awareness of general people from those religions

Sample Size:

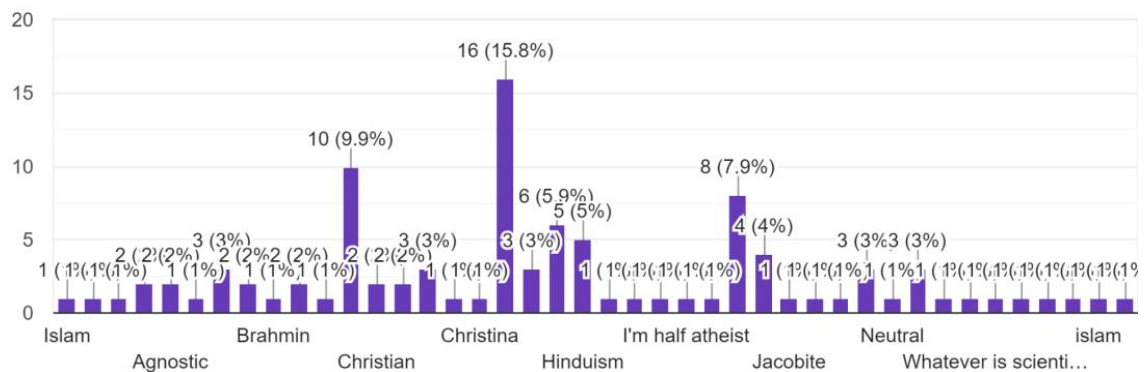
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Communities Targeted:

- Hindus
- Muslims
- Christians
- General
- And others

Religious inclination

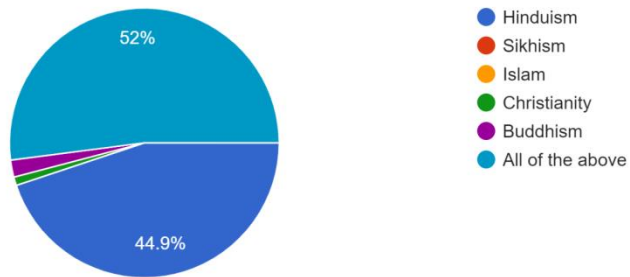
101 responses



The questions asked are as follows:

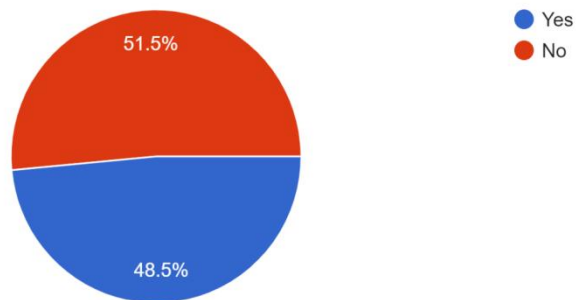
According to you, Dalits usually belong to which religion?

98 responses



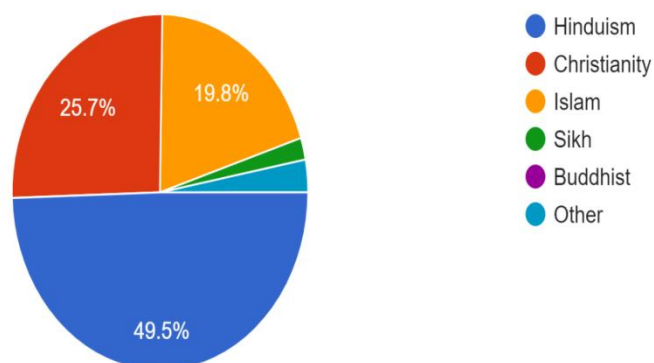
Have you ever experienced any caste-based jokes or remarks?

101 responses



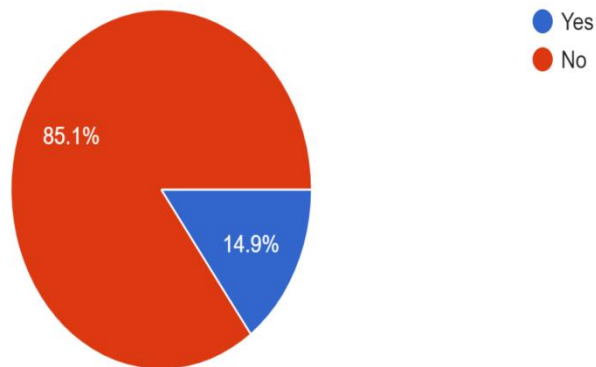
What is the religion that you were born into?

101 responses



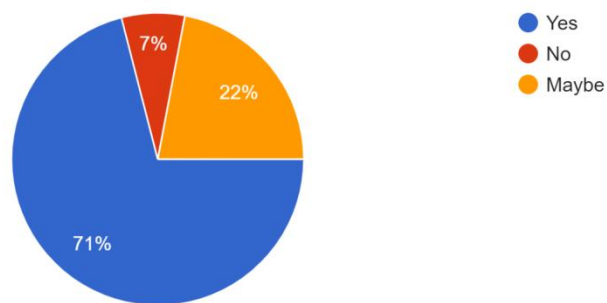
Do you belong to a backward caste (SC/ST, OBC, e.t.c.)?

101 responses



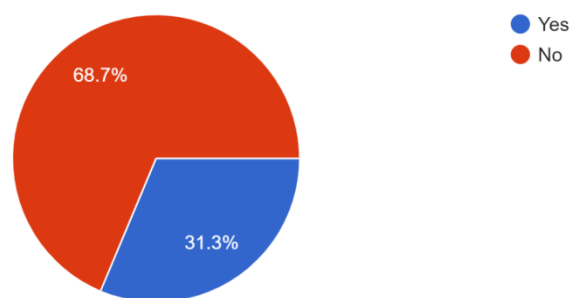
Is there any injustice happening against Dalits in the country?

100 responses



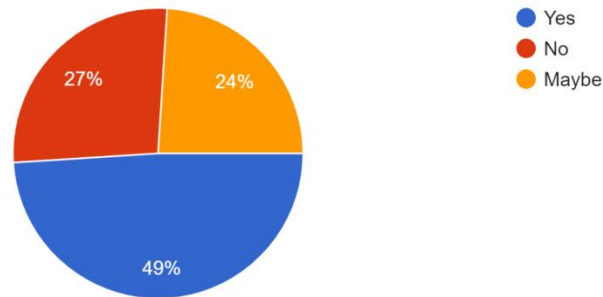
Do you think that the reservation policy has been benefitting all Dalits in the country?

99 responses



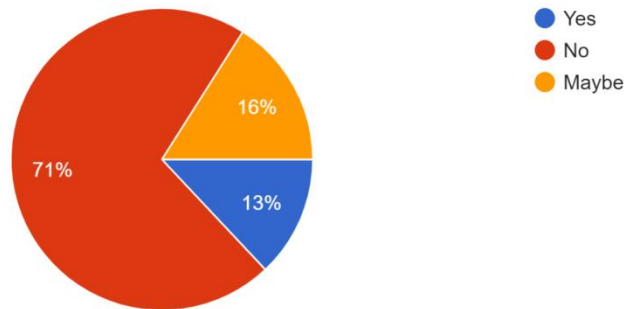
Are there Christian and Muslim Dalits in India? Have you ever heard of them?

100 responses



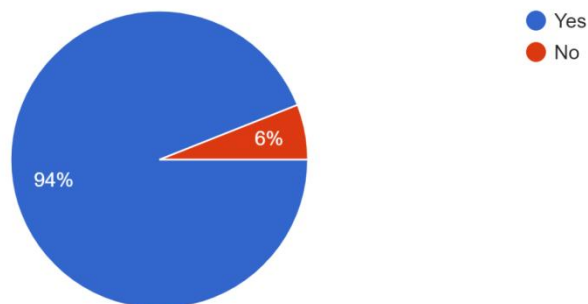
Does being a 'Dalit' have anything to do with religion, as per your understanding?

100 responses



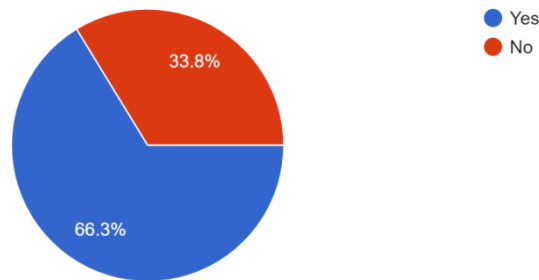
Are you comfortable with having a Dalit neighbour?

100 responses



If your answer to the above question is yes, do you think that they should come under the purview of scheduled caste and scheduled tribes in the country?

80 responses



FINDINGS AND SUGGESTIONS

- The ground data still remains a major loophole. But it's not an issue that can't be tackled. With the help of minority bodies, institutions and NGOs - research groups can dig deeper and conduct on ground reports that will not only benefit the Dalit minorities but also bring the attention of the government towards the technicalities involved. Moreover, communicating with those who actually suffer can help in designing long-term solutions.
- Educational institutions can play a major role in enlightening the young minds with problems that do not find a voice in the contemporary discourse today. It will stimulate their thought processes and instill in them a sense of empathy towards the underprivileged. This task should be undertaken as a social responsibility in order to uplift the mindsets for a more inclusive future.
- Reservation: How, When and Why? This is an important study in itself that leaves scope for a continuation of this research project. If the government decides to include the Muslims and Christians under the SC/ST purview then what kind of exercises should be adopted to help them escape their situation? It is not a surprise to observe that even those who were accorded this status decades ago, face casteism to this date. If not the reservation policy, can we formulate some other structure for their speedy recovery from eons of social exclusion? Lastly, we must look into the reasons as to 'why' is this necessary for them? It will primarily come from conducting on-ground study and understanding the needs of this particular section of the society, as emphasized in the first point.
- 'Recognition Before Remedy' this may be taken as a maxim to challenge the Pan Religion Caste Question because we can never arrive at solutions before recognising all the crevices and corners of the problem. With the help of an integrated study that

includes political science, sociology, psychology, economics and law; we can arrive at a well-defined remedy.

- We can also look at bringing this kind of inclusivity that will actively combat communalism in the society. As the slogan of the famous Pasmada Movement says, Dalit and backwards are the same, whether they are Hindus or Muslims. Shared struggles often become a ground for bringing communities together.
- In fact, the Dalit Minority question does not only need to be answered in terms of the reservation policy. The priority at the forefront must be to tackle the needs and requirements of such communities, and to assess their population.
- The government must include them in the population census conducted every 10 years in the country. The State must also ensure that these people get a chance to voice their concerns irrespective of and in safety from the pressure by the upper caste individuals in the community.
- A forum can be set up in the states and areas where such minorities are found. It should be headed by people from within the minority group, the activists and intellectuals/experts who have a clear insight into the situation. Once an idea is attained about their reality, the judicial proceedings can be completed with full fledged data and proofs. It will legitimise the rights that have been systematically denied to the Christian and Muslim Dalits in India since the 1955 Presidential Order.
- On an individual level, schools and colleges must inculcate the interest of students in these social topics, especially the ones that are out of the mainstream. These institutions must try to align these issues into contemporary discourse. They can conduct seminars, field work, etc and assign a purpose to the future of this country i.e. the students who are leaders of tomorrow.

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CHAPTER 6

THE SHIFT IN PARADIGMS OF EDUCATION - NATIONAL EDUCATION POLICY 2020 AND THE POST PANDEMIC SCENARIO

Anandita Singh and Bhavisha Manglani

ABSTRACT

Education holds the ability of knowledge, skill, and quality in an individual's life. The Indian education system aims to achieve these along with reaching the milestone of socio-economic growth. Presently, India being the second most densely inhabited country stands with the literary rate of 77.7%. The government of India contributes to the 3% of its federal budget in the education sector. With the introduction of the National Education Policy 2020, the focus drew attention of several on changing the education structure of the country by the year 2040. E-learning and hybrid mode of education is said to be the future of the world. The important question here arises, will the country be successful enough in providing the quality education to everyone irrespective of their social status? The research aims to discover if there has been any positive impact of e-learning till now and if the new National Educational Policy has taken the problems of NEP 1986 into consideration. Present research is based on the analysis of both quantitative and qualitative methods of data collection involving the primary as well as secondary data. The implementation of NEP 2020 aims to significantly improve and provide better services, value and "holistic education" to students. Therefore, the purpose of this study was to investigate the effectiveness of the newly adopted online mode of education and its implications for educational quality during the COVID-19 pandemic. It specifically examines the benefits and obstacles that hinder the efficiency and effectiveness of the educational system. This study intends to analyze the change in the education pattern post pandemic along with evaluating the pros and cons on the adaptation of the National Education Policy 2020 and propose to suggest suitable ideas and find out the possible limitations.

Keywords: NEP 2020, India, Education, E-learning, Post-pandemic

INTRODUCTION

Education is a weapon which no one can take away from you. It not only is required to spread awareness in the society but also plays a key role in transferring knowledge from generations to generations.

1.1 Education system in India- Background

The early ancient education system evolved over the period and focused on the holistic development of the individual by taking care of both the inner and the outer self. The system focused on the moral, physical, spiritual and intellectual aspects of

life. It emphasized on values such as humility, truthfulness, discipline, self-reliance and respect for all creations.

The education system broadly focused on the holistic development of an individual. The system laid emphasis on moral, physical, spiritual and intellectual aspects of life along with installing truthfulness, discipline and self-reliance

1.2 Importance of Education

India is the second most populous country practicing the largest democracy while still being a developing nation. Education is one of the most vital components in promoting the change of status from developing to a developed nation. The statistical data of the demographics of India explains that the states and cities with the highest literacy rates have superior infrastructure and advanced technology as compared to other states and cities. International Organizations like UNESCO and UNICEF are proposing with numerous educational projects in the country to create a progressive and a developed nation.

The constitution of India mentions education has the fundamental right of every citizen regardless of their gender, class, caste, creed and sex. It helps in promoting democracy. Education aids in the upliftment of the society economically. Education is the most powerful factor in achieving sustainable economic development. It increases an individual's productivity and encourages entrepreneurship and technological advances in the society, it secures economic and social progress. An educated individual engages in quality exchange of ideas, knowledge and skills. Education secures a bright and secured future of an individual.

1.3 Education Policies

The first national education policy in India came in 1968 and the second in 1986; the national education policy of 1986 was revised in 1992. The third national education policy came in the recent year of 2020.

National Education Policy is a comprehensive framework for the development of education sector of the nation. NEP provides a broad direction for the Centre and the States to carry out the educational structure. Education being the concurrent subject holds the freedom to be only implemented if the state is determined to.

NEP 1968

According to the Kothari Commission report (1964-1966), the Indira Gandhi government announced the first National Policy on Education in 1968 which was also known for radical restructuring and aimed for equal educational opportunities to reach national integration and better cultural and economic development. The policy holds for providing compulsory education for all children up to the age of 14 with specialized training and qualification of the teachers. The policy focused on learning regional languages, outlining the three languages formula to be introduced in secondary education- English, official language of the state where the school is and Hindi. Hindi was considered not the national language but a common language for all Indians. Sanskrit language was seen to be encouraged in this policy document as a part acknowledging India's culture and heritage.

NEP 1986

The National Education Policy of 1986, led by Rajiv Gandhi government laid special emphasis on removing the disparities between the rich and poor and in providing equalize educational opportunities to all including women, Schedule Tribes (ST) and the Scheduled Caste (SC) communities. The Policy focused on expanding scholarships, adult education and incentives for poor strata of the society to send their children to school. It followed a child-centred approach in primary education and began an ‘operation blackboard’ to improve primary schools nationwide.

NEP 1992

The 1986 National Education Policy was redefined in the year 1992 by the P.V. Narasimha Rao government. The policy amended patterns in the conduction of common entrance examination, entrance based papers for engineering and widened the admission standards for students which resolved their mental, physical and financial burden due to multiple entrance examinations.

NEP 2020

The new National Education Policy of 2020 approved by the cabinet in the year 2020 will focus on reducing curriculum-based learning and focus on enhancing essential learning, critical thinking and holistic experiential, discussion-analysis-based learning. The focus will be more on digital learning as it is considered to be the future of learning. All the changes are expected to be seen completely by the year 2040

1.4 Drawbacks

The following are some common grounds on which the Education System of India has been criticized

- Poor Grading System- The Indian Education System forms opinions of a student based on their academic performance. It mainly pays attention on the academic achievements which hampers the potential of a student to a great extent.
- Less Attention to Practical Knowledge- More attention should be paid to the practical knowledge rather than the theoretical understanding. The practical knowledge would prepare the child to go out in the real world and theoretical would help in fetching marks.
- No overall development - In India, sports and extra-curricular activities are neglected and more attendance is given to academics. This not only makes the child constricted to a particular domain but also restricts the over-all development
- Problem with Private Schools- Admission processes in a lot of private schools is easy. They are more interested in enrolling the number of students rather than focusing on the quality of education delivered.
- Recruitment of Teachers- The teachers should be asked to attend several performance enhancement workshops along with giving refresher courses. They should be timely evaluated and different teaching patterns should be encouraged.

- Cramming up of bookish knowledge- It is observed that students tend to mug up to fetch marks. They are expected to write the exact definition given in textbooks and not encouraged to write it in their own words. Students' logical and analytical thinking is not motivated.

1.5 Post Pandemic Scenario

The Pandemic made the whole nation affect and brought different difficulties. It not only impacted the livelihood but also disrupted the education system of the country. Schools and Colleges were shut down and e-learning was encouraged. The question of concern is whether different economic groups were able to get access to education through online classes and how much efficient was it for the students to learn.

REVIEW OF LITERATURE

Shyam Menon (2020)

- According to the study a report in the media on April 13, 2020 quoting the Chairman of the University Grants Commission (UGC) as saying, among other things, that to maintain social distancing, online learning and e-education were the only way out, and that it was the need of the hour for students, teachers and the education system as a whole. This statement was clearly meant to prepare the higher education community for the exigencies of a protracted and indefinite period of closure of campuses.

Subham Sarangi (2021)

- According to the author people have applauded this recently approved proposal because it speaks of big transformational changes in the Indian educational sector. Many improvements have been made as a result of the launch of NEP 2020, one of which is the discontinuation of the M. Phil course. Even if the current school program has a lot of flaws, it still has a lot of benefits. Many people expect that by making these reforms, the Indian educational system would.

RESEARCH METHODOGY

Research Gaps

- Has the new National Education Policy taken the problems of NEP 1986 into consideration

Our primary research aims to analyze the pros and cons of the National Education Policy 2020, given by the Modi Government which has not been implemented yet completely, by collecting people's (parents, teachers and students) views on the same.

HYPOTHESIS

- Students do not prefer online mode of education
- There is a significant difference in the perception of students, parents and teachers regarding this mode of education (online).

Hypothesis 1 - Students do not prefer online mode of education

According to paper written by (G.L., Deshpande, Shivananda, Ajey, & Patel, 2021) data revealed that almost 86.3% students do not prefer online mode of learning with only 13.7% preferring the same. Taking this data forward we conduct a two sample z-test to check the statistical significance of the data of our survey

$$H_0: P = 86.3\%$$

$$H_a: P \neq 86.3\%$$

(here 86.3% students do not prefer online learning which is our null hypothesis)

$$\hat{p} = 52.1\%$$

$$\begin{aligned} Z &= (\hat{p} - P) / \sqrt{(p \cdot q) / n} \\ &= (0.521 - 0.863) / \sqrt{(0.863 \cdot 0.137) / 100} \\ &= -0.342 / \sqrt{0.001182} \\ &= -0.342 / 0.0343 \\ &= -9.9708 \end{aligned}$$

As the value of Z that is 9.9708 is much greater than 1.96 we reject our null hypothesis and the percentage of students not preferring online mode of education is actually 52.1% and not 86.3%.

Hypothesis 2- There is a significant difference in the perception of students, parents and teachers regarding this mode of education (online).

H₀: There is no significant difference in the perception of students, teachers and parents regarding the preference of online mode of learning

H_a: There is significant difference in the perception of students, teachers and parents regarding the preference of online mode of learning

We conduct a Chi Square test to see if our null hypothesis is true or not

Observed Table

	Students	Parents	Teachers	Total (row wise)
Yes	23	6	5	34
No	25	17	24	66
Total (column wise)	48	23	29	100

Expected Table

	Students	Parents	Teachers
Yes	16.32	7.82	9.86
No	31.68	15.18	19.14

$$\begin{aligned} \text{Degree of Frequency} &= (r-2) (c-1) \\ &= (2-1) (3-1) \\ &= 2 \end{aligned}$$

Observed	Expected	Observed – Expected	(Observed – Expected) ²	{(Observed – Expected) ² }/Expected
23	16.32	6.68	44.6224	2.7342
6	7.82	- 1.82	3.3124	0.4235
5	9.86	-4.86	23.6196	2.3954
25	31.68	-6.68	44.6224	1.4085
17	15.18	1.82	3.3124	0.2182
24	19.14	4.86	23.6196	1.2340
				$\chi^2=8.4138$

As $\chi^2=8.4138$ which is greater than 5.991 (critical value of χ^2) we reject the null hypothesis. It means that there is **significant** difference in the perception of students, teachers and parents regarding the preference of online mode of learning.

Objectives

The study aims at achieving following objectives

1. To analyze the change in education pattern post pandemic
2. To evaluate the pros and cons on the adaptation of the National Education Policy, 2020.

Methodology Used

The use of both quantitative and qualitative methods of data collection has been done in this research paper.

1. Primary data Collection

An online survey was conducted through an online platform (Google Forms), using the virtual snowball nonprobability sampling technique, utilized in similar studies. Its primary aim was to collect data regarding the current mode of education, i.e., online mode, analyze its pros and cons and its preference among the three categories that is students, teachers and parents and also analyze. The aim was to also analyze the New National Economic Policy, given by the Modi Government.

2. Secondary Data Collection

Data has been also collected by official documents and guidelines issued by the Central and the State Governments. Newspapers like The Hindu, The Economic Times, etc., Web Articles and Magazines were also major sources of data collection.

3. Participants

The survey was open to residents of India (11-65 years old) participants who were directly or indirectly involved in online mode of education and only their responses were considered for the analyses. The sample size was 100 with major respondents being students and a comparatively shorter proportion of respondents being parents and teachers.

4. Survey Questions

The Survey conducted had 40 questions with 1 question being specific about the category of respondent (students, teachers and parents) directing them to their set of questions except 8 questions about NEP, 2020 being common for all.

Questions on online mode of education collected all sorts of relevant information varying from general to personal information, income level to major problems faced during this mode of learning and others.

It also collected data by questions being specific about the major changes introduced by the New National Education Policy.

5. Tools Used

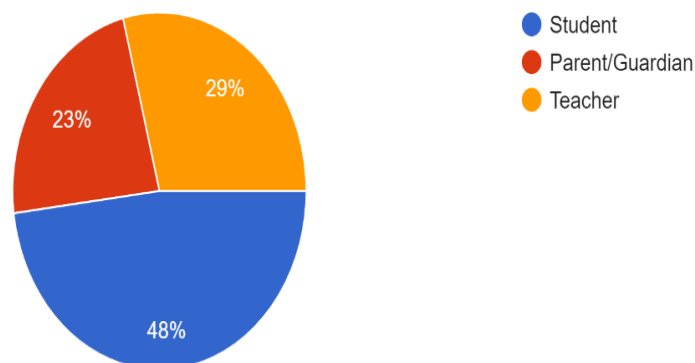
The data obtained from the online survey of google forms was turned into descriptive statistics of pie charts, bar graphs to facilitate the process of analysis and interpretation as well as to allow a better understanding of the findings of the research. The data collected from the form was organized and presented in the form of the figures with the help of Microsoft Excel Software.

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

Analyzing the data from the given responses filled will help the researcher gain valuable insight and knowledge about the topic and will help him draw findings about the topic and a conclusion. Following are the responses collected from the three groups i.e. students, parents/guardians and teachers with their analysis.

Are you answering this survey as a

Are you answering this survey as a
100 responses

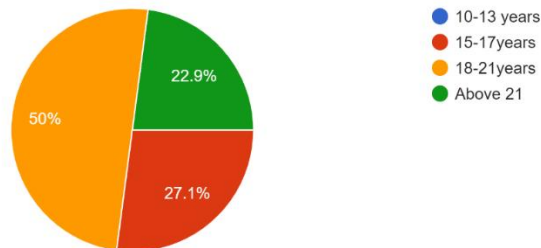


Out of 100 respondents 48% were Students while 23% of the questions were answered by Parents/Guardian and the remaining were filled by the Teachers.

STUDENTS

Age

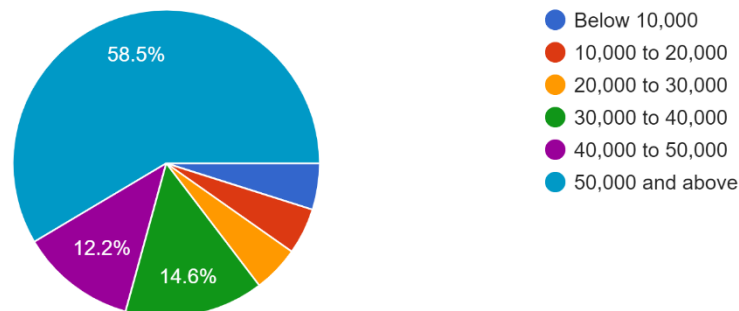
48 responses



Majority of the respondents were falling under the age group of 18-21 years, the rest 27.1% were from the age from of 15-17 years and 22.9% were above the age group of 21 years.

Parent's/Parents' monthly income

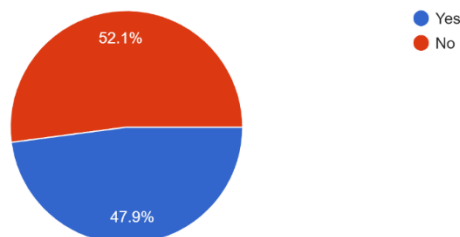
41 responses



The graph shows different income groups of the respondents with majority of the 58.5% falling under below 10,000 income level and 12.2% and 14.6% with 40,000 to 50,000 and 30,000 to 40,000 respectively.

Do you prefer online mode of learning?

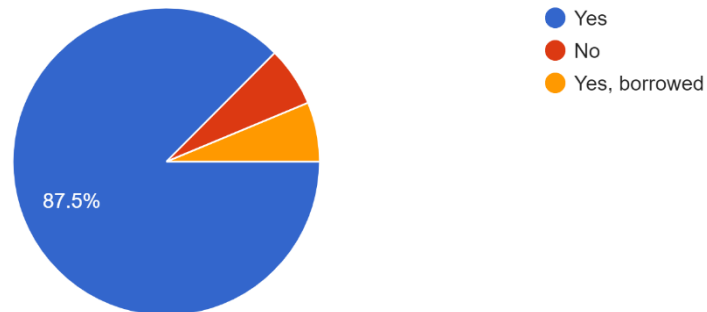
48 responses



52.1% of the Students are not in favor of online mode of learning while the rest 47.9% had opted for being in favor.

Do you have a personal device to attend classes online?

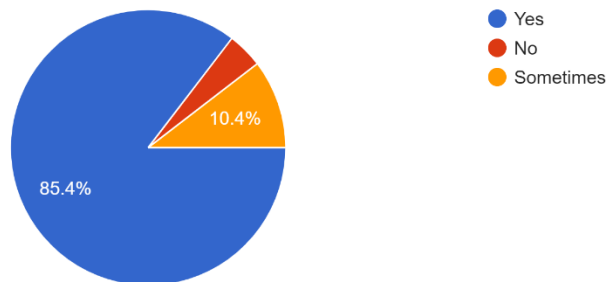
48 responses



Majorly 87.5% of the respondents have a personal device to attend the online classes and the rest 6.35 does not have their own device or they are borrowed.

Are you able to get internet accessibility in your area connectivity in area?

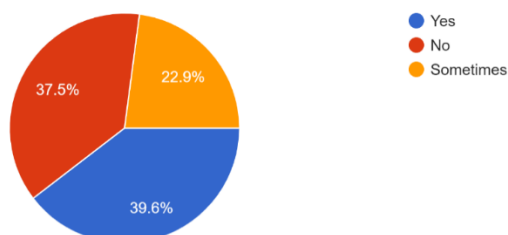
48 responses



Respondents who are able to get internet connectivity access in there are of 85.4% yes and 10.4% have answered for sometimes while the remaining 4.2% cannot get internet access where they live.

Are you able to concentrate on the subjects as compared to offline classes?

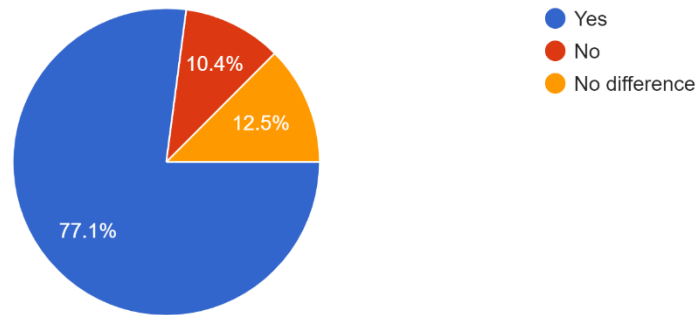
48 responses



39.6% of students have claimed they are able to concentrate on the students as compared to offline classes. The rest 37.5% and 22.9% have voted for no and yes respectively.

Do online classes save time and give room for other activities?

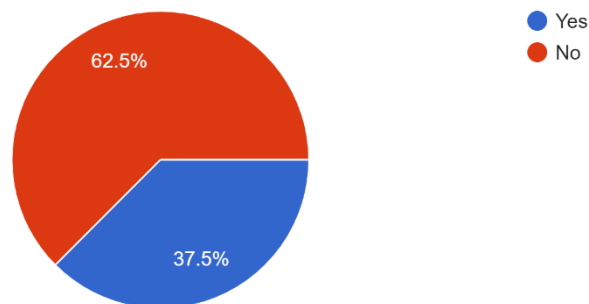
48 responses



The above data shows that 77.15 of the students believe that yes they save time and has enough room for other activities while the rest are of the opinion there is no difference or do not agree with it.

Are your teachers effectively able to communicate during online classes like they could in offline classes?

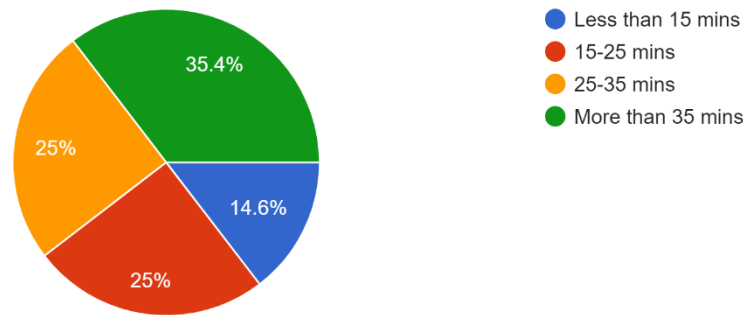
48 responses



With 62.5% have voted for no the teachers are not able effectively communicate during online classes just like the offline ones the rest 37.5% have voted for yes they are able to.

What is the maximum time you are able to pay attention in your online class(es)

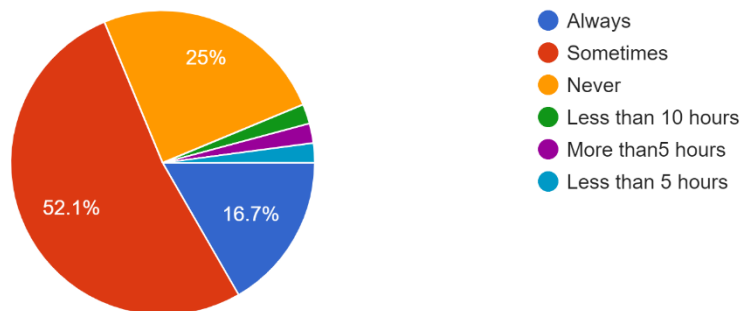
48 responses



The above graph reflects the percentages the students have responded the time they are able to pay attention in their online classes. 35.4% of students are able to concentrate for more than 35mins followed by 25% for each 15-25mins and 25-35mins and the rest 14.6% are able to only concentrate for less than 15mins.

Do you feel awkward whenever your parents are around while you're taking online classes and thus avoid answering questions or interacting?

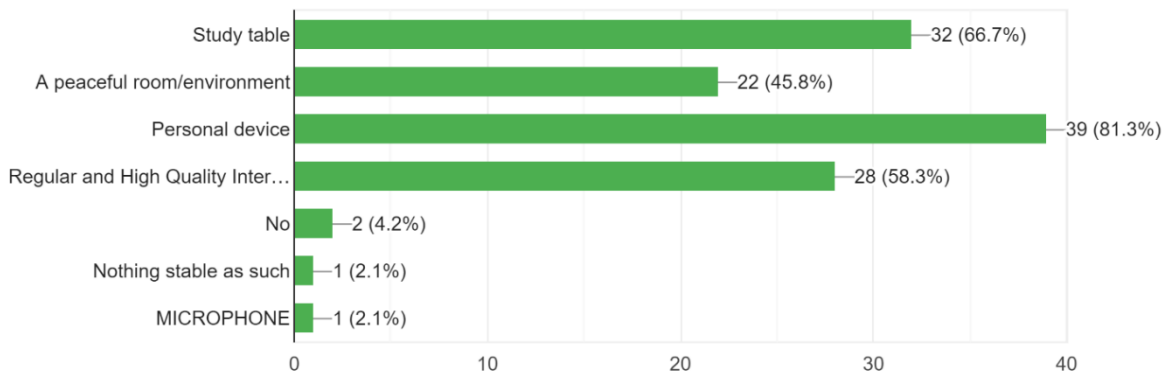
48 responses



Majority of respondents i.e. 52.1% sometimes feels awkward whenever their parents are around while they are attending online classes and thus avoid answering questions or interacting much. While 25% of the students do not feel so.

Do you have proper gears for online mode of education?

48 responses

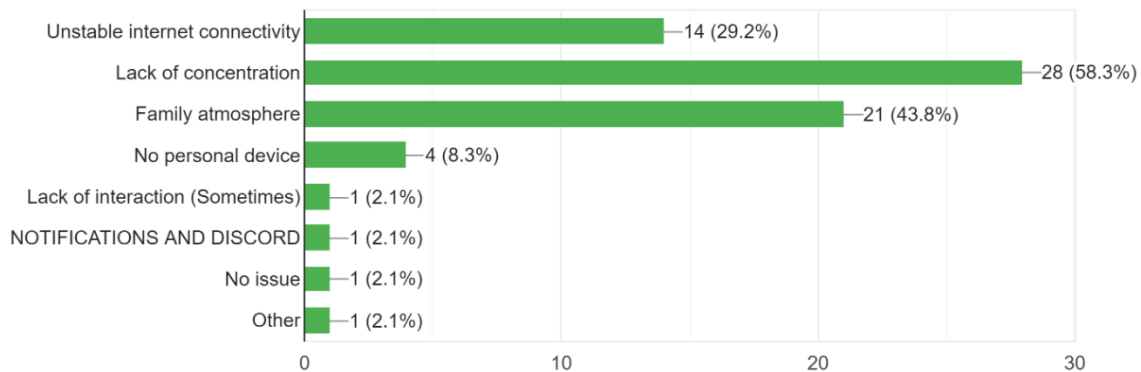


The above graph shows various essential requirements needed for online classes along with the percentage of students possess the. Personal device is at the highest with 81.3% students having it.

What is the major problem you face during e-learning?

The major problem faced by students while attending classes online is about the lack of

48 responses

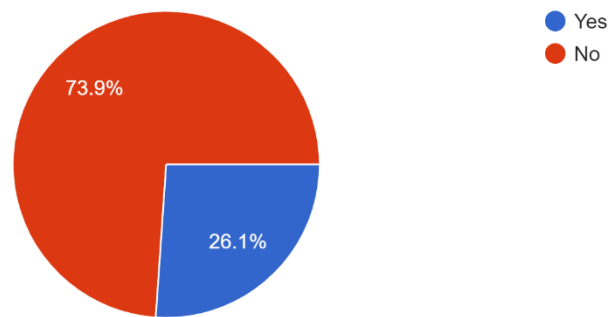


concentration with about 58.3% of the students voting for it followed by peaceful family atmosphere with 43.85 and unstable internet connectivity with 29.2%. The rest stands at 2.1% each.

PARENTS/GUARDIANS

Do you prefer online mode of learning for your offspring(s)?

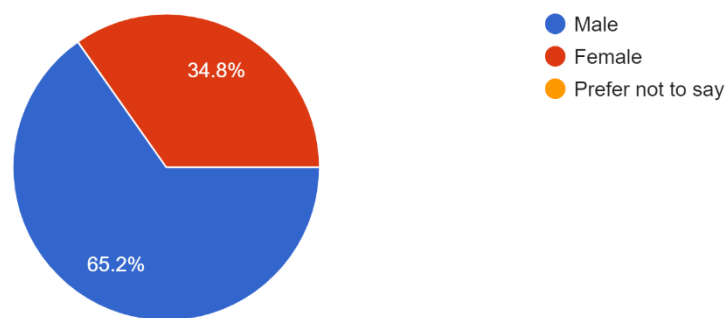
23 responses



Majority of the respondents have voted for no, they do not prefer online mode of learning. While the rest 26.1% of the parents are in favor of online education.

Gender

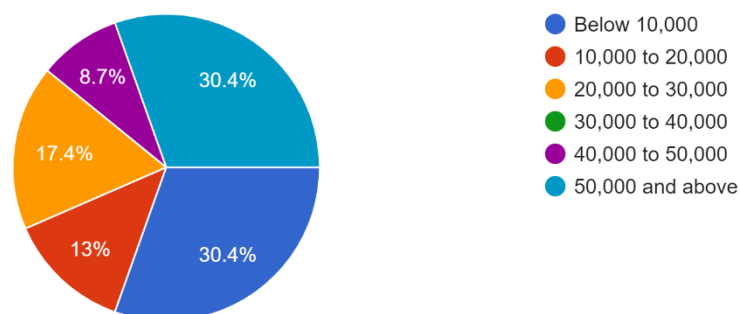
23 responses



The graph shows the gender of the respondents who filled the google questionnaire. 65.25 were male and 34.8% were female.

Monthly income

23 responses

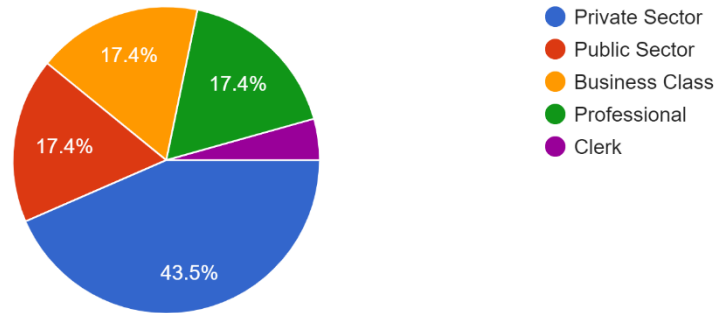


The monthly income of the Parents/Guardians have been depicted in the above graph. Majority falls under the income level of below 10,000 and 50,000 and above while 13% have

10,000 to 20,000, followed by 17.4% with income ranging from 30,000 to 40,000 and 8.7% of respondents have 40,000 to 50,000 as their monthly income.

Profession

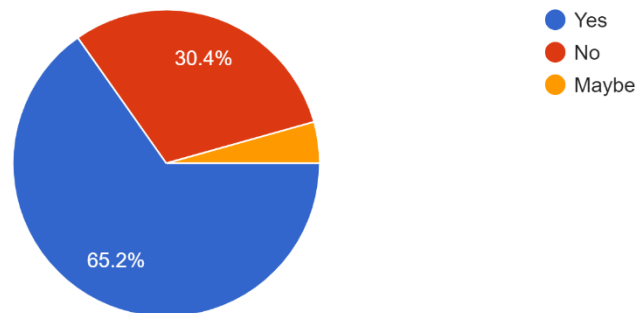
23 responses



With 43.5% of the respondents work in private sector while 17.4% each are from public sector. Business class groups or are professionals.

Has e-learning worsened your condition economically?

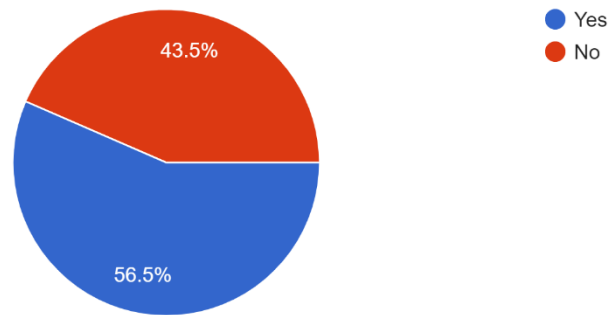
23 responses



Majority of the respondents i.e. 65.25 have voted for yes e-learning has worsened their economic conditions while 30.4% says it has no and the rest stands at maybe.

Does your child have a personal device to attend online classes?

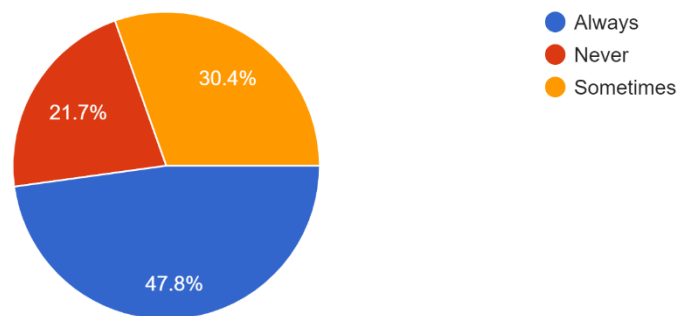
23 responses



Parents whose child does not has a personal device stands at the percentage of 43.5% and 56.5% of them have voted for yes.

Does it restrict your activities at home?

23 responses



Most of the parents have responded to always as online learning restrict their activities at home while 30.4% of the respondents have voted for sometimes and the remaining 21.7% have voted for never which means their activities at home is not restricted.

What according to you is the major drawback of online learning?

Lack of practical knowledge

My child is not getting outside exposure to the real world with being always behind technology at homes

Improper learning environment

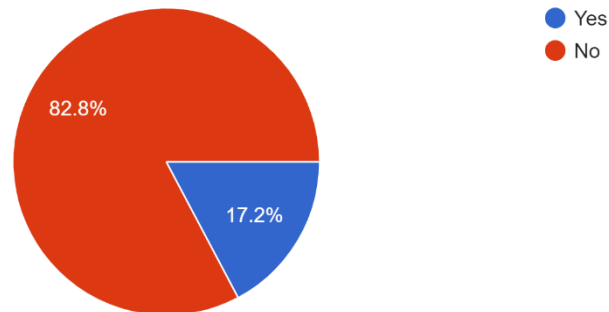
No proper learning environment and distractions

The above mentioned are the major drawbacks considered by the Parents/Guardians of online learning.

TEACHERS

Do you prefer online mode of teaching?

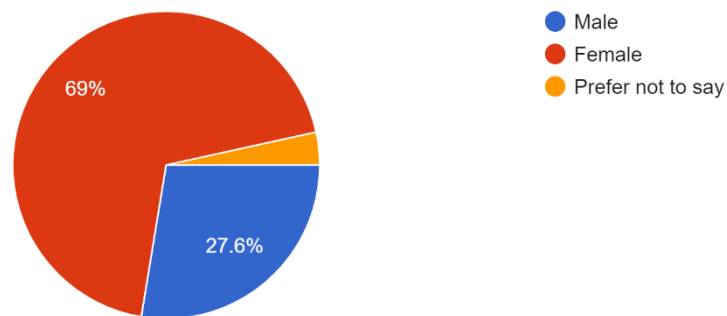
29 responses



Majority of the respondents are not in favor of online mode of teaching 82.8% have voted for no while the remaining 17.2% have voted for yes.

Gender

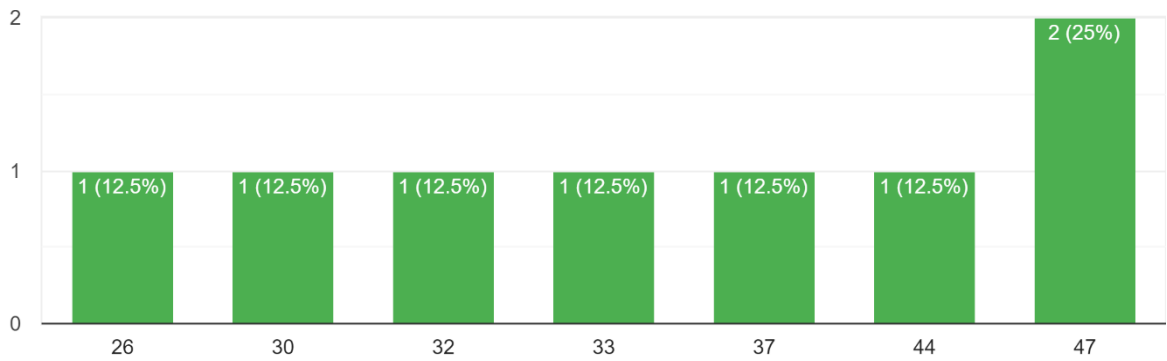
29 responses



69% of the respondents were female and 27.6% were male and the rest did not prefer to reveal their gender.

Age

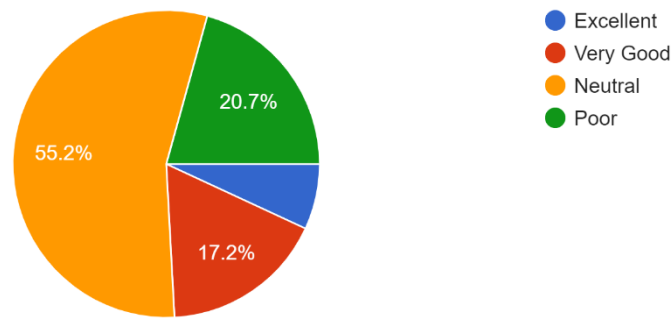
8 responses



The above bar graph shows the age of the respondents.

How do you rate your online teaching experience?

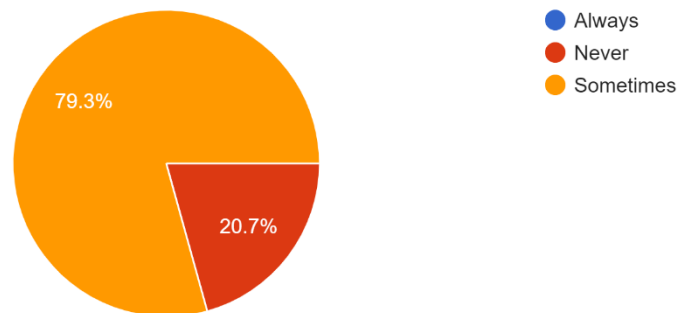
29 responses



55.2% of the respondents are neutral with their online teaching experience while only 6.9% finds the experience to be excellent.

Q. Can you evaluate students' progress in online mode of education?

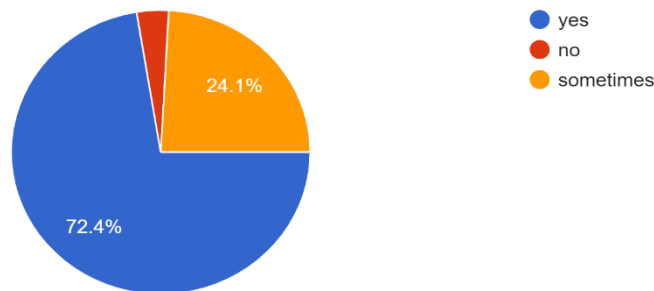
29 responses



The teachers finds it difficult to evaluate the student's progress in online mode of education with 79.3% voting sometimes and 20.7% voted never for the same.

Do you face any internet connectivity issues during online classes?

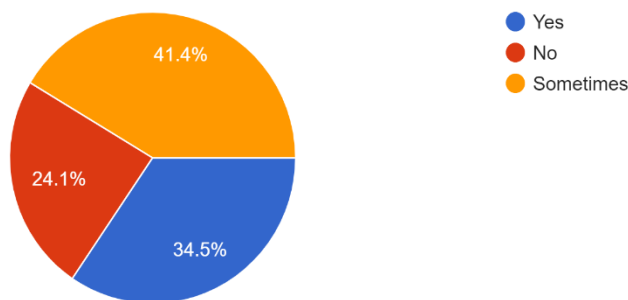
29 responses



Majority of the respondents have voted for yes they face internet connectivity issues during online classes. The percentage stands at 72.4% while 24.1% of the teachers sometimes face the technical slag and the remaining do not face any internet issues,

Are you able to effectively communicate with students in/during online classes?

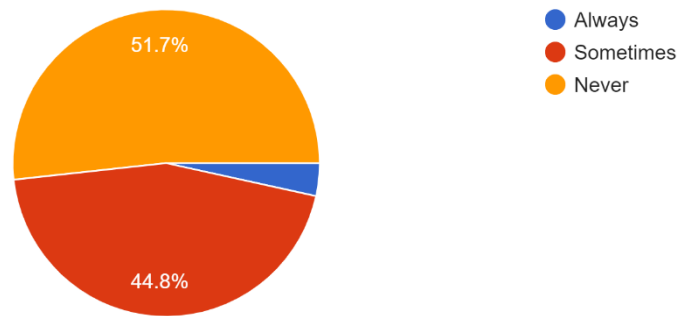
29 responses



Major respondents feel they are sometimes able to effectively communicate with the students during online lectures while 34.5% of the teachers are in favor of the statement and the rest 24.1% are not in favor.

Do students ask more questions in online classes?

29 responses



51.7% of the teachers believe that students never ask questions during online lectures while 44.8% claims to respond to sometimes and the rest says they do ask.

What do you think is the major problem/difficulty faced in online mode of education? 11 responses

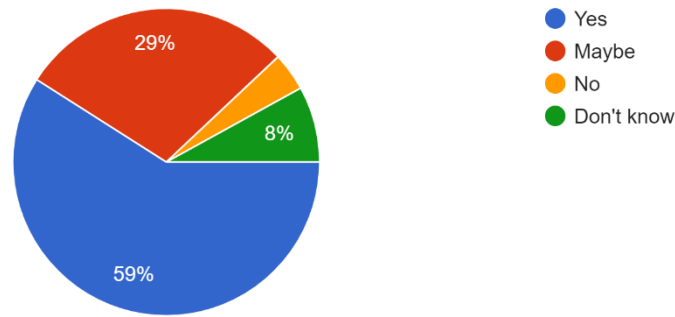
- We are not able to check the students progress and understanding
- No face to face interaction and internet issues
- There is a lack of personal touch with the students which makes it difficult to evaluate their academic progress
- The major drawback of online mode of education is according to me is that we waste a lot time in fixing the internet connectivity
- Student feedback is limited
- Internet connectivity issue
- Several students have complained of facing eyesight problems
- There is no face to face interaction with the students which gets difficult for assessing the students progress
- Students try to escape attending the classes

The above responses explain the major problems or difficulty faced in online mode of education by the teachers.

NATIONAL EDUCATION POLICY 2020

The New Education Policy expands age group 6-14 years of mandatory schooling to 3-18 years of schooling. It also replaces the 10+2 curriculum with 5+3+3+4 structure implying that a student must have 12 years of schooling preceded by 3 years of Anganwadi or pre-schooling. Do you think it was a mandatory step and will be beneficial for students?

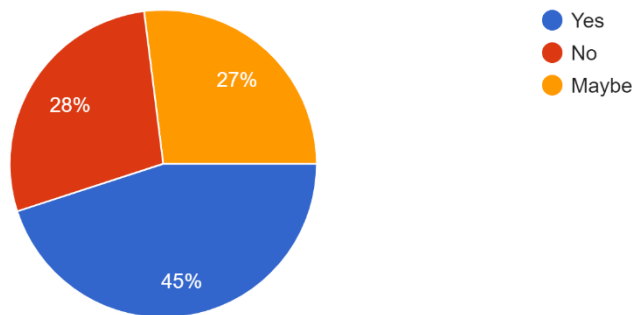
100 responses



Data revealed that majority respondents believed that yes it was a mandatory step to expand the age group 6-14 years of mandatory schooling to 3-18 years of schooling with 59% being in favour and choosing Yes as the option, 29% choosing Maybe and the rest 12% choosing No and Don't know as their options

NEP 2020 focuses on the use of mother tongue as the instruction medium. Do

100 responses

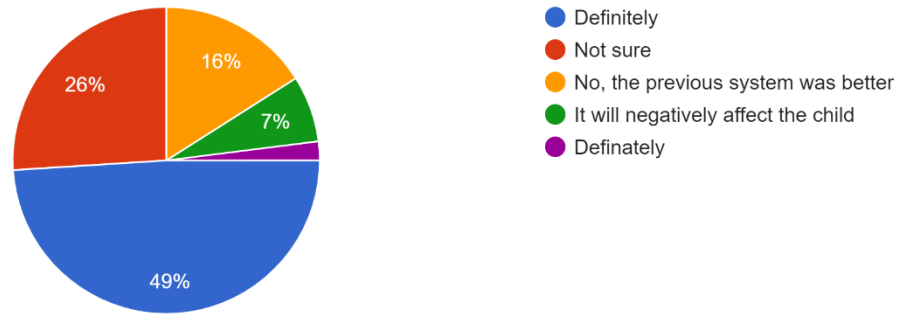


you think it will be beneficial for students?

Majority People believe that the use of mother tongue as an instruction medium. This can be possibly because of the current status of the students having no or very little knowledge about their mother tongue. 45% respondents chose Yes as an answer with 28% choosing No and the rest 27% choosing Maybe in their response to the question.

Students select the subjects of their choice across streams, such as commerce, science and arts. Do you think it will be beneficial for the students to learn various subjects irrespective of the streams and help them in choosing their career with a clearer perspective and picture?

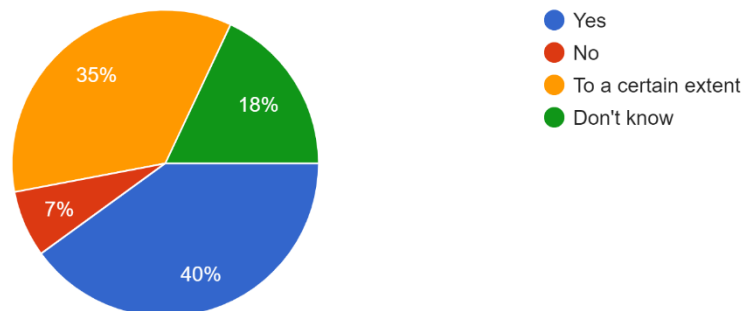
100 responses



Majority people believe that it will be beneficial for the students to learn various subjects irrespective of the streams and will help them in choosing their career with a clearer perspective maybe because the students' studies as per them will not be restricted just to one particular stream and this variety in subjects will help them choose their career wisely like in foreign countries. 51% respondents chose Definitely as their answer choice with 26% being not sure and the other 16% and 7% choosing their answer choice as No, the previous system was better and It will negatively affect the child respectively.

Do you think the extended midday meal scheme will reduce the dropout rate in schools?

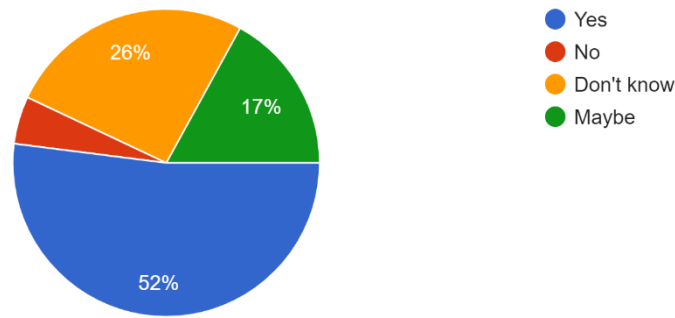
100 responses



With majority respondents believing in this change of midday meal scheme extension reducing the dropout rate in schools, 40% are in favour and have chosen Yes as an answer type against only 7% against it and the rest 35% and 18% choosing To a certain extent and Don't know respectively as their answer choice.

Higher Education Commission of India(HECI) will be set up as a single overarching umbrella body for entire higher education, excluding medical and legal education. Do you think this unified body will eventually benefit the students and their education in long run?

100 responses

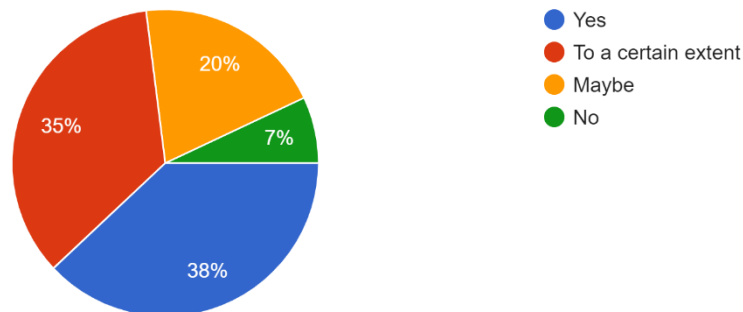


Majority people believe that HECI (Higher Education Commission of India) being set up will eventually benefit the students and their education in the long run having an impartial decision(s) for all with them being timely and speedy when needed.

Where 52% people agree to it, 26% Don't know about it, 17% choosing maybe as their answer type only 5% are against of it and have chosen No as their answer type.

The NEP entails about the qualification of becoming a teacher would require a 4- year Bachelor of Education, do you think in any way it would improve the efficiency of a teacher?

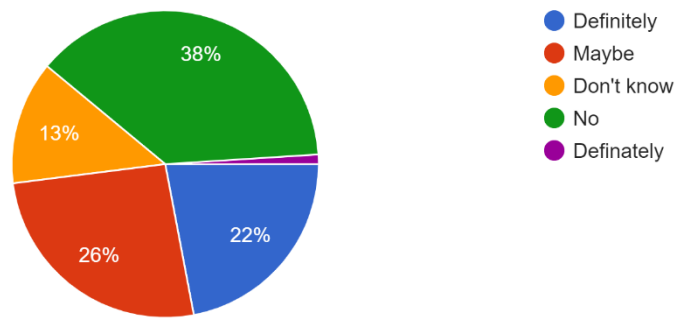
100 responses



Major respondents believe that the qualification of becoming a teacher now becoming a 4-year Bachelor of Education will improve the efficiency of the teachers. 38% people support it by choosing Yes as an answer choice, with 35% choosing to a certain extent, 20% choosing Maybe, and the rest 7% choosing No as their answer choice.

Do you think that the board examinations that are being conducted 2 times a year with half a syllabus being covered by objective examination in first half and remaining being covered by subjective examination in second half is equally efficient as the previous board examination pattern?

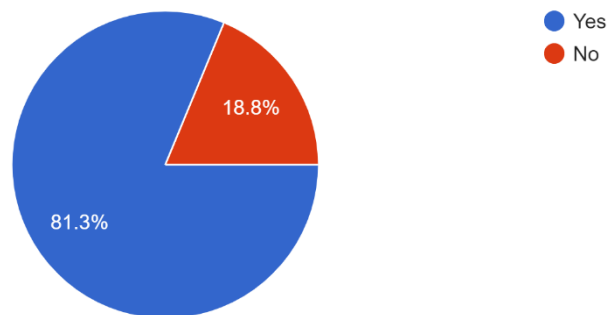
100 responses



Majority people do not believe that board exams being conducted 2 times a year with half subject being covered by objective exams and half by subjective exams will be as efficient as the previous board pattern maybe because a lot of people believe that objective type exams cannot determine the knowledge base of the students. Where 38% chose No as an answer choice, only 22% chose Yes, with 26% being unsure and choosing Maybe and the rest choosing No as their answer choice.

Has the New Education Policy 2020 tried giving suitable solutions for the issues/loopholes of previous policy?

96 responses



Major respondents 81.3% believe that this New National Education Policy 2020 has tried given suitable solutions for the issues/loopholes of previous policy given by Rajiv Gandhi government with only 18.8% choosing No as their answer choice.

4. Summary of Findings of the Research

The following are the findings from the various questions asked in the google forms

(ONLINE LEARNING)

STUDENTS

Majorly the problems are faced by

- Students aged from 10- 17 years
- Parent's/parents' income ranging between 0 to ₹ 30,000
- They do not own any devices or access from the borrowed ones
- There is no proper environment for them to study along with lack of proper gears like

PARENTS/GUARDIANS

Mainly the problems are faced by

- Parents who's monthly income range between 0 to 20,000
- The respondents work in public sectors and a few are from business class groups.
- There is no personal device for their children to access the online classes
- E-LEARNING has worsening their economic condition.

TEACHERS

Majority of problems are faced by

- Teachers above the age of 50 years (Irrespective of the gender) prefers the traditional offline mode of learning.
- There is a lack of personal touch while teaching online. They feel the students are not able to express and ask their doubts comfortably. Even knowing the student's potential becomes difficult.
- The respondents face major problems with accessing devices and handling internet issues.

(NATIONAL EDUCATION POLICY 2020)

Most respondents believe that NEP 2020 has addressed the issues of the previous policy

- Respondents believe that it was mandatory to increase the age group from 6-14 years of mandatory schooling to 3-18 years of schooling. They also believe that the replacement by 5+3+3+4 of 10+2 curriculum was a necessary step and will benefit the students.
- They also believe that using mother tongue as an instruction medium will eventually help the students.
- Major respondents also believe that it will be beneficial for the students to choose their subjects irrespective of any stream.
- Major respondents are in the favour of extension in the midday meal scheme which might reduce the dropout rate in schools in long run.

CONCLUSION AND FUTURE WORK

- I. **Hybrid Mode of Learning:** Hybrid mode of learning means that students can study both in online as well as offline mode according to their preference. Some students prefer studying from power point presentations, videos, etc. and are able to understand better and retain more by learning from this mode of education, some still prefer the traditional one to one way of learning. So students must be given an option to choose from these two modes of education according to their preference.
- II. **Interactive and Interesting sessions/classes:** Classes should be made more interactive and interesting to grasp attention of the students for a longer period of time, this will increase the interest of students in that subject eventually increasing the retaining power of the student.
- III. **Awareness Sessions:** As we know that till date some students, parents and teachers are not comfortable with this online mode of education with having no or very less knowledge about the gears used in this mode of education, several awareness sessions should be conducted in the beginning of the academic year so as to make the parents, teachers and students aware about the same.
- IV. **Subsidizing E-learning gears:** By subsidizing E-learning gears such as laptops, kindles, etc., government can ensure their accessibility with the poor section of the society as well.

LIMITATIONS OF THE STUDY

The following are some of the predicted/possible limitations which can be witnessed as to the new National Education Policy 2020 has not come into implementation.

- I. **Language Barrier**
Introducing mother languages for each subject in academic institutions is a problem. Sometimes, finding a competent teacher is difficult and another challenge comes with the introduction of NEP 2020 is bringing study material in mother languages.
- II. **Funds Constrained**
The government is planning to spend 6% of GDP on Education. In India, Education is a concurrent subject. Till now the country used to spend less than 3% of its total GDP. All the previous government in power promised the same with no avail.
- III. **Zero emphasis on teacher training**
The pattern of training infrastructure followed in central schools should be adopted. Timely refresher courses, performance enhancement trends and workshops need to be conducted.
- IV. **Flexibility on the choice of subjects**
There shouldn't be given complete flexibility in choosing subjects. The core subjects should be made mandate along with multiple choices

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ANNEXURE

Questionnaire of the research report

- Are you answering this survey as a
Student

Parent/Guardian

Teacher

Questions for students

- Age
10-13

15-17

18-21

Above 21
- Parent's/parents' monthly income
Below 10k

10k-20k

20k-30k

30k-40k

40k-50k

50k and above
- Do you prefer online mode of learning
Yes

No
- Do you have a personal device to attend classes online?
yes

No

Yes, borrowed
- Are you able to get internet accessibility in your area connectivity your area
Yes

No

Sometimes

- Are you able to concentrate on the subjects as compared to offline classes?
Yes

No

Sometimes
- Do online classes save time and give room for other activities
Yes

No

No difference
- Are your teachers effectively able to communicate during online classes like they could in offline classes
Yes

No
- What is the maximum time you are able to pay attention in your online class(es)
Less than 15mins

15-25mins

25-35mins

More than 35mins
- Do you feel awkward whenever your parents are around when you are taking online classes and thus avoid answering questions or interacting
Always

Sometimes

Never
- Do you have proper gears for online mode of education
Study table

A peaceful room/environment

Personal device

Regular and high quality internet connection

Other
- What is the major problem you face during e-learning
Unstable internet connectivity

Lack of concentration

Family atmosphere

No personal device

Other

Questions for Parents/Guardians

- Do you prefer online mode of learning for your offspring (s)?
Yes
No
- Gender
Male
Female
Prefer not to say
- Monthly income
Below 10,000
10,000 to 20,000
20,000 to 30,000
30,000 to 40,000
40,000 to 50,000
50,000 and above
- Profession
Private Sector
Public Sector
Business Class
Professional
Other
- Has e-learning worsened your condition economically?
Yes
No
Maybe
- Does your child have a personal device to attend online classes?
Yes
No
- Does it restrict your activities at home?

Always

Never

Sometimes

- What according to you is the major drawback of online learning?
 -
-

Questions for Teachers

- Do you prefer online mode of teaching?
Yes
No
- Gender
Male
Female
Prefer not to say
Other
- Age

- How do you rate your online teaching experience?
Excellent
Very good
Neutral
Poor
- Can you evaluate student's progress in online mode of education?
Always
Never
Sometimes
- Do you face any technical slag while online teaching?
Yes
No
Sometimes
- Do you face any internet connectivity issues during online classes?
Yes

No

Sometimes

- Do you think online classes are better/equally efficient substitute for offline classes?
Yes

No

Sometimes

- Do students ask questions in online classes?
Always

Sometimes

Never

- What do you think is the major problem/difficulty faced in online mode of Education?
-

National Education Policy 2020

- The New Education Policy expands age group 6-14 years of mandatory schooling to 3-18 years of schooling. It also replaces the 10+2 curriculum with 5+3+3+4 structure implying that a student must have 12 years of schooling preceded by 3 years of Anganwadi or pre-schooling. Do you think it was a mandatory step and will be beneficial for students?

Yes

Maybe

No

Don't know

- NEP 2020 focuses on the use of mother tongue as the instruction medium. Do you think it will be beneficial for students?

Yes

No

Maybe

- Students select the subjects of their choice across streams, such as commerce, science and arts. Do you think it will be beneficial for the students to learn various subjects irrespective of the streams and help them in choosing their career with a clearer perspective and picture?

Definitely

Not sure

No, the previous system was better

It will negatively affect the child

- Do you think the extended midday meal scheme will reduce the dropout rate in schools?
 Yes
 No
 To a certain extent
 Don't know
- Higher Education Commission of India(HECI) will be set up as a single overarching umbrella body for entire higher education, excluding medical and legal education.Do you think this unified body will eventually benefit the students and their education in long run?
 Yes
 No
 Don't know
 Maybe
- The NEP entails about the qualification of becoming a teacher would require a 4- year Bachelor of Education, do you think in any way it would improve the efficiency of a teacher?
 Yes
 No
 To a certain extent
 Maybe
- Do you think that the board examinations that are being conducted 2 times a year with half a syllabus being covered by objective examination in first half and remaining being covered by subjective examination in second half is equally efficient as the previous board examination pattern?
 Definitely
 Maybe
 Don't know
 No
- Has the New Education Policy 2020 tried giving suitable solutions for the issues/loopholes of previous policy?
 Yes
 No

CHAPTER 7

RESEARCH PAPER TITLE - RIGHT TO INFORMATION: DILUTED OUTSTRETCH IN ELECTORAL REFORMS

Manu Garg and Neha Pascal

Dr Meeta Sharma

INTRODUCTION

Democracies all over the world are characterized by the capability of the system to conduct free and fair elections, which might not be the only criteria for qualifying a nation as a democratic one but still has an important value in it. Fairness of elections cannot be assured without ensuring the transparency of public gaze in the process. A major milestone in the way of electoral reforms came with introduction of Right to information act 2005 which provided legal backing to civil societies to scrutinize the political parties and their working. Despite having a mechanism, the political parties seem reluctant to share information in public domain making use of various loopholes in the act and blatantly refusing to abide by several judicial orders. This in turn leads to a clash between the constituents of parliament that is political parties who virtually control it and the laws. This paper tries to analyse the research question that what constitute public authority and whether political parties are included in the definition of public authorities or not. It also traces the various factors that play a role in not designating political parties as public authority. By this paper the major focus is on refining the electoral system to make it more accountable and transparent thereby enhancing the democratic values of India.

Keywords: Public Authority, Electoral reforms, Political parties, Association of democratic reforms (ADR), Central information commission, Public information officer (PIO), Right to information.

OBJECTIVES

- 1) To investigate whether political parties come in the purview of Right to Information act.
- 2) To understand the debate underlying in ensuring whether political parties are public authorities or not.
- 3) To analyse and find solution of the road blocks hindering proper transparency in the electoral reformation.
- 4) To suggest a way out of the scenario of clash between two pillars of government.

HYPOTHESIS

- Political parties are public authorities
- Political parties should come under the wide scope of right to information act 2005
- The inclusion of Political parties under the purview of RTI will significantly improve the Political culture and electoral system of India.

- It can also lead to underlying conflict between judiciary and parliament.
- The research question is whether political parties as an institution, come under the purview of right to information.

REVIEW OF LITERATURE

After reviewing the pre existing literature, we found out that there is a research gap on the theme of extending electoral reforms to the authorities of political parties and the inherent clash between legislature and judiciary on the subject matter.

RESEARCH METHODOLOGY

The Research is primarily based on secondary sources like newspaper articles, magazines, press releases of association for democratic reforms.Election Commission and all India national level political parties. A survey based on primary research having sample size of 100 respondents has also been conducted to substantiate the research.

Right to Information Act, 2005

Right to Information Act was enacted by the Parliament; it received the President's assent on 15th June, 2005.

It provides for right to information for citizens to secure access to information under the control of public authorities in order to promote transparency and accountability in the working of every public authority.

It is applicable for all states in the country except for Jammu & Kashmir.

Under the provisions of the Act, a citizen may request information from a "public authority" (a body of government) which is required to reply within thirty days.

Association for democratic reforms' tryst with the Right to Information (RTI) Act, 2005

ADR since the inception of RTI Act in 2005 has used it extensively to access information from various bodies like the ECI, CBDT, Income Tax offices and so on, related to functioning of our political parties and elected representatives. Several RTIs filed by ADR are currently in various stages of processing.¹

Public disclosure of Income Tax Returns

Political Parties are exempt from paying any Income Tax under the Section 13A of the Income Tax Act.

Section 29C of the Representation of the People Act, 1951: Parties to file details of all contributions in excess of Rs 20,000 received in a given financial year with the Election Commission (EC) annually, before the due date for furnishing a return of its income to the EC of that financial year, to be entitled for tax relief.

Information sought under RTI

2007: ADR filed RTI applications before Election Commission and the Tax authorities seeking information whether Political Parties file their contribution reports as per Sec 29(A) of RPA (Representation of Peoples' Act) 1951 to get tax benefits under Sec 13A of Income Tax Act, 1961

ADR filed an RTI application dated 28 Feb, 2007 before the Central Public Information Officer (CPIO), Central Board of Direct Taxes (CBDT) requesting for the following information:

- 1) Whether the political parties have submitted their Income Tax Returns (ITR) for the financial years between 2002 and 2007
- 2) The PAN numbers allotted to these parties
- 3) Copies of ITRs filed by parties for the aforesaid years along with the corresponding assessment orders, if any

Response to the RTI Filed

21 June, 2007: EC response to the RTI contained details of 21 parties' contribution reports. Many parties were listed for not submitting the reports ever. Tax authorities, on the other hand, refused to divulge the information on the following grounds:

- ITRs – submitted in fiduciary capacity and confidential
- Information disclosure – no relationship with public activity or public interest involved
- PAN disclosure can result in misuse of information
- Information is confidential under Section 138 of the IT Act, 1961
- No obligation to give any information; disclosure can cause unwarranted invasion of privacy

Political Parties' response

With exception of Communist Party of India (CPI) & Communist Party of India (Marxist) that had no objection to disclosure of the concerned information, other parties challenged the disclosure due to the following reasons:

- Confidential information
- Parties are not public authorities
- ITRs are not public documents
- Info disclosure will compromise privacy
- ITRs are personal and fiduciary entrustment

- Appellant has Mala- fide intent
- ITR contains commercial information and attract section 8 (1) (d) of RTI Act.

ADR's counter

- Parties represent interests of people who elect them to power.
- Political parties work in public domain and use public funds.
- Transparency is essential in larger public interest. Public interest is above the interests of political parties.
- Disclosure promotes transparency and reduces the role of black money.
- Access to information under the RTI Act, 2005 would prevail over the Income Tax Act, 1961
- The CEC, Shri T.S. Krishnamurthy, recommended parties to make public their accounts annually for information & scrutiny by public
- Alternative remedy under Section 138 of the IT Act/any other act would not bar a citizen from seeking information under the RTI Act, 2005
- Appellant and the organization are completely non-political & non-partisan.²

II. Designating Political Parties as public authorities and bringing them under the RTI Act, 2005

An RTI application dated 29 Oct, 2010 before the Public Information Officer (PIO) of the 6 National Parties, ADR sought information on the source, mode of payment, amount and year of donations and contributions received by these political parties.

- RTI Response: Barring CPI, all National parties such as INC, CPI (M), NCP refused to divulge any information stating that they are not “public authorities” and did not come under RTI. Parties like BJP & BSP did not respond to the RTI.³
- **Action taken by ADR:** On the basis of the above, a complaint was filed by ADR with the CIC in March 2011 requesting that political parties should be declared as public authorities so as to bring them under the purview of RTI.
- The complaint was admitted before the CIC on March 14, 2011. Two hearings were convened before the CIC, first in September 2012 and second in November 2012 discussing the substantial funding given to parties in details.
- The details provided by ADR to CIC for the case were based on the RTI applications filed to various govt. departments.

ADR Impact: On June 3, 2013, a full bench of the CIC declared the 6 National political parties (INC, BJP, CPI, CPM, NCP and BSP) as “public authorities” under the RTI Act in response to a complaint filed by ADR and Subhash Agarwal.

National Parties refused to comply with the 2013 CIC order which the CIC declared as final and binding in another order dated March 16, 2015.

• **ADR's response:** ADR filed a plea in the Supreme Court in May 2015 urging the apex court to declare all National & Regional parties as "public authorities" and bring them under RTI. Last hearing was held in October 2017.

Political parties prior were observed as NGO society as per the societies act 1860. CIC in 2013 pronounced that political parties are public authorities as section 2 of RTI has definition of public authority. Section 2(h) defines public authority can also be non governmental entity substantially financed by the government. The conditions for declaring any entity as public authority are:-

- 1) They receive substantial form of funding from the government.
- 2) Large part of their functions should be in public domain.
- 3) Political parties control government machinery and a private authority cannot control a public machinery so political party is a public authority.
- 4) An authority that controls public authority is also a public authority.
- 5) Union of India vs ADR 2002 reference where the Supreme Court held that right to information is fundamental right to citizens hence the voters have the right to know the antecedence of their political candidates.
- 6) Except for the political strategy, other matters relating to finance and administration need to be made available to public because political parties are public institutions, receiving money from public.
- 7) Electoral Bonds are not promoting transparency in political funding as donors remain anonymous to public.
- 8) In fact, not only funding but expenditure made by political parties, especially during the time of elections should be made public.
Currently in India, there is no ceiling on expenditure incurred by the political parties at the time of elections.
- 9) Political Parties are already under the RTI Act as they have not challenged the Central Information Commission's verdict of 3rd June 2013 (Political Parties are public authorities under Section 2(h) of the RTI Act); though they have also not complied with the order yet.
- 10) RTI act is a very balanced act. There is a section 8(1) in the act that has ten exemptions within it. If a political party comes under the ambit of RTI act, then this section will safeguard them from disclosing all types of information.

This led to the question that what is public money and private money. Money which is extracted from the people irrespective of their choice in form of taxes and fees becomes public money while money given by choice would be categorised as private money. Loopholes found in the judgement are-

- 1) Public information officer was not appointed by political parties.
- 2) The penalty under the act for not disclosing information is just 500 per day till the limit of 25000.

Using the above two way outs, political parties denied both information and penalties.

In PIL filed by ADR in 2015 the government filed their response by claiming that they are not in support of inclusion of political parties in ambit of right to information because-

- 1) The intent of the original act was not for political parties and act was not made for this purpose.
- 2) If political parties are brought under RTI act, it will hamper their smooth functioning.
- 3) If political parties are put under scrutiny, they will become victims of frivolous RTI complaints.
- 4) All political parties are already transparent because annual audited accounts are submitted to income tax department and election commission.
- 5) Law needs to be amended: Section 2(h) of RTI act defines public authority as the one which is created by or under the constitution or by the Parliament.

- 6) Political Parties are formed under the act of Parliament i.e. under the Representation of People Act, which is not the same thing as being created by the Parliament. Therefore, until and unless the law is changed, it will be difficult to bring political parties under the ambit of RTI act.
- 7) Political Parties have apprehension that disclosure of information under RTI act may give advantage to their competitors.
- 8) Political parties do not want to disclose their internal working as well as their decision making system.

Benefits of political parties coming under RTI-

- 1) It will internal party democracy as leaders will become responsible to party workers and people at large. The parties who are pillars of democracy are themselves not democratic. Transparency, good governance and accountability would be substantially enhanced.
- 2) There is no limit on party expenditure and limit is only on candidate expenditure. Candidates have to disclose their source of income but the parties need not.
- 3) All shady sources of fund will reduce when party fund comes under RTI.
- 4) This will also indirectly limit party expenditure. It is likely to introduce a limit on the expenses incurred by parties which otherwise presently is not present and violates the basic idea of having a limit on expenditure.
- 4) Funds below 20000 will also come under check.

The canvas of governance where a lot of money is spent but output is less yet in that frame many blackhole exist which will be filled. As RTI scope increases to cover entire governance area, this will increase transparency and fill other blackholes too.⁴

RTI increasing reach to NGO's

Non-governmental organisations (NGOs) “substantially” financed by the government fall within the ambit of the Right to Information Act, the Supreme Court held in a judgment on 18 September 2019.

A Bench of Justices Deepak Gupta and Aniruddha Bose laid down those NGOs which receive considerable finances from the government or are essentially dependent on the government fall under the category of “public authority” defined in Section 2(h) of the Right to Information (RTI) Act of 2005.

This means that they have to disclose vital information, ranging from finances to hierarchy to decisions to functioning, to citizens who apply under RTI. An NGO, the court said, may also include societies which are neither owned nor controlled by the government, but if they are significantly funded by the government, directly or indirectly, they come under the RTI Act.

The court defined “substantial” as a “large portion.”

“It does not necessarily have to mean a major portion or more than 50%. No hard and fast rule can be laid down in this regard. Substantial financing can be both direct and indirect,” Justice Gupta wrote in the judgment.

Supreme Court 2019- DAV College Trust and Management v/s Director of Public Instructions 2019.

1) Only those NGOs which are substantially funded by the state shall be brought under the ambit of RTI. 2) There is no definition of substantial funding. Whether there is substantial funding or not will be decided on case to case basis. Criteria put forth by court are substantial means a large portion which does not necessarily mean a major portion (greater than 50 percent). No hard and fast rule can be laid down in this regard. Substantial funding can be both direct and indirect for example if the land in a city is given at highly subsidised rates or free of cost to hospitals, educational institutions or such other bodies amounts to indirect funding. Whether activities of the NGO can be carried out effectively without getting finances from the govt.⁵

RTI amendment act 2019

The RTI Act currently fixes the tenure of information commissioners at five years, subject to the retirement age of 65 years. Further, Sections 13 and 15 of the law state that the salaries, allowances and other terms of service of the Chief of the Central Information Commission shall be the same as that of the Chief Election Commissioner. Those of the Central Information Commissioners and State Chief Commissioners will be on par with Election Commissioners. The Chief and other Election Commissioners are paid a salary equal to the salary of a judge of the Supreme Court, which is decided by Parliament.

The fixed tenure and high status conferred on Commissioners are to enable them to carry out their functions autonomously, without fear or favor, and direct even the highest offices to comply with the provisions of the law.

Modi government’s proposed amendments empower the central government to decide the tenure, salaries, allowances and other terms of service of the chief and other information

commissioners of the Central Information Commission and all state information commissions. This will result in completely undermining their independence and will effectively make them function like ‘caged parrots’. Commissioners will be wary of passing directions to disclose information that the central government does not wish to provide.⁶

Not an ‘anomaly’

Another “fact” being circulated is that the government is bringing the amendments to correct an anomaly in the RTI law – namely, Information Commissioners being treated on par with functionaries of the Election Commission, even though the latter is a constitutional body while Information Commissions are statutory bodies. This contention is inherently flawed. There is nothing in the Constitution or any law that prohibits this practice. In fact, the principle of statutorily securing tenure, and protecting the terms of service by equating it to functionaries of constitutional bodies, is routinely adopted to ensure independent functioning of statutory oversight institutions like the Central Vigilance Commission and the Lokpal.

Way Forward

Money should not be given to political parties as this creates a nexus between the funders and the political parties, thus affecting policy formulation in the country. Instead, a National Election Fund should be created for receiving the donations from people. The money received should be used for conducting elections.

Eliminating the root cause of requirement of money i.e. banning election rallies and roadshows, but direct connect with people needs to be ensured. Replacing them by live T.V. debates is an option.

The Right to Information act should be made more stringent

PIO must be appointed by all public authorities and failure of doing so should attract strict actions.

The penalty cap of 25 thousand on PIO should be eliminated.

Supreme Court should intervene continuing the 2018 precedence to declare political parties as authorities.

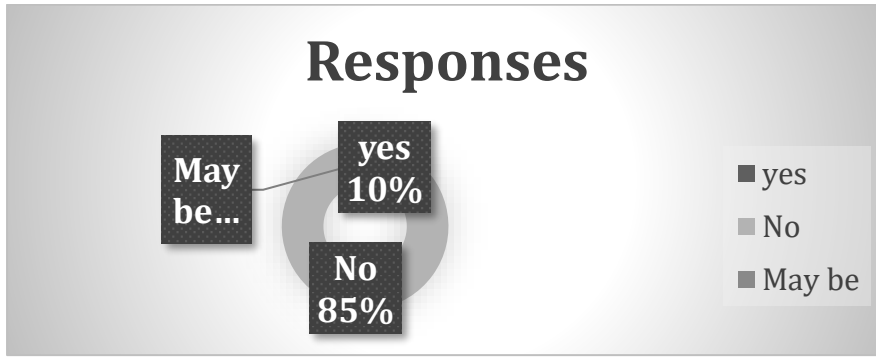
Section 29 C of representation of Peoples act 1951 should be scrapped.

The mechanism of electoral bonds should be made more transparent to public gaze.

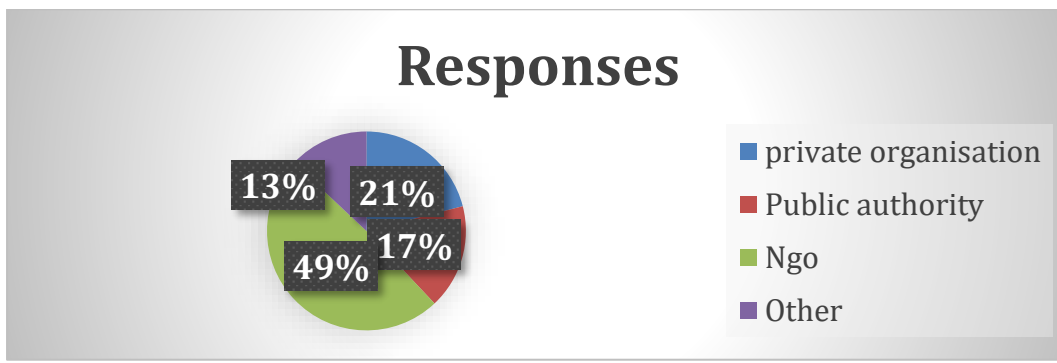
The recent amendment in 2019 should be sent for an scrutiny to a parliamentary select committee.⁷

Analysis and Findings

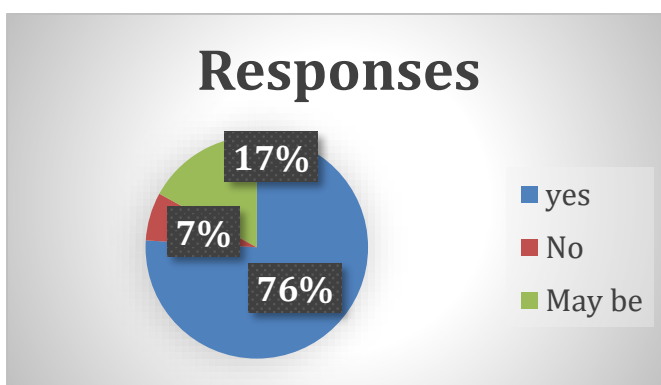
Do you know the procedure to file Right to Information application?



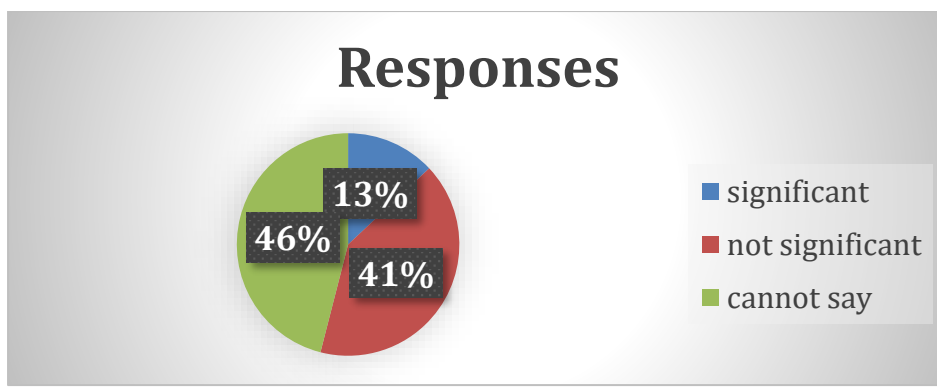
According to you what is the basic nature of a political party?



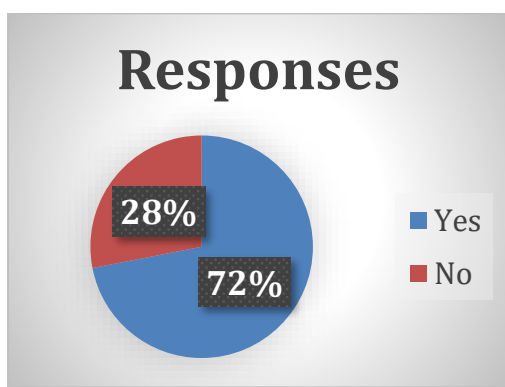
Should party donations come under scope of RTI ?



What role does personal details of a candidate play while casting vote?



Will RTI improve info sharing by political parties?



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CHAPTER 8

REVISITING THE DDOS ATTACKS: PROBLEMS AND PROSPECTS

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Dr Vaishali Singh

ABSTRACT:

Distributed Denial of Service is one sort of the most featured and most significant assaults of the present cyberworld. With basic however very strong assault components, it acquaints a colossal danger with current Internet people group. In this article, we present a complete review of appropriated disavowal of-administration assault, anticipation, and relief strategies. We give an orderly investigation of this kind of assaults including inspirations and advancement, examination of various goes after up to this point, security strategies and alleviation methods, and potential limits and difficulties of existing exploration. At last, some significant examination bearings are illustrated which require more considerations in not-so-distant future to guarantee fruitful protection against conveyed disavowal of-administration assaults.

Keywords: Refusal of-administration, conveyed forswearing of-administration, Internet of Things, Internet of Things botnet, disseminated disavowal of-administration assault safeguard, circulated disavowal of-administration avoidance, appropriated refusal of-administration relief.

INTRODUCTION:

On 21 October 2016, a flood of conveyed Distributed Denial of Service (DDoS) assaults including a huge number of Internet Protocol (IP) addresses had been noted and gone after dyn area name framework (DNS).¹ The extent of the assault was professed to be 1.2 Tbps and it has involved Internet of Things (IoT) devices.¹ This huge occurrence of DDoS assaults has demonstrated the monstrous peril built into DDoS assaults and has taken the consideration of the present cyberworld. This assault has opened a fundamental conversation about digital protection and its flightiness. As per the twelfth yearly report of Arbor Network distributed in Waterman,² the size and development of the DDoS assaults were the biggest somewhat recently and it has additionally expanded in its recurrence throughout recent years. In Figure 1, the assault volume sizes of the different DDoS assaults during the past 10 years

are introduced and the figure shows an enormous development in 2016 as far as the volume size. Hence, there is a solid need to give a modern and cutting edge review of DDoS assaults, counteraction procedures, and movement methods, and this is the inspiration driving this article.

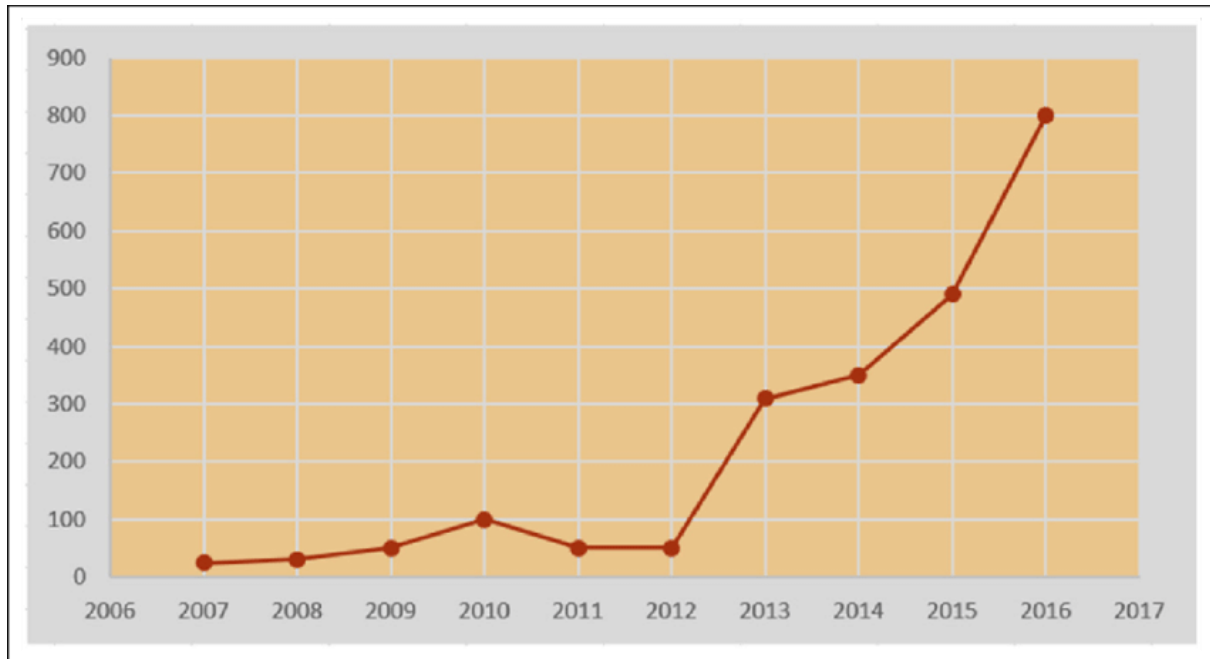


Figure 1. The volume sizes of DDoS attacks in gigabits per second, 2007–2016.

The plan of the Internet gives best-exertion, bundle changed administrations to the users. The aftereffect of this is to divide assets between various clients. As an outcome, the ways of behaving of one client might make unsettling influence to the administrations of different clients. One point of DDoS assaults is to acquaint this aggravation with the designated clients normally known as "casualties." as a rule, a DDoS assault means to preventing the entrance of real clients to an objective framework or administrations by overpowering the resources. For instance, casualties' organizations or handling limits are consumed by a tremendous stream of parcels by assailants' taking advantage of Internet applications or organization layer administrations and conventions. Thus, the casualties' organizations or handling abilities couldn't serve in a typical manner and refuse any assistance to the people in question. Besides, a DDoS casualty might experience an aggregate or fractional loss of its administrations and records on the off chance that a cautious alleviation strategy isn't applied. So far, the fundamental danger of this assault comes from its appropriated nature. Back in 1999, the primary DDoS assault was accounted for by the PC episode warning ability (CIAC)⁷ and from that point forward a large portion of Denial of Service (DoS) assaults are tracked down conveyed in nature.

As a rule, DDoS assault parcels show no conspicuous attributes which can isolate a vindictive stream from an authentic one. Likewise, the instruments utilized in these assaults are effectively open by the assailants and this expands the recurrence and dangers of the assaults. The basic construction of this sort of assaults follows many-to-one component. In this way,

on the off chance that an assault is started; its intricacy and effect become relatively high. It takes the benefits of the less solid engineering of the Internet structure since the plan of the Internet follows straightforward design which diminishes the intricacy of the center organizations. In this way, the center switches have a few limits which help the DDoS assaults. The center switches can't give validation administrations to the conveyed IP parcels. This impediment presents a major dilemma known as IP mocking which is one of the vital powers of the DDoS attacks. In IP caricaturing, the assailants give misleading data, for example, counterfeit source IP addresses in the IP packets. Furthermore, the switches additionally can't give bundle following systems in view of the huge traffic dealt with by them. These restrictions give the aggressors the valuable chance to stay concealed while performing DDoS assaults. The plan of the Internet additionally guarantees high-limit traffic dealing with help to the center organizations while low-limit traffic taking care of help to the edge organizations. This plan guarantees greatest use of the connections with least expenses. Nonetheless, this additionally acquaints the chance with overpower an edge organization in the event that numerous sources converse with a solitary objective. This occurs during a DDoS attack. In the decentralized idea of the Internet the board, every one of the organizations are overseen locally instead of with a focal administration authority or hierarchy. This decentralized construction helped in the development of the Internet. In any case, this component additionally helps assailants as the execution of a hearty guard system turns out to be very hard for the decentralized design. Without a focal control, it is beyond the realm of possibilities to expect to convey a disseminated answer for tackle the issue of the DDoS assaults. Since DDoS assaults are completely dispersed assaults, a solitary point arrangement doesn't work on the assurance against this sort of assaults. Subsequently, it is glaring that even a profoundly solid framework doesn't guarantee assurance from it. Likewise, the asset of a casualty is generally restricted when contrasted with the asset of aggressors as they can utilize a disseminated assault situation. These increment the intricacy in recognition, anticipation, and moderation of DDoS attacks.

In this article, we give a cutting-edge and best in class overview of DDoS assaults, counteraction methods, and movement strategies. We present a precise investigation of DDoS assaults which covers a scientific categorization of DDoS assault types and their avoidance and moderation strategies. The commitments of this article incorporate the accompanying:

1. We give outline of DDoS assault systems which cover each of the stages engaged with DDoS assaults.
2. We present protection components against DDoS assaults which incorporate significant counteraction and alleviation methods.
3. We incorporate late assault types as well as late exploration on DDoS guard, introducing the present status of the craft of DDoS research.

4. We additionally enroll a few difficulties of the flow examination and future exploration bearings.

Following this presentation, the remainder of the article is coordinated as follows. Segment "Assault targets and inspirations" presents targets and inspirations of DDoS assaults. Area "Assault techniques" presents assault procedures utilized in DDoS assaults. Various kinds of DDoS assaults in view of various assault components are introduced in area "Assault instruments." Section "Counteraction against DDoS assaults" covers DDoS avoidance procedures, following DDoS alleviation strategies in segment "DDoS moderation." In segment "DDoS assaults to different frameworks," we give a few conversations about DDoS assaults on forward thinking frameworks like mists, brilliant networks, savvy homes, digital actual frameworks (CPSs), and IoT frameworks. We give our conversations in segment "Conversation" and close the article in area "End."

Assault targets and inspirations

As indicated by arbor organization, consistently over 1000 sizable different DDoS assaults are followed by them around the world. The objectives of these DDoS assaults range from an own personal home client to an administration. In certain assaults, a casualty can be a web based business website, a bank, a business association, or even an Internet specialist co-op (ISP). One significant inspiration to go after these clients is for a few monetary profits. In any case, an alluring objective for a DDoS assault can be erotic entertainment or web based betting locales. In addition, political associations and states are additionally significant focuses of DDoS assaults. Gaming destinations or stock trades can likewise be focuses of DDoS assaults, as displayed in Figure 2. This figure is distributed in a quarterly report from Kaspersky Lab and here we see that generally the internet business locales were the significant focuses of DDoS assaults in the second quarter of 2011.

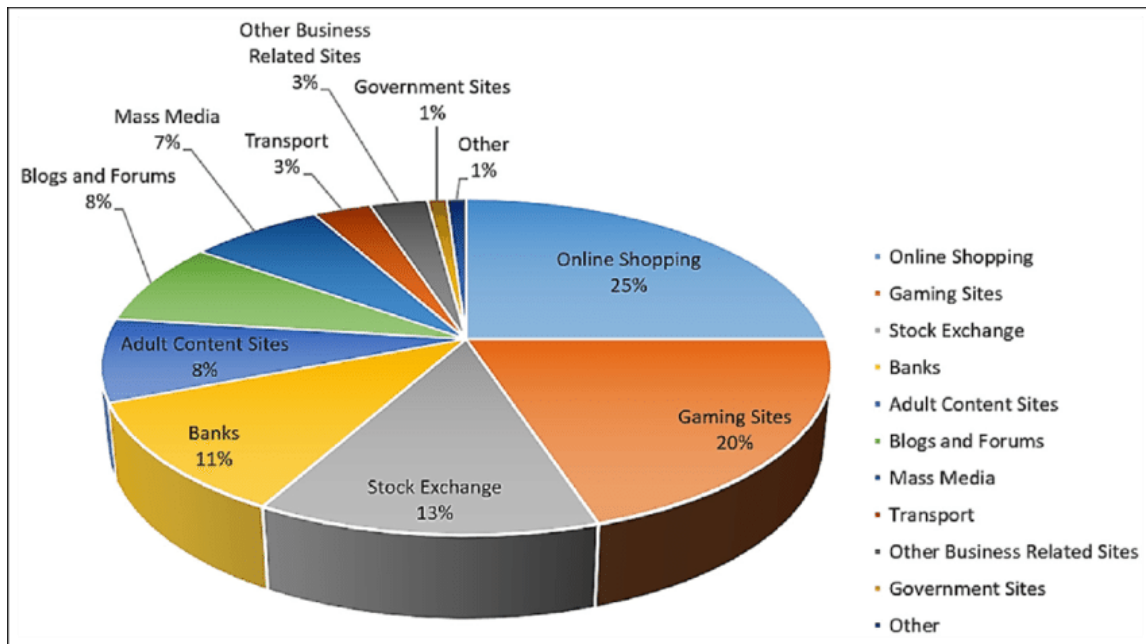


Figure 2. Breakdown of attacked sites in Q2 2011.

Hence, the reasons or inspirations driving DDoS assaults might shift. Be that as it may, five distinct classes can be recognized to describe the inspirations driving DDoS attacks.

Monetary or financial advantage. The assaults that fall under this inspiration are considered as the most perilous assaults as they attempt to accomplish a few monetary advantages from the assaults. The aggressors in such a case are the exceptionally experienced professionals. Accordingly, this kind of assaults is difficult to stop in the current situation.

Retribution. This is one more inspiration for DDoS assaults where some disappointed (perhaps in fact lower gifted) people play out the assaults as a reimbursement of a few saw persecutions.

Philosophical conviction. A few assailants become spurred to go after an objective due to their philosophical conviction. This has turned into a compelling explanation for DDoS assaults. In spite of the fact that they are not enormous in recurrence when contrasted with different inspirations, their effects and sizes are pretty much as extensive as found in the new years. The Estonia assault in 2007, the China and CNN assault in 2008,¹⁶ the Iran assault in 2009,¹⁷ and WikiLeaks in 2010¹⁸ are a portion of the generally featured DDoS assaults of the past 10 years where the inspirations of the assaults are either philosophical or political conviction.

Scholarly test. The assailants of this gathering are primarily propelled to lead DDoS assaults to flaunt their abilities and power. The accessibility of the simple to-utilize assault devices and botnets inspires these assailants to direct tests of DDoS assaults.

Cyberwarfare. This is another significant assault inspiration which brings about risk and huge monetary effects on its objectives. For the most part, a few thoroughly prepared individuals of a military or fear monger association direct an assault of this kind. Here, the aggressors have a place with certain nations and play out their assaults on a few other nation's associations. A lot of asset and time are utilized to do such assaults and this might incapacitate a nation's cyberworld and basic framework through help interruptions.

Assault procedures

The essential construction of a DDoS assault is introduced in Figure 3. It involves three unique stages and four distinct components.²⁰ The parts are known as an aggressor, various control bosses or controllers, different slaves, specialists, or zombies, and a casualty or target machine.

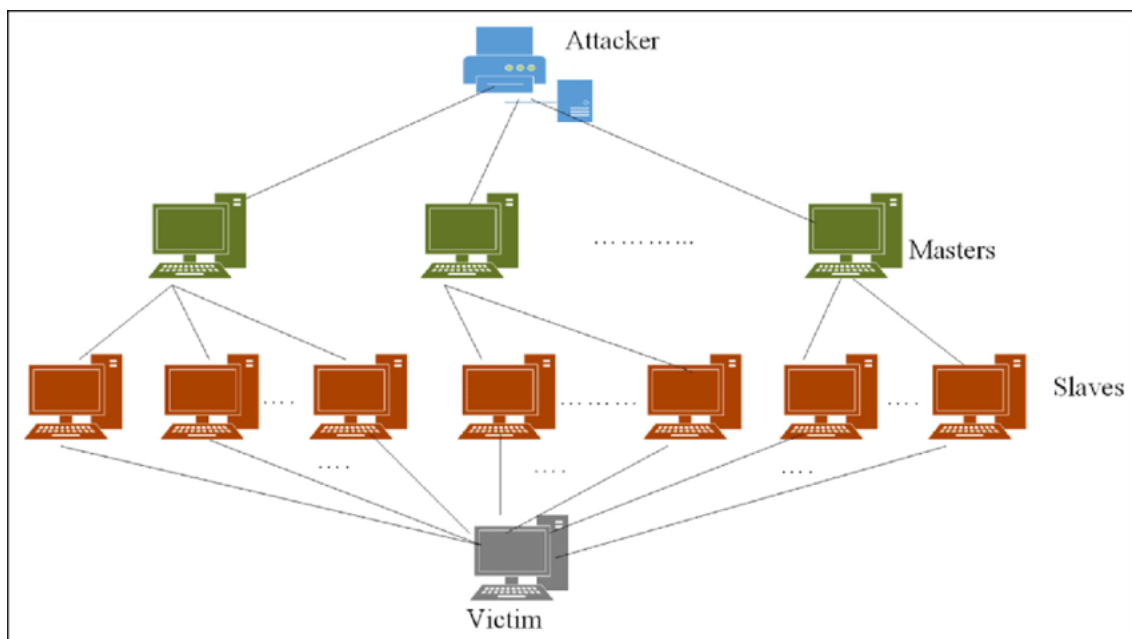


Figure 3. Structure of a DDoS attack.

In the principal stage, the aggressor invests a ton of its energy to make a lot of compromised machines which are known as the experts or overseers as they choose and control different machines in the assault armed force. The formation of the expert armed force is normally a robotized cycle where a ceaseless checking is performed to search for machines with security escape clauses. The vindictive codes introduced by the aggressor into these expert militaries work further to add more tainted machines into the assault armed force. The slave machines are straightforwardly constrained by the experts and in a roundabout way constrained by the aggressor through these bosses.

The subsequent stage begins on the off chance that an adequate number of gadgets have joined as a compromised armed force. This compromised armed force is known as botnet. In the subsequent stage, the aggressor moves generally essential data, for example, codes and orders to the expert militaries which thus send those to all slave armed forces to prepare for the assault.

In the last stage, the assailant orders its military to start and execute assaults. Along these lines, it goes after the casualty in an appropriated manner and sends an enormous stream of bundles which thusly flood the casualty's framework or significant assets. In these assaults, the assailant typically utilizes satirize IP tends to which assists him with concealing the character of the compromised gadgets. Generally speaking, this utilization of parodied IP addresses likewise deters the casualties to sift through malevolent traffic to figure out the aggressor.

Presently we will show the assault techniques in a definite way which would assist with accomplishing a superior comprehension of the DDoS assault situations. In this outline, we will depict the assault rundown in view of the level of mechanization. We will likewise list and investigate the procedures engaged with various periods of the DDoS assaults.

Assault outline in view of level of computerization

Various stages and attributes of the DDoS assaults can be physically set, constrained by the aggressor, or it tends to be computerized. Hence, there are three unique sorts of assault situations: manual, self-loader, and programmed which are presented in the accompanying.

Manual

In the manual assault situation, the assailant does every one of crafted by the assault physically. The examining of the machines to observe security escape clauses and controlling the compromised machines are acted in a manual manner. This is a situation seen in early DDoS days. Today, each of the activities have become robotized and made DDoS goes after more simple and continuous.

Self-loader

The specialist controller assault system is essentially self-loader in nature. Here, the correspondences between the overseer and the specialists are to some degree manual as they impart to know one another. In view of the guidelines got from the assailant, these correspondences likewise set the sort, the span, and the survivor of the assault. In any case, examining, selecting, and compromising the controller's machines are programmed in this assault situation. Once more, in view of the sort of the correspondences between the controller and specialists, self-loader assaults are grouped into two unique sorts, as follows:

Direct correspondence. In the immediate correspondence instrument, the overseer and a specialist know one another's characters for later interchanges. Thusly, the overseer's IP address is hard coded to the assault code. The specialist gets this IP address when the assault code is introduced in the compromised specialist machine. The inspiration driving such a correspondence is to educate the overseers about the status regarding the specialists. In any case, this kind of correspondence is conspicuous and furthermore it is feasible to reveal a DDoS assault through backtracking.

Circuitous correspondence. The immediate correspondences among controllers and specialists are barred in this assault situation. Rather, some Internet-based correspondence administrations, for example, Internet visit program-Internet hand-off talk (IRC) channel, are

utilized to manage specialists' work. It beats the downside of the immediate correspondence as the real help of the IRC makes it challenging to recognize malignant interchanges. Likewise, the dispersed idea of the IRC blocks identification and examination of the correspondence as well as openness of the foundation of the assault.

Programmed

In this assault situation, the stages as a whole and prerequisites to execute an assault is robotized. Here, the assailant goes after a casualty with no correspondence with controllers or specialists. Every one of the prerequisites of the assault armed force are coded in the assault code which is introduced in the compromised machines and later executed to play out an assault. In any case, the indirect accesses made during the spread system stay open which can be additionally taken advantage of to alter the current codes.

Assault stages

In this part, various systems associated with various assault stages are examined. There are three unique periods of DDoS assaults which can be named as Phase I-selecting assault armed forces, Phase II-engendering, and Phase III-assault. The subtleties of these stages are recorded in the accompanying.

Stage I: selecting assault armed forces

The main period of the DDoS assaults is to produce the assault armed force or botnet as referenced previously. For this reason, the assailant utilizes worms (self-spreading programs) that taint the gadgets of the clients by taking the upsides of their security imperfections. A wide range of strategies are utilized to produce this military as referenced in various examination papers. The primary subject is to look over organizations to track down machines with imperfections. These significant methods to contaminate a machine are made sense of as follows:

Irregular examining. In the irregular examining system, currently contaminated machines test with arbitrary IP addresses from the IP address space to taint new machines. For instance, the notable worm Code-Red (CRv2) can be utilized to play out this checking. This filtering produces a colossal traffic since it is logical for the machines to be arranged in various organizations. Additionally, the absence of synchronization among various compromised machines makes big number of copy tests from the contaminated machines. As the quantity of tainted machines increments, it expands the likelihood to contaminate more machines. Be that as it may, the outrageous traffic delivered by them additionally makes the likelihood to distinguish the assault.

Hitlist examining. Hitlist examining attempts to decrease the underlying disease time to taint countless machines. In this method, the assailant makes an underlying rundown of machines which are thought of as possibly powerless. Whenever a worm is delivered, it look over the rundown and when it taints a machine, it spreads half of the rundown to the contaminated machine. Along these lines, just in almost no time a functioning worm can taint all hazardous machines in its rundown. For instance, a glimmer worm could contaminate every one of the respected machines in just many seconds. The principle upward of this technique is to create

the "Hitlist" required, however there are various ways of delivering it. For instance, subtle checking (where an aggressor applies portscans throughout a significant stretch of time) and a conveyed examining (where previously compromised machines are utilized to produce the rundown) are some notable filtering systems for the formation of the hitlist. The aggressors can likewise utilize Web-slithering methods or public overviews, for example, Netcraft Survey in creating the rundown. Additionally, there are a few situations where worms broadcast the rundown of their contaminated machines for future assaults. These can be applied to create an effective hitlist ahead of time. Be that as it may, in the hitlist examining, the transmission of an incredibly enormous estimated list too copied transmissions might cause location of the assault.

Stage filtering. The stage filtering is a savvy examining method where self-coordination is acquainted with stop numerous probings of a similar IP address. Additionally, it can decide when any further checking will give a restricted advantage. It can likewise choose when to stop the interaction by looking at progress of new disease. In this procedure, a usually shared rundown of pseudo-irregular stage of the IP address space is utilized. Here, a record of the change is utilized to plan the IP addresses. In the change examining, for a generally contaminated gadget through hitlist filtering, the new disease begins at the following point in the stage list. Be that as it may, assuming a gadget got contaminated from stage filtering, it begins to taint new gadgets from an arbitrary point in the rundown. Thusly, assuming an all around tainted machine is found during the checking system, it isn't contaminated again rather another irregular beginning stage is chosen for additional diseases. Likewise, assuming a worm observes that the further filtering isn't helpful any longer, it can stop its checking and change the stage key to deliver another change list. This expands the pace of the disease while decreases any copy contaminations.

Topological filtering. The topological filtering is considered as an option in contrast to the hitlist checking. In this examining system, when a gadget got contaminated, a worm chooses its new objective from the data contained in the compromised machine. In shared application, on the off chance that a worm can contaminate an application, it can have a rundown of companions which are exceptionally alluring focuses for the following disease. Along these lines, the topological examining doesn't need a pre-delivered rundown of gadgets and it can make its own rundown which makes this checking alluring for the underlying spread of the worm. Likewise, in the web server-based contamination, a worm could spread itself and taint various clients and servers in a design like the spreading of an infectious illness. For this situation, the worms in a weak internet browser spread assuming the clients visit to the server as well as snap to a specific substance. The clients convey the worm to different servers where they visit and increment the contamination through its spread. This sort of engendering doesn't deliver weighty traffic since distinguishing such an assault mechanism is difficult. In any case, in general, the topological examining relies upon the exercises of the compromised machine rather to the exercises of the assailant. Accordingly, it is feasible to wind up with an increasingly slow enrollment when contrasted with different sorts of scanning.³⁰

Nearby subnet examining. In the nearby subnet examining, an all around compromised have look through new focuses in its own neighborhood subnet and attempts to break those

machines. To build the quantity of the compromised machines, it might utilize together other currently referenced procedures. The primary reason for this examining technique is to taint however many of the nearby machines as could be expected under the circumstances in a subnetwork which are for the most part seen as safeguarded by firewalls.

Stage II: spread

The following stage after the age of an assault armed force is to spread the assault code to the compromised gadgets. This assault code incorporates data of the person in question, time, and length of the assault, etc.

Focal source spread. In the focal source spread instrument, the assault code proliferates from a focal server to the compromised machine as displayed in Figure 4(a). An illustration of this is a 1i0n worm which spreads in this manner.³¹ Since each compromised gadget conveys and downloads the duplicate of the assault code from a few essential issues, it presents an enormous measure of traffic in the organization which may ultimately prompt the assault revelation. Additionally, this strategy can possibly single point disappointment. Accordingly, on the off chance that an assault is recognized, evacuation of the main issue might stop further contamination and consideration of the assault armed force.

Back-fastening engendering. In the back-fastening engendering, the compromised machine downloads the assault code from the contaminated machine. This situation is displayed in Figure 4(b). Fundamentally, during the disease stage, the aggressor deals with a strategy which lays out an association between the assailant and the compromised machine. The Trivial File Transfer Protocol (TFTP) can be utilized in this mechanism.²⁴ A very notable worm Ramen worm involves this spread strategy in the assault armed force creation process.

Independent engendering. In the independent engendering, as its name suggests, all the assault codes are moved naturally from the assailant to the contaminated framework during the hour of the abuse, as displayed in Figure 4(c). It requires no further correspondence with additional frameworks to move the assault codes. Code-Red is a model worm which utilizes this spread mechanism. In the independent proliferation, the traffic expected to engender the code is fundamentally restricted when contrasted with the other two techniques, and accordingly, it represents a restricted opportunity to find the assault.

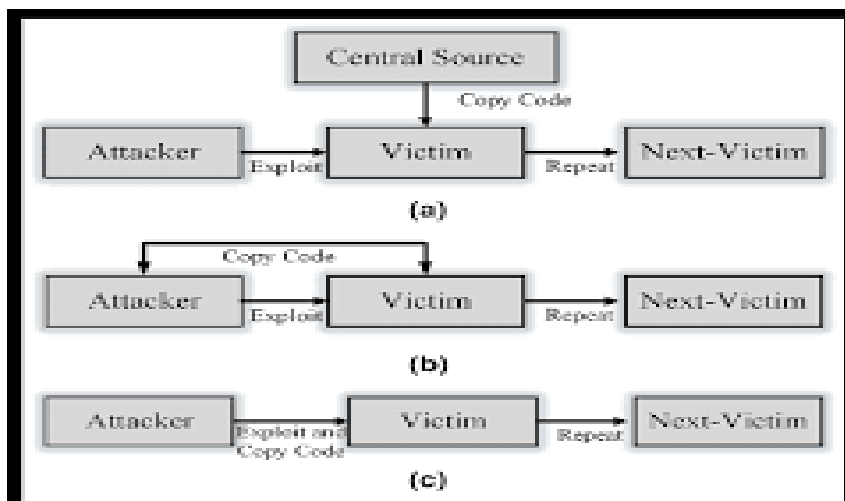


Figure 4. Attack code propagation: (a) central source propagation technique, (b) back-chaining propagation technique, and (c) autonomous propagation technique.

The third period of the DDoS assaults is to endeavor the assault. There exists a great deal of methods to introduce and execute DDoS assaults which fall into various classes. As our examination plans to comprehend the assaults in an explained and simple manner, we devote a whole next segment to depict the third period of the DDoS assaults.

Assault instruments

To comprehend research on DDoS assaults, it is essential to comprehend DDoS assault characterization instruments. In past many years, various characterizations of DDoS assaults have been found in the literature.^{4,15,20,23,32-34} In this study, we want to examine that multitude of assault scientific categorizations and to present a completely covered, straightforward arrangement system. Figure 5 presents our order component which covers all parts of DDoS attacks.²³ This arrangement depends on the effects of the assaults in casualties' organizations or assets. As a rule, a web server or intermediary server is the fundamental casualty for a DDoS assault and oversees restricted assets to offer its support. Consequently, an overall situation to oversee abundance network traffic is to drop the bundles which surpass some edge limits.

Dropping parcels likewise pass the message on to the shippers of the bundles to decrease their paces of sending. An authentic shipper answers this message by restricting its sending rate. Nonetheless, the assailant accepts this as a progress of its underlying assault execution and builds its rate as a reaction to the bundle dropping. Thus, the assets doled out to the casualties' frameworks, for example, memory and CPU get overpowered and can't proceed with their ordinary activities. In this manner, the casualty ultimately dismisses demands from the certifiable clients.

Likewise, another and more weak effect of the assault is the consumption of the organization data transfer capacities. For this situation, an inordinate measure of malevolent streams overpower the organization transmission capacity, and this influences the casualty as well as different frameworks that are subject to this assault way. Hence, it puts a gigantic impact to the organization and the frameworks associated with that organization. Hence, our characterization of DDoS assaults thinks about these two effects and sorts DDoS assaults into two general gatherings: data transfer capacity exhaustion assaults and asset consumption assaults. Notwithstanding, truly, an assault can have both of the effects and can force the most elevated potential effects to the entire Internet.

This type is named as framework assault. We will cover this kind of assaults in our examination. We will likewise present one more kind of assaults known as the zero-day assault where the effects of the assault are obscure.

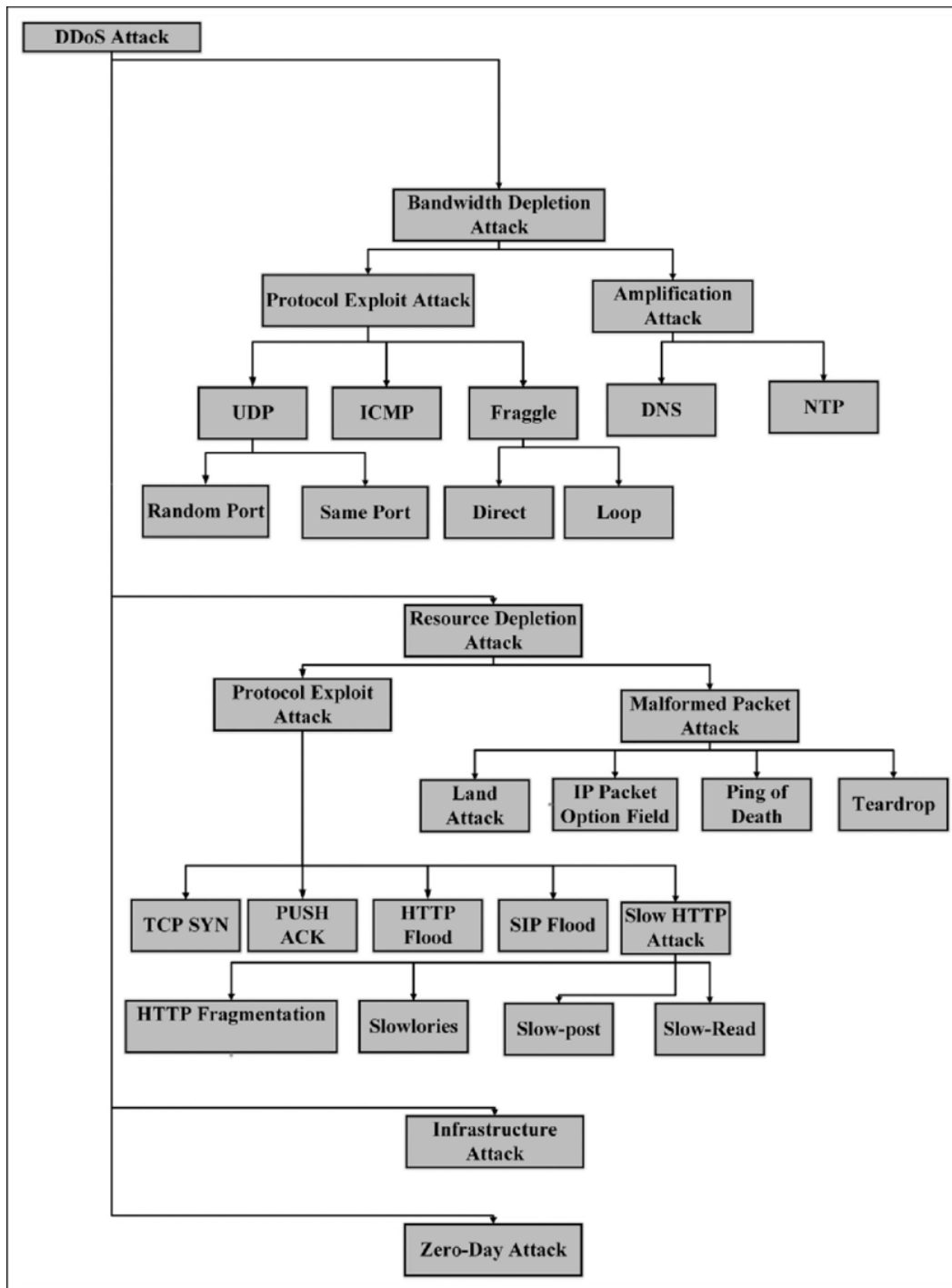


Figure 5.

Different Types of DDoS Attacks.

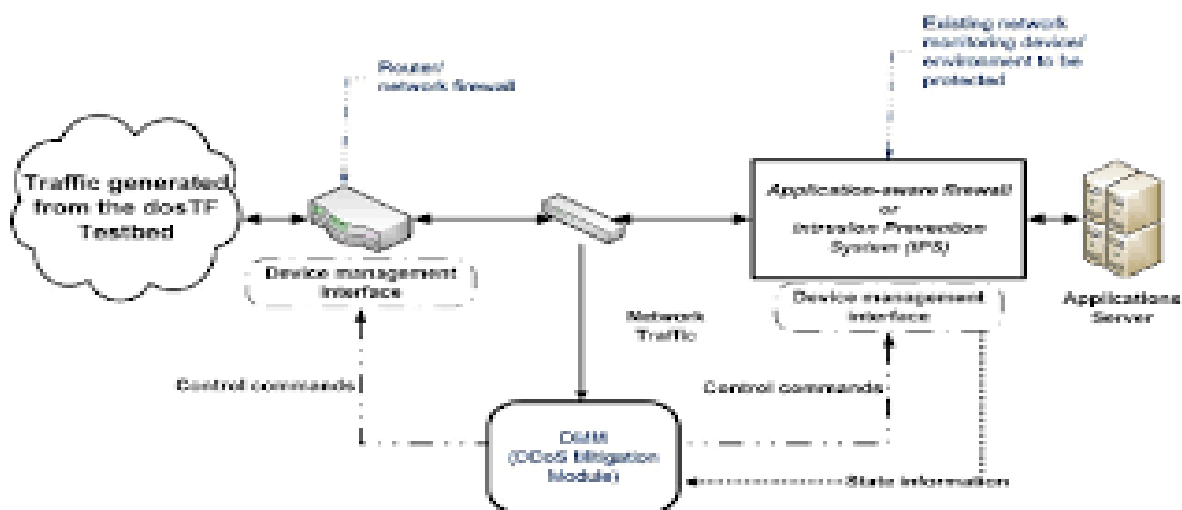
There are also various other types of attacks:

1. Protocol Exploit Attacks
2. TCP SYN Attack
3. TCP Push + ACK Attack
4. HTTP Flood Attack
5. SIP Flood Attack

6. Slow Request/ Response Attack
7. Malformed Packet Attack
8. Bandwidth Depletion Attack
9. Protocol Exploited Attack
10. UDP Flood Attack
11. ICMP Flood Attack
12. Fraggle Attack
13. Amplification Attack
14. DNS Amplification Attack
15. NTP Amplification Attack

Prevention against DDoS Attacks:

Prevention against DDoS attacks is the most desirable defense technique to fight against the DDoS attacks. Basically, as mentioned in the previous section, DDoS attacks put an immense threat to the resources of the victim (CPU, memory) as well as to the network bandwidth and infrastructure. Therefore, if an attack has been already launched and become successful, it may cause significant compromise to the victim's system. Thus, protection against DDoS attacks is more effective against DDoS attacks since it ensures prevention of the DDoS attack traffic as well as manages large attack load before it may cause the attack to be successful. This ensures normal operation of the victim.



Prevention using filters:

1. Ingress/ Egress Filtering
2. Route-based packet Filtering

3. Hop-Count Filtering
4. PacketScore
5. Changing IP Address
6. Disabling Unusual Services.

CONCLUSION:

In this survey, we have presented a comprehensive and systematic analysis of the DDoS attacks. We have enlisted different attack types seen so far. In our work, we have analyzed well-known prevention and mitigation techniques based on their success and failures. We have summarized different types of attacks, filtering techniques, and attack detection methods. We have identified the key features of the attacks as well as advantages and disadvantages of different defense mechanisms. However, still there exists the chance to see new unseen attacks with new signatures and features. However, this survey will work as an easy to understand foundation of the DDoS attacks for its systematic explanation and analysis. As this survey has also included recent attacks and recent research against DDoS attacks, it also presents the current state of the art of the DDoS attacks. We also provided some discussions about DDoS attacks on non-traditional systems such as clouds, smart grids, smart homes, CPSs, and IoT systems. Finally, we have also enlisted the challenges involved to the research of the DDoS attacks. Thus, it outlines some extremely important future research directions deserving attentions.

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CHAPTER 9

ATTACHMENT STYLES AMONG YOUTH: AN EXPLORATORY STUDY

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ABSTRACT

In psychology, attachment refers to the strong affectionate bond individuals form with special people in their lives that gives them pleasure and comfort in times of stress (Berk, 2014). The Attachment Theory, propounded by John Bowlby in the 1960s and further developed by Mary Ainsworth in the 1970s, explains that infants form an attachment with their primary caregiver in the second half of their first year of life which becomes a vital part of an individual's personality and guides all their close relationships in the future (Bretherton & Munholland, 2008). Currently, four styles of attachment are considered: secure attachment, dismissive/avoidant attachment, anxious/preoccupied/resistant attachment, and disorganized/disoriented attachment. Despite the fact that attachment theory is widely recognised as one of the most important resources for the study of general well-being, little research has been done in the Indian context on the attachment styles of youth. Youth is defined as a phase of transition from childhood dependence to adult independence (United Nations, 2013). The purpose of this study is to examine the general attachment styles among youth. The present study is quantitative in nature and uses the Relationship Structures Questionnaire (ECR-RS) developed by Fraley, Waller, and Brennan (2011). The total sample size comprises 60 individuals, divided among people who identify as Female (N= 36) and Male (N= 24); the sample was obtained using convenience sampling. The results indicated that secure attachment style is the most common general attachment style for Indian youth. Moreover, attachment styles are highly likely to stay stable or be consistent across relationships. Lastly, male youth was more likely to be anxiously attached to their primary caregivers while female youth was more likely to be dismissively attached to them.

Keywords: attachment, adult attachment, relationships, youth, youth relationships

INTRODUCTION

Attachment is a strong and long-lasting affectionate tie between two individuals through space and time (Ainsworth, 1973; Bowlby, 1969). It is the process of forming a strong emotional bond with a certain person. Individuals with such a synthesis experience happiness and joy, which leads to them supporting one another in times of stress (Mahmoodi, Naziri & Zarenezhad, 2014). The initial encounter between parent and kid instils some notions in the child about parental stability, support, and the reaction of the caregiver, which will serve as

the child's guide in later life when expressing emotions (Sheinbaum et al, 2015). Bowlby emphasised that this bond has lifelong consequences for human relationships (Berk, 2014).

Attachment theory was originally propounded by British psychoanalyst John Bowlby (1973, 1969, 1982), which conceptualises the universal human need to develop affectional ties with others (Polek, 2008). Bowlby's ethological theory of attachment recognizes that an infant's emotional tie to the primary caregiver provides them with safety from threat and the support to explore their surroundings and learn necessary skills to master the environment. Therefore alongside the psychoanalytic perspective, attachment can best be understood from the evolutionary perspective as this bond promotes the survival of the infant (Berk, 2014).

Mary Ainsworth and colleagues (1978) developed a lab procedure to measure the security of attachment of primary caregivers and children between 1 and 2 years called the Strange Situation Test. The results of these studies yielded three characteristic behavioural patterns that correspond to three attachment styles of which there is one secure attachment style and two insecure attachment styles (Bretherton, 1992).

Secure Attachment: Infants with a secure attachment style perceive their primary caregiver as a secure base. This occurs when the primary caregiver provides the infant with love and warmth, attends to its needs, and protects it from stress (Berk, 2014). This attachment style promotes emotional awareness and leads to proper social conduct in the individual. Individuals with a secure attachment style have strong self-esteem and confidence, can readily engage in social interactions, employ effective stress coping mechanisms, behave in a balanced manner in relationships, and consider themselves competent and open to exploration (Odacı & Çıkrıkçı, 2013).

Dismissive/ Anxious-Avoidant Attachment: When the mother or the primary caregiver is present, the infants appear to be unresponsive to them. They are typically unconcerned when she goes, and they react to the stranger, in the same manner, they do to the parent. They avoid or are slower to welcome the parent during the reunion, and when lifted up, they frequently fail to cling (Berk, 2014). Furthermore, because these people are frightened of suffering and being abandoned or rejected, they avoid forming close relationships (Bartholomew & Shaver, 1998).

Resistant/ Anxious-Preoccupied Attachment: These infants want closeness to their parents before separation and frequently fail to explore. They are usually unhappy when their parent departs, and when the caregiver returns, they mix clinginess with aggressive, resistant behaviour, including hitting and kicking. Many infants weep after being taken up and are difficult to console (Berk, 2014). Individuals in this category have a poor view of themselves and a favourable perception of others. Preoccupied people are independent of their surroundings, lack self-confidence, acquiesce to others' demands, and desire to be in relationships with others but are afraid of being abandoned (Odacı & Çıkrıkçı, 2013).

Another form of insecure attachment was added by Main and Solomon (1986, 1990) known as

Disorganised/Disoriented Attachment: This is the most insecure form of attachment that develops as a result of the infant experiencing alarm which occurs due to physical abuse, family or domestic violence, and unresolved trauma of the parent which leads them to act unpredictably. Individuals who are dismissively attached avoid forming close relationships with others because they are afraid of negative consequences. By dismissing the benefits of developing connections with others, the individual prefers to stress his own self-worth (Bartholomew & Shaver, 1998). Individuals with a dismissive attachment style may have difficulties in real social relationships since they rate themselves favourably while criticising people around them (Odacı & Çıkrıkçı, 2013).

It is evident that children's attachment to their primary caregiver has been classified into different types based on the primary caregiver's attitude toward the child and the child's reaction to the caregiver, who is usually the mother. This attachment shapes emotional reactions that are later expressed in interpersonal interactions, self-concept, and other important aspects of development and adulthood. The level to which one is comfortable with relying on others, closeness, intimacy, and fears of being abandoned and unloved is shaped by early caregiver experiences (Dean-Hill, 2013). During infancy, children form Internal Working Models (IWMs), i.e. expectations about the availability of their primary caregiver and how likely they will provide support during stress based on their experiences (Berk, 2014). These representations are believed to serve as a template for the individual's interpretation of their social world, affecting future interpersonal relationships which may be platonic, romantic, sexual, familial, or therapeutic (Fraley, Heffernana & Vicary, 2011)

Bowlby and Ainsworth emphasized the impact of infant-caregiver attachment styles in one specific type of relationship in adult life -- romantic relationships. In an attempt to address this new direction in the study of attachment that was emerging in the 1970s and early 1980s, Hazan and Shaver (1997; 1998) developed what is today the most successful theory about romantic attachment styles. According to them, romantic love or pair-bonding is an attachment relationship that develops through the same steps and results in the same kinds of behavioural patterns outlined by Bowlby and Ainsworth in reference to the infant-caregiver attachment (Fraley & Shaver, 2000).

The reason childhood attachment styles influence adult attachment styles to such a great extent is due to the many parallels in the attachment dynamics during childhood and adulthood as established by Hazan and Shaver. Regardless of the phase of life, individuals prefer when people they form bonds with are close, serve as a safe haven during threatening or stressful times, and act as a secure base from where they can explore the world. In other words, people expect similar things from people who become close to them throughout their lifespan as it promotes survival and increases the chances of procreation (Shaver et. al., 1988).

Furthermore, individuals form expectations and beliefs about themselves and others based on their interactions with people close to them in infancy. These IWMs are relatively stable and continue to guide future close relationships. Individuals tend to refer to their previous

experiences of people's behaviour and feelings toward them to predict how new people will act, resulting in the formation of adult attachment styles that correspond to the attachment style in infancy. For instance, a person who was securely attached to their primary caregiver learnt that the world is a safe space and that they can trust others to be present and be supportive in times of stress (Fraley & Shaver, 2000).

The definition of youth differs by the sociocultural context and the economic, financial, and demographic conditions under which it needs to be defined. It is usually understood to be a fluid transitional period in life that involves a shift from childhood dependence to adult independence which often involves finishing school and entering college or work. In terms of statistics, the United Nations defines youth as the people between the ages of 15 and 24 (United Nations, 2013).

The term "youth" has at least three unique and sometimes diverse meanings: biological category defined by age, separate social group, and cultural construct. In a biological sense, youth refers to a group of human organisms of comparable ages who are undergoing physical maturity. Cultures frequently use codes and disciplines to distinguish this physiological group from others. The current concept of youth revolves around its social definition. In many technologically unsophisticated cultures, there is no separate youth age grade. One is either a child or an adult (Weinstein, 1995).

Youth that was categorised as avoidantly attached displayed higher levels of internalizing (e.g., depression, anxiety) and externalizing symptoms (e.g., oppositional behaviour, aggression) than those who classified themselves as securely attached. According to attachment theory, the unstable tactics that children adapt to either decrease or promote the expression of attachment requirements determine the type of psychopathology. In other words, minimizing techniques would predispose youngsters to externalising disorders, since they would deny their discomfort and develop a defensive, antagonistic attitude toward caregivers. Otherwise, using maximising techniques might result in internalising disorders, since children are hyper-focused on their own misery and have an excessive demand for affection and support from their caregivers (Meesters, 2003).

Adolescents with relationship dysfunction are often found at risk and precede suicide attempts. relationship dysfunction is, in turn, associated with insecure attachment (Sheftall et al., 2018). Regulation of affective experience in interpersonal relationships is one of the primary functions of attachment. Therefore, people who are insecurely attached to autoregulation use other methods such as alcohol or drug use (Adroom, 2013).

Attachment to the primary caregiver shapes the emotional responses that are later played out in interpersonal relationships, self-concept, and other significant domains of development and adult life (Dean-Hill, 2013). A study on the stability of attachments from childhood to early adulthood found that there was no significant difference in intervals larger than 15 years. Coefficients were higher for time intervals of less than two years compared to a time frame of more than five years. Additionally, securely attached youngsters at risk were less likely to

maintain attachment security whereas insecurely attached children at risk most likely maintained insecurity (Pinquart, Feußner & Ahnert, 2011).

Research on attachment styles among youth is important as the attachments of youth serve as a protective factor against stress and other physical, mental, and relational health symptoms. Since most insecurely attached individuals are at a higher risk of suicide, psychopathology and other negative health symptoms.

REVIEW OF LITERATURE

Saferstein, Neimeyer, & Hagens (2005) found that securely attached people indicate resolving conflicts, problems in friendships, and lower levels of conflict. Whereas people with avoidant attachment styles- one of the insecure attachment styles- exhibit higher levels of conflict and lesser strong friendships. Attachment styles, the sex of the participant and that of the friend (same/opposite) are all factors that have a combined effect on some friendship qualities.

Vivona (2000) found that late adolescents who were insecurely attached were more likely to report depression, anxiety, and worry than their securely attached peers. In fact, insecurely attached women, not men, were linked with lower college adjustment and lower intimacy development. The results of this study thus provide more evidence on how parental attachment influences development and adjustment in late adolescence.

Pinquart, Feubner, and Ahnert (2012) conducted a metaanalysis of 127 papers on attachment stability in which 21,072 attachments over varying time intervals, i.e., from half a month to 29 years, were studied. A correlation of $r=0.39$ was found between the ends of the intervals indicating moderate stability of attachment styles. It was also discovered that correlations became weaker with an increase in time with no correlation in attachment style with a time period exceeding 15 years.

Dean-Hill (2013) analyses revealed that attachment dimensions were predictive of gender-related fears and psychosocial impact of gender status, and parenting typologies are predictive of gender-related fears. The age of participants predicted the psychosocial impact of gender status, and, age moderated dependence on gender-related fears in that the importance of the dependence dimension decreased with age.

METHODOLOGY

Aim

The purpose of this research was to study the attachment styles among Indian youth

Objectives

1. To assess the prevalence of various attachment styles of youth in India
2. To study attachment styles of the Indian youth across genders

3. To study the attachment styles of the Indian youth across different types of relationships i.e. with primary caregivers versus with romantic partners or best friends

Research Design

The present research is a quantitative, descriptive survey design.

Sample

For the current investigation, data was collected from a group of 60 individuals between the ages of 18 to 27 years of age from Tier 1 and Tier 2 cities of India. Further, they were classified into two groups i.e., woman (N= 36) and man (N=24). The method of convenience sampling was adopted for the study.

Tools

Relationship Structures Questionnaire of the Experiences in Close Relationships-Revised (ECR-RS): This questionnaire was developed by Fraley, Waller, and Brennan (2000). It consists of 9 items, each of which is measured on a 7-point Likert Scale. The ratings range from 1 to 7, with 1 representing strongly agree and 7 representing strongly disagree.

According to a research by Sirin and Dogan (2021) on the Turkish population, the test-retest reliability of the ECR-RS, over an interval of 4 weeks, is 0.64 in the parental domain (mother- 0.62 and father- 0.58) and 0.80 for the peer domain (friend- 0.62 and partner- 0.68). On the global subscale, there was a test-retest reliability of 0.64. According to the same research, the composite validity for the ECR-RS was established. Additionally, discriminant validity was established for all dimensions as well.

Procedure

Each participant was given an online questionnaire, produced by Google Forms, testing their attachment. The participants registered their responses by choosing the appropriate options for each statement provided to them in the Google Form. In the first section, they were required to enter their demographic data to ensure they qualified for the study. In the second section, they were prompted to answer the items of the ECR-RS in regards to their relationship with their primary caregiver; and in the third section, they were prompted to do the same in regards to their relationship with their romantic partner or best friend (in the absence of a romantic partner). Therefore, the participants responded to the same items twice. The data collected was analysed with anonymity and confidentiality. Before the respondents proceeded to answer the items, their informed consent was sought, and it was ensured that their participation was completely voluntary.

Scoring

In the present study, scoring of the obtained data was done with help of the instructions on the questionnaire and the score chart provided with it. The data obtained through the questionnaire was arranged in tabular form and descriptive statistics were calculated to form the final tables and graphs.

Statistical Analysis

In the present study, descriptive statistics were calculated in order to form the tables and bar graphs.

Ethical Considerations

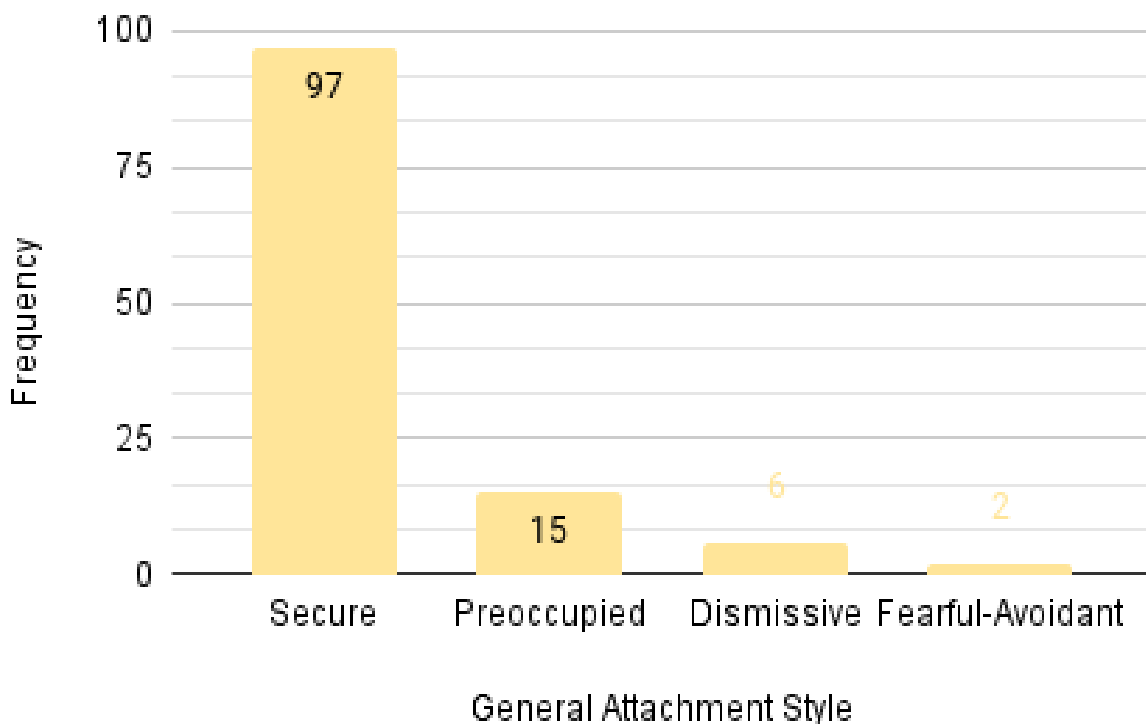
All ethical protocols were followed in the collection and handling of the data. Informed consent of the participants was sought before they responded to the items of the ECR-RS. Confidentiality and anonymity of the respondents was maintained throughout the process. Participants were informed that their participation is voluntary and they may stop responding to the questionnaire and clear their responses at any moment. The research maintained the required objectivity and none of the responses were altered or tampered with. The whole procedure was performed without any manipulation of the data or results.

Results

The most common attachment style of Indian youth reflected through the responses of the sample, regardless of gender or type of relationship, was secure attachment. Figure 1 illustrates the frequency distribution of the attachment styles among the responses of the Indian youth.

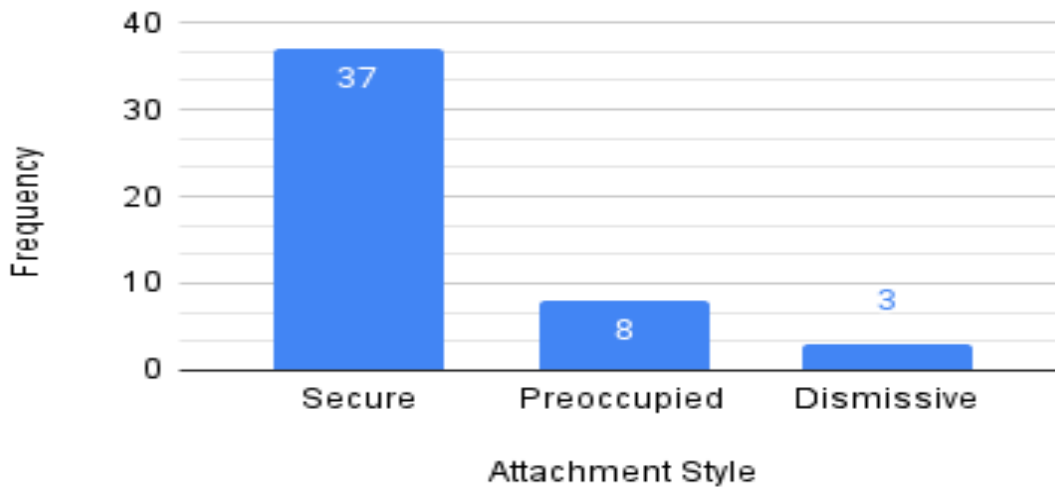
Figure 1

Attachment Styles Among Indian Youth



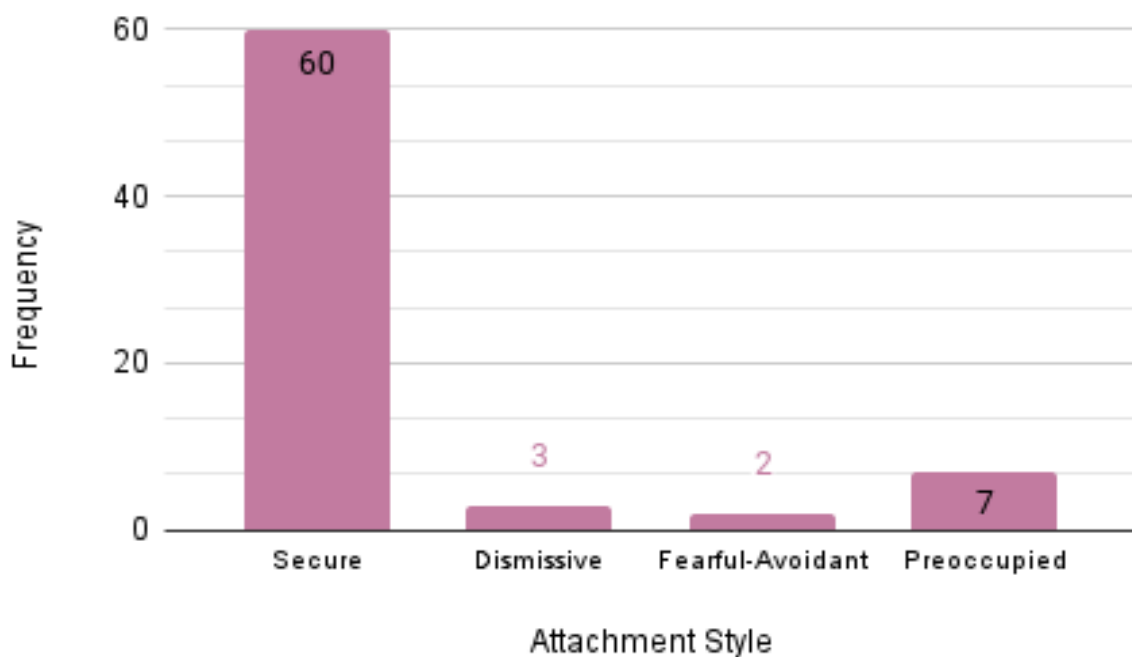
The most common attachment style reported for young Indian men, with their primary caregivers and romantic partners/ best friends is Secure Attachment. The frequency distribution of the attachment styles for men is illustrated in Figure 2.

Figure 2
Attachment Styles of Male Youth in India



Secure Attachment is the most common attachment style found among young Indian women with their primary caregivers and romantic partners/best friends. The frequency distribution of the attachment styles for women is illustrated in Figure 3.

Figure 3
Attachment Styles of Female Youth In India



Most respondents had the same attachment style with their primary caregiver and their romantic partner or best friend. The consistency of attachment styles across different relationships is depicted in Figure 4.

Figure 4

Consistency between Attachment Styles for Different Relationships of Indian Youth

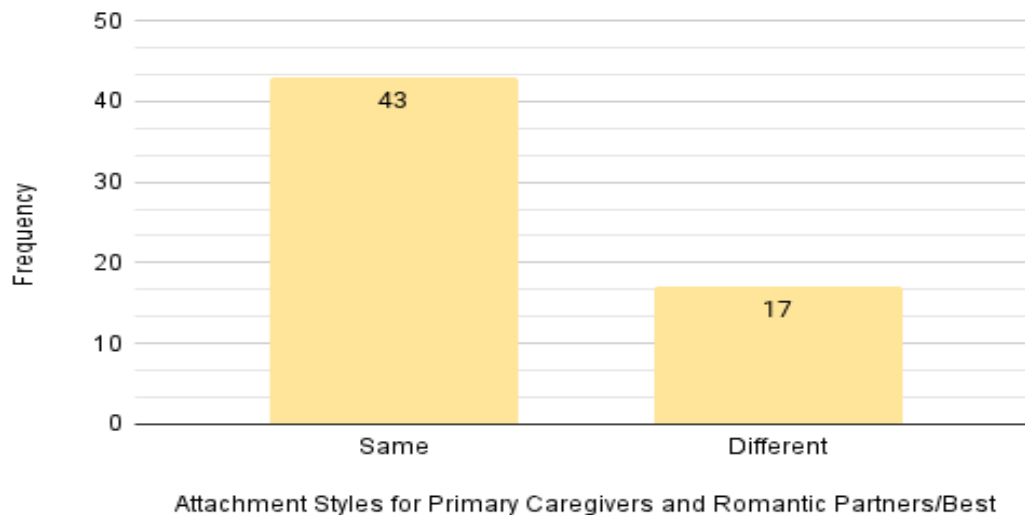


Table 1 depicts the prevalence (in percentage) of different attachment styles for each of the two types of relationships for men and women.

Table 1

Prevalence of Attachment Styles for Young Men and Women across Different Relationships

Type of Relationship	Primary Caregiver				Romantic Partner or Best Friend			
	Secure	Preoccupied	Dismissive	Fearful-Avoidant	Secure	Preoccupied	Dismissive	Fearful-Avoidant
Men	87.5%	12.5%	0%	0%	66.7%	20.8%	12.5%	0%
Woman	88.9%	0%	8.3%	2.8%	77.8%	19.4%	0%	2.8%

Figure 5 illustrates the distribution of the different attachment styles with primary caregivers for men vs. women. Figure 6 graphically represents the distribution of the different attachment styles with romantic partners or best friends for men vs. women.

Figure 5

Distribution of Attachment Styles of Men and Women with Primary Caregiver

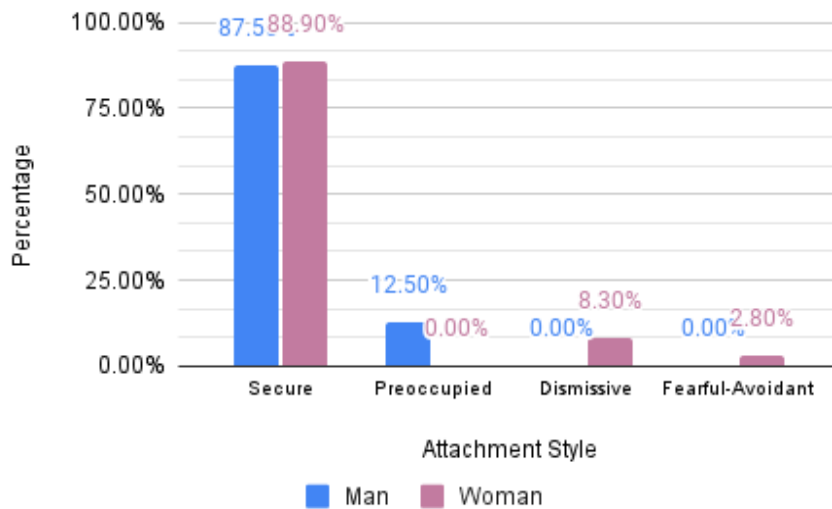
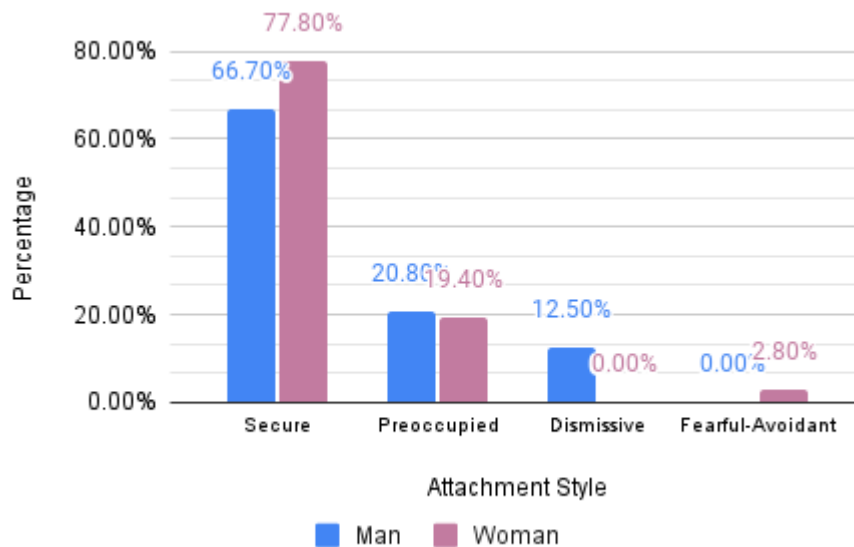


Figure 6

Distribution of Attachment Styles of Men and Women with Romantic Partner/Best Friend



DISCUSSION

The most common reported attachment style -- for men, women, relationships with primary caregivers, and romantic partners or best friends -- is secure attachment. A total of 120 attachment scores were calculated. Ninety-seven of 120 were secure attachments, corresponding to 80.8% of the sample. In Western societies, secure attachment is the most common. Sixty percent of North American infants from middle socioeconomic status exhibit this attachment style (Berk, 2014).

While the most prevalent attachment style for men and women was the same, none of the men reported having a fearful-avoidant style with either their primary caregiver or partner or best friend.

Moreover, of the 60 respondents, 43 of them were recorded having the same attachment style for their primary caregiver and romantic partner or best friend. While most of the respondents reported having a secure attachment style in both relationships, an observation consistent with the general popularity of the attachment style, two male respondents reported having a preoccupied attachment style for both relationships. The high rate of similarity between the attachment with one's primary caregiver, which forms in childhood, and the attachment with a romantic partner or best friend, a relationship which occurred later in life, highlights the idea that early childhood relationships do serve as a template for adult relationships during the course of an individual's life.

Across genders, 12.5% of the male respondents are anxiously attached (preoccupied) to their primary caregiver, while none of the women who responded were anxiously attached. Conversely, 8.3% of women are avoidantly attached to them, while no men have this relationship pattern with their primary caregiver. This difference could be attributed to the idea that as kids in an Indian society, many boys are expected to develop life skills quickly, and parents are generally less gentle with their upbringing. For this reason, parents do not pay much close attention to boys as they are expected to learn from their peers; kids who live with such parents try to fill that void by looking harder for validation from their parents, hence forming a preoccupied attachment style. On the contrary, girls may learn from a very young age that society rids them of opportunities, hence distancing themselves emotionally from the people who initially affect their lives the most. As their expectations from their primary caregivers get lower, they form a dismissive style of attachment. While these explanations are not applicable to all individuals, nor do they exclusively explain the formation of such attachment styles, they account for the sociocultural factors that play a role in the development of attachment.

CONCLUSION

The most common general attachment style for the Indian youth was secure attachment with 97 of 120 reported attachment styles being secure attachment. Furthermore, With 37 of the 48 attachment styles recorded for the male youth, and 60 of the 72 attachment styles recorded for the female youth being the secure attachment style, the secure attachment style was also the most common general attachment style for male and female youth each. Moreover, it was observed that 43 of the 60 respondents had the same attachment style for both types of relationships, i.e. primary caregiver and romantic partner or best friend; therefore, the consistency or stability of attachment styles was high. Additionally, a gender difference in the prevalence of the attachment styles was observed. Twelve and a half percent of the male youth's results indicating that they are anxiously attached to their primary caregiver while none of the female youth respondents were obtained such results; additionally, 8.3% of the female youth respondents indicated being avoidantly attached to their primary caregivers while none of the male youth demonstrated having this attachment style with their primary caregivers. A gender difference was also notable in the romantic partner or best friend relationship. Twelve and a half male youth participants reported being dismissively attached

to their partners or best friends while none of the female youth reportedly had the same relationship pattern.

The results of the study suggest a considerable gender difference in attachment styles across different relationships. These findings should alert mental health practitioners of the foundations of unhealthy relationships between young men and women in India. With further research, practitioners can provide early intervention to adolescents and young adults entering romantic relationships, in part by informing them of the possible risks. Additionally, parents and caregivers should be warned of the impacts that their beliefs and the society's beliefs may have on the future relationships of their children. Such change will help reduce the prevalence of verbal, emotional, and physical abuse in relationships. More research like this is especially vital in the Indian context as early romantic relationships are still considered taboo, or at least foreign, in many parts of India; the lack of conversation as a result can lead to oblivious partners who later become oblivious caregivers, continuing the cycle of unhealthy attachment.

As society is progressing, and the notions of cisnormativity, heteronormativity, and the gender binary are being challenged. Such change should be reflected in research as well. Therefore, future research should study the attachment styles of transgender or gender non-conforming people in India. Such research should take a qualitative and quantitative approach to uncover the quality of relationships transgender or gender non-conforming people have with their primary caregivers, their romantic partners, how they are different from each other, and how each have changed over the course of time.

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CHAPTER 10

THE IMPACT OF SUSTAINABLE FASHION ON THE GLOBAL ECONOMY

Nimisha Sinha

Dr. Ekta

ABSTRACT

The global apparel market values around \$1.7 trillion. With the global supply chain, the fashion industry is comprised of millions of small and large manufacturers from around the world. Due to the competitive scenario in which the fashion industries operate, combined with the deep transformation in the lifestyles of final consumers, there has been a significant need to redefine business models. Even though the industry is booming, increasing attention has been brought to the negative impacts of the industry. Sustainability, environmental and social cost are some driving phenomena influencing the fashion market. Sustainable fashion is a coming-of-age fashion category that aims at seeking a halt to the environmentally destructive practices of fashion. With more and more people inclining towards a sustainable lifestyle, the growing clamor for mindful clothing has created a huge potential market for clean, green, and ethical fashion. This increasing demand is projected to have a positive impact on the economy. Emerging markets, rise in foreign direct investments, and increasing customer focus towards sustainable fashion have helped to project a compound annual growth rate of 9.7% by the year 2025. In light of these considerations, this paper is aimed to analyze how the sustainable fashion industry will have a positive impact on the global economy.

Keywords: Sustainable fashion, Clothing, Industry, Eco friendly, Fast Fashion

INTRODUCTION

Sustainable development is a complex and holistic concept that refers to meeting our needs without compromising the ability of future generations to meet their needs. Social justice, conservatism, internationalism make the roots of this relatively new concept. In 1987, a commission set up in 1983, named, UN World Commission on Environment and Development (WCED), published a report named Brundtland Report. This report stated all the environment-related problems along with their causes and formed a principle guide regarding idea of sustainability. This crux of this report formed the broadly accepted definition of sustainable development, ie, ‘development which meets the needs of current generations without compromising the ability of future generations to meet their own needs.’

Sustainable fashion is the process of fostering a change in the fashion industry and system that focuses on greater ecological integrity and social justice. This concept focuses on producing/accessing fashion apparel in an ecologically and socially responsible manner. In

comparison to sustainable development, sustainable fashion is a relatively older concept that was introduced in the 1970s in America. It was set in motion by a group of people who believed in pesticide free-locally grown, handmade products. This laid the foundation stone of sustainable clothing/ethical fashion. In contemporary culture, they are often referred to by the term, 'hippie'. The 'hippie fashion movement' catalyzed culture to social norms challenging attributes such as mass production and capitalism.

LITERATURE REVIEW

In the late 1980s, the idea of sustainable fashion was formalized through the formation of the World Fair Trade Organization. This organization's mission was to enable the producers to improve their livelihoods and communities through Fair Trade. Practicing gender equality and payment of a fair price, providing transparency, ensuring good working conditions, abolishing child labor or forced labor, and respect for the environment were some other principles of this organization. As of now, this international organization has over 401 organizations connected with itself and 76 member countries that aim at improving the working culture in the apparel industry.

At the same time, a campaign called Clean Clothes Campaign was launched, which helped in shaping the idea of sustainable fashion by improving the working conditions of employees in the sportswear and apparel industry. Devised in the Netherlands in 1989 by Schone Kleren Campagne, this campaign was accepted by several European nations and four Nordic nations. This global association has helped to back the voices of the marginalized workers in the garment industry, by identifying the local problems and transforming them into positive actions and results internationally.

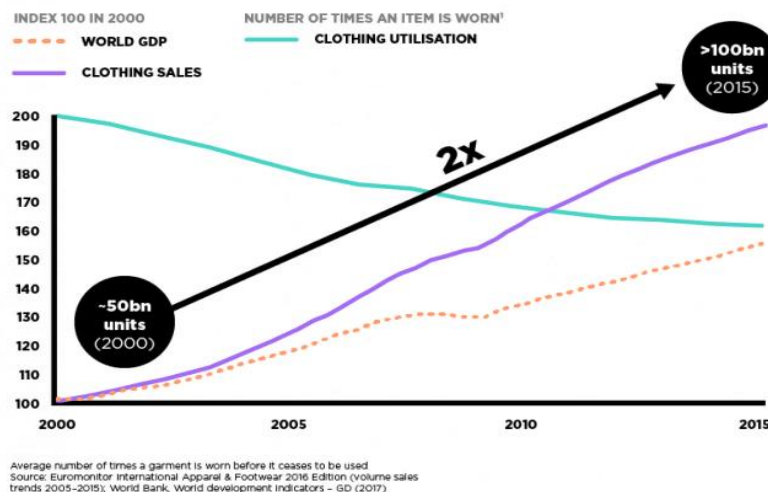
In 2007, Kate Fletcher, a writer and design activist in fashion, textiles, and sustainability, coined the term 'sustainable fashion/ slow fashion'. In her study, she compared the fashion industry with the food industry. According to her, the terms 'fast fashion' does not shape the speed of the fashion, but rather focuses on practices that help in achieving continual economic growth. Like the fast-food industry, the fast fashion industry focuses on mass production and commercialization and prioritizes cheapness, mass availability, volume purchasing. Kate Fletcher in research, described the term 'slow fashion', as product pieces that are different because of the resourcefulness and ethics involved in their business models. The introduction of the concept of slow fashion has tried to transform the apparel industry by eschewing processes that are a threat to the environment and human rights. The term sustainable fashion was then derived organically, through various movements that acted as major milestones in sustainability in fashion.

With the initiation of sustainability in fashion by popular, youth-centric brands like H&M and Levi's, a huge population got familiarized with mindful/conscious fashion thus creating a demand for sustainable clothing. According to critiques and ethical enthusiasts, the steps taken by these fashion brands had set a viable economic growth in the sustainable fashion concept. The potential values of the green fashion industry are claimed to have a positive impact on the economic and business aspect.

Consumer behavior plays a key role in the supply and demand chain, hence understanding their role and cogitation regarding mindful fashion will be a pivotal objective. The differentiation of sustainable and fast fashion on the lines of cost of production are primary factors that shed light on the pricing, business, and economic models of both types. These factors combined together will help in understanding how sustainable fashion can replace the manufacturing process and current scenario of the fashion industry. Through this paper, we will analyze how sustainable fashion will bring a positive impact on the global economy.

FAST FASHION AND SUSTAINABLE FASHION: DIFFERENTIATION ON THE BASIS OF COST OF PRODUCTION

Fast Fashion is a dominating variant in the apparel industry with a market share of US\$ 203300 million as of 2020. It is projected that this share will increase to US\$ 252440 million (CAGR 3.1%) between the years 2021-27. The fundamental reason behind this huge market share is its ‘take-make-dispose’ pattern. This pattern helps companies in mass marketing and mass production. Cheap labor, readily accessible natural resources, poor quality material, super-efficient, and quick supply chains are basic reasons behind this large market. These factors have exponentially helped in reducing the cost of production, thus helping companies to sell them at affordable rates. This has created approximately fourfold increase in consumer spending, making the shoppers expand and refresh their closets quickly. The huge demand for new clothes between the buyers has doubled the market size between the years 2000 to 2014. Although, a graph published by the Ellen MacArthur Foundation, shows a stark difference between clothing sales and clothing utilization since 2000. The main factors behind this difference are the cheap quality of products and cheap prices. According to a report published by McKinsey, statistically, a consumer discards a low-priced garment just after seven to eight wears.



Source: Ellen MacArthur Foundation

The socio-economic and ecological impact of fast fashion is higher than its cost of production. Approximately, the production of just one kilogram of fabric leads to the

generation of around 22 kilograms of greenhouse gases. The incorporation of toxic chemicals and waste in oceans, usage of coal-fueled power plants are equally hazardous to the environment. On a socio-economic level, a fast-fashion textile workforce is exposed to these dangerous working environments every day, made to work for longer hours for derisory wages. Women workers, from developing countries are paid lesser than average pay.

Objectives

- To differentiate the Fast fashion and Sustainable fashion.
- To analyze the consumer sentiments on sustainability in fashion.
- To check the awareness level of customers towards this fashion.

Research Methodology

The research paper is based on Primary and Secondary Data. To understand the consumers' attitude towards purchasing, using, and disposing of clothes, a survey was performed amongst a group of 70 participants, belonging to different regions of India across the ages 16 to 59. The questionnaire had 13 questions focusing on their understanding of sustainable development.

Analysis and Interpretation

THE CONSUMER SENTIMENT ANALYSIS ON SUSTAINABILITY IN FASHION

It is known that the economic viability of a commodity is dependent on the consumer behavior towards the product. If the demand for the product is more, the producers will shift towards manufacturing the very product for maximizing their profits. It has been observed that post the COVID pandemic, a number of consumers around the globe have inclined towards green technology and sustainable products.

According to the reports published by Allied Market Research on the global opportunity in the sustainable market, the sustainability market share was valued at US\$ 10.2 billion in the year 2020. According to the same reports, this market share is expected to increase at a CAGR of 21.9% between the years 2021 to 2030 thus valuing a projection of nearly US\$ 72.8 billion by 2030. Another report published in the NYU Stern Center for Sustainable Business (CSB) revealed that goods marketed under the sustainable products category grew 7.1x times faster than products categorized as non-sustainable. It was also observed that sustainability market products have a larger share online in comparison to in-store.

Results

1. Background of the respondents

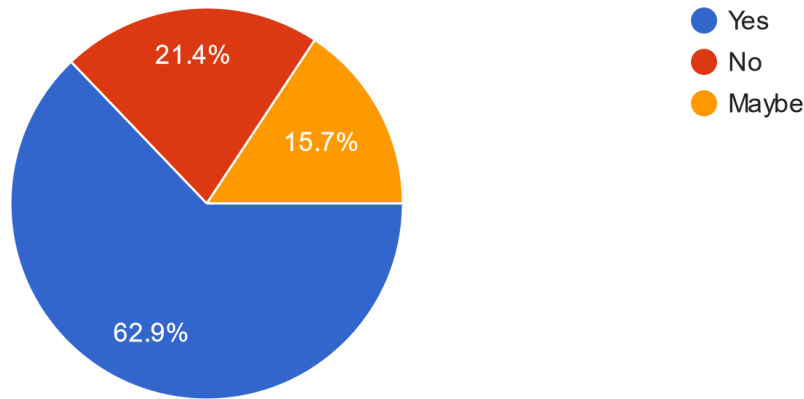
- **Age**

A whopping Forty (40) percent of the respondents were aged between 16-21 years, Thirty-one point four (31.4) percent between 22-35 years, Eighteen point six (18.6) percent between 36-49 years, and ten (10) percent between the ages 50-59 years.

- **Demographics**

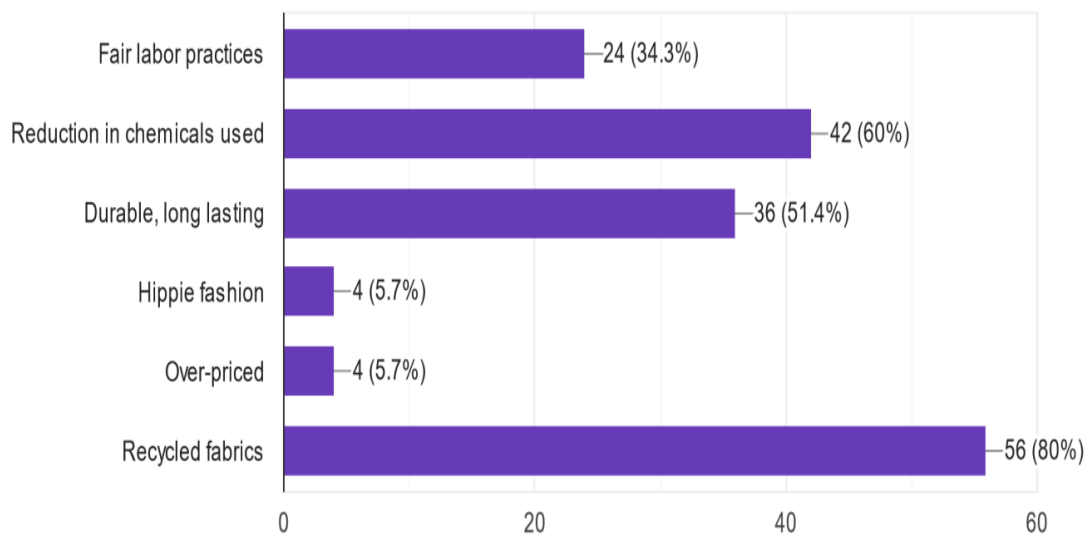
Of the total number of participants who completed the survey, 10 were from Southern India (14.9%) majorly including cities like Bengaluru and Chennai, 12 were from the Northern region (17.14%) of India, 19 from Eastern India (27.14%), and 29 from Western India (41.43%).

2. Familiarity with the term ‘Sustainable Fashion’



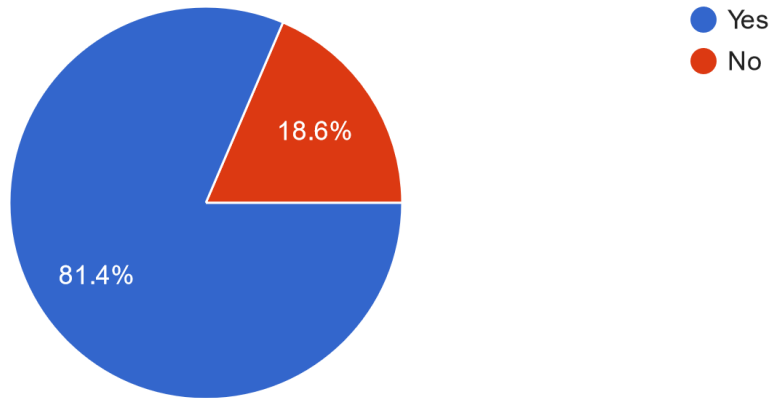
Close to one-third of the respondents were aware of, precisely 62.9% (ie. 44 respondents). 15 respondents (21.4%) had not heard the term ‘sustainable fashion’ while the remaining 11 (ie. 15.7%) were not completely sure about their knowledge of the same.

3. Their Understanding of ‘Sustainable Clothing’



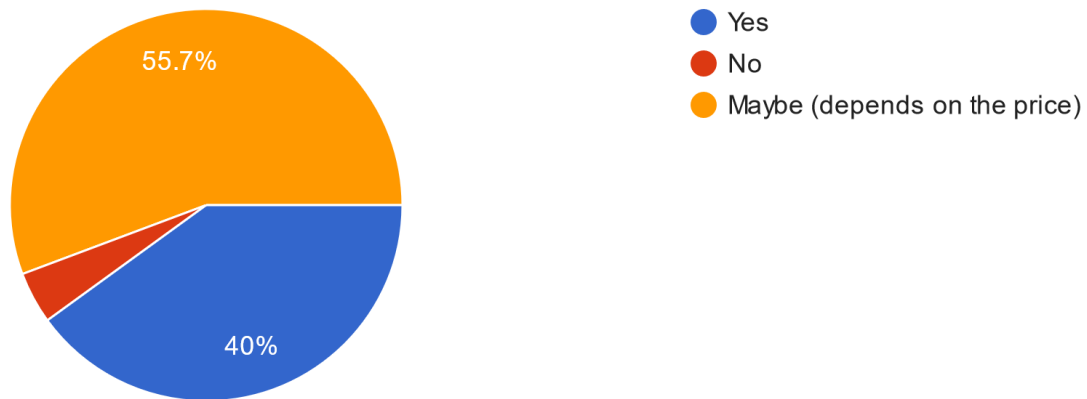
The respondents were given a number of options to describe their understanding of sustainable clothing, and they could choose multiple options from the same. It was observed that the maximum number of people (80%) believe that sustainable clothing is related to recycling fabrics. Reduction in chemicals used during manufacturing or garments was the next highest voted option (60%) to describe the idea of sustainable clothing. About 24 respondents (34.3%) were aware that sustainable clothing also includes fair labor practices.

4. Impacts of Fashion Industry in the World: Socially, Environmentally and Ethically



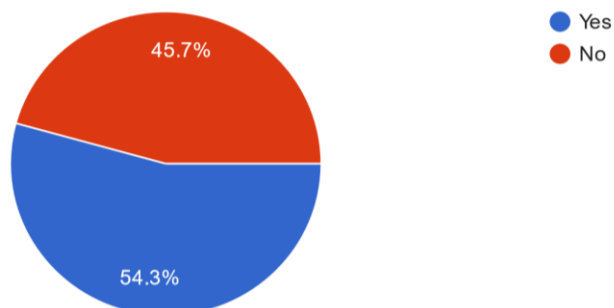
When asked if the respondents were concerned about the impact of the fashion industry on a social, environmental, and ethical level, more than two-thirds (81.4%) of participants concurred and responded with a ‘yes’.

5. Willingness to buy sustainable and eco-friendly apparel from their go-to brands



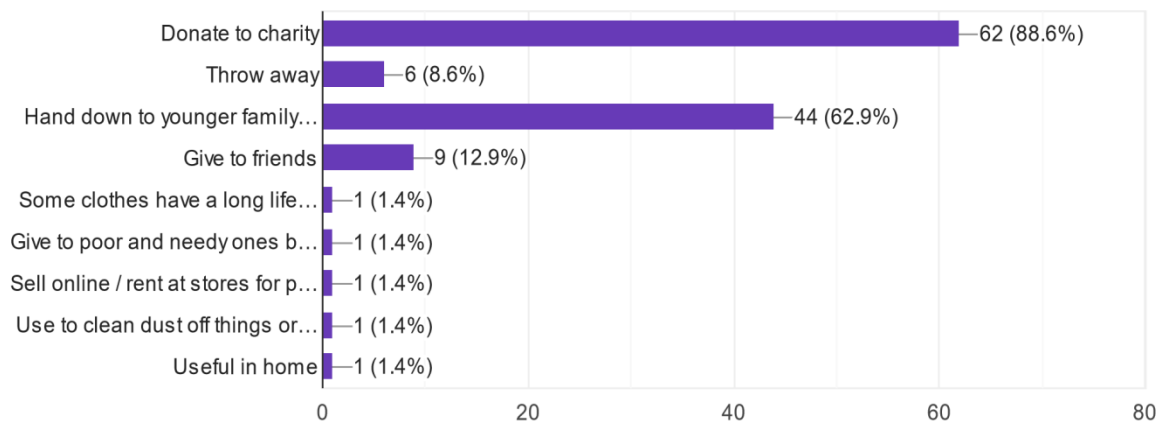
About 28 partakers (40%) were willing to buy sustainably made garments. 39 respondents (55.7%) were skeptical about their choice, considering price as a crucial factor in the purchasing process.

6. Willingness to pay a higher price than usual for eco-friendly apparel



The participants were asked whether they would be willing to pay a higher price than they normally pay considering style, comfort and quality are the same for a sustainable clothing item.. More than half of the people (38 respondents/54.3%) claimed to buy sustainable clothing items by paying a higher price than usual.

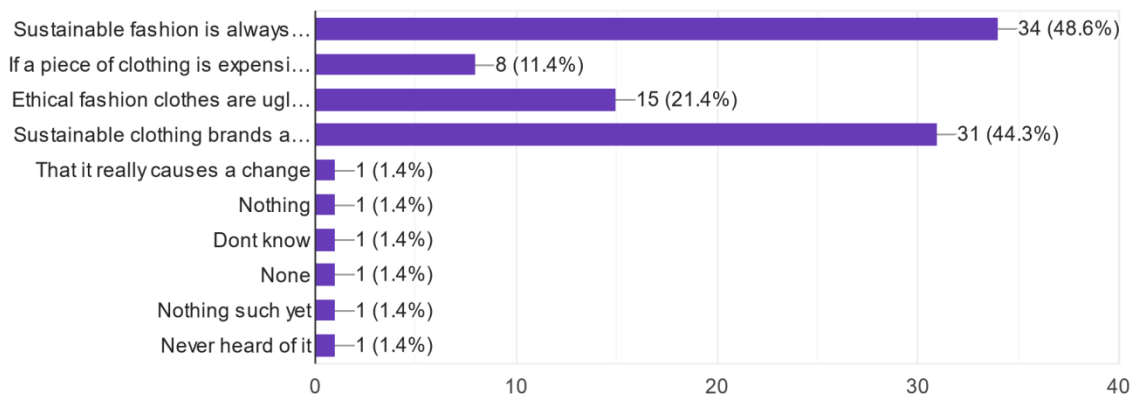
7. Disposal of old/unwanted clothes



Sustainable fashion is as much about recycling and reusing in the right manner as it is about fair labor practices and eco-friendly production. Thus disposal of used clothes makes a major portion of the sustainable fashion chain.

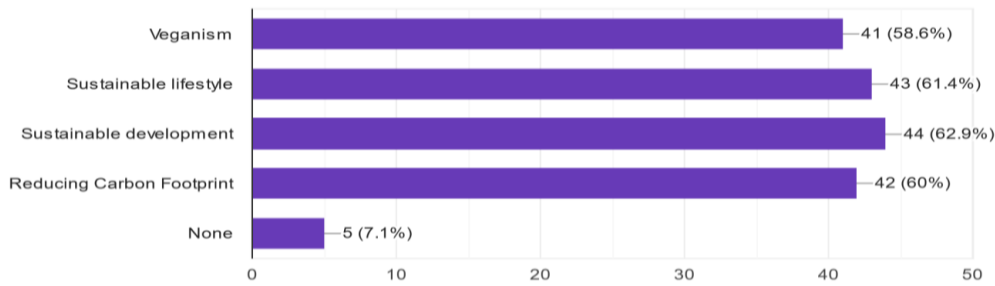
About 88.8% of participants (62 people) believe in donating their old and/or unwanted clothes to charity. Whereas 62.9% of people (44 participants) hand down their clothes to younger family members.

8. Myths associated with sustainable fashion



34 respondents (48.6%) had heard that *sustainable fashion is always expensive*. 8 out of 70 respondents had heard of the myth that *If a piece of clothing is expensive, then it was sustainably and ethically made*. 15 respondents voted for the myth that *Ethical fashion clothes are ugly or basic/ Sustainable fashion is all about minimalism*. Whereas, a whopping 31 partakers (44.3%) feel that *Sustainable clothing brands are hard to find*.

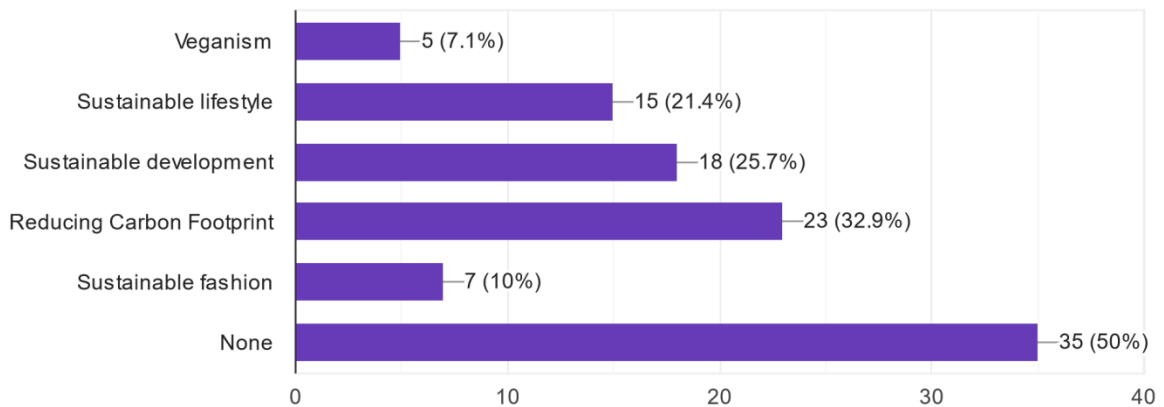
9. Awareness of related practices



Conscious fashion is a part of an ecosystem focused on creating a safe sustainable space. It would be correct to say that sustainable/eco-friendly fashion is not the whole, but rather just a part of the whole.

A majority of participants (62.9% and 61.4% respectively) were familiar with terms like *sustainable development* and *sustainable lifestyle*. Out of 70 respondents, at least 41 respondents were familiar with all the terms including, veganism, sustainable lifestyle, sustainable development, and reduction of carbon footprint.

10. Do you practice any of the following?



The reduction of the carbon footprint was the highest voted option that 32.9% (23) respondents have inculcated in their daily life. Whereas, 25.7% and 21.4% of respondents practice sustainable development and sustainable lifestyle respectively. Sustainable fashion is followed by 10% of our respondents and veganism by 7.1%.

CONCLUSION

The statistics in the survey indicate that a majority of the respondents were aware of sustainable development. Interestingly, while a huge amount of people are ready to shift to sustainable clothing, we see a drop in the numbers when an increase in price point is associated. The most believed myth related to eco-friendly apparel is that it is expensive/over-priced, which is a half-truth. It can be expected that if the consumers are informed about the manufacturing process and cost of production, the shift to sustainability will happen more organically.

The introduction of animal-friendly and cruelty-free clothing has revolutionized the fashion industry and added more to sustainable clothing. From the results, it can be seen that a high

number of people are working towards reducing their carbon footprint and following a sustainable lifestyle.

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CHAPTER 11

Impact of Social Networking sites on Academic performance of Collegiate: A Sociological Study

Kirat Rathore and Kratika Dhoundiyal
Dr. Saloni Singhanian

ABSTRACT

In contemporary era social media plays a very crucial role in people's life. It is an interactive technology that facilitate the creation and sharing of information, ideas , interests and other forms of expression through virtual communities and networks. World has turned into a global village where everybody is connected with each other. Social media plays a dominant role in our day-to-day life where most of the people indulge themselves in updating status, instant messaging, image and information sharing. One can reach out to any information on just one click of a button. Also students can now access any kind of information related to their studies more feasibly. It has been observed that in contemporary times younger generation is more addicted to social media. So, this paper is a small strive to analyze the impact of social media on academic performance of students. The data has been collected through primary sources and questionnaire has been used. The researchers has found an understanding of how students use social networking sites, the time they spend and the type of information they access and their overall impact on academic performance.

Keywords: social media, learning, academic performance and students

INTRODUCTION

The internet is at once a worldwide broadcasting capability, a mechanism for information dissemination and medium for collaboration and interaction between individuals and their computers without regard for geographic location. Through the Internet, people can share information and communicate from anywhere with an Internet connection.

Social media has taken over almost every sphere of one's life. Social networking sites are a great platform for people to connect with their loved ones. It helps in increasing communication and making connections with people all over the world. Social media is the communal interaction among people in which they create, share or exchange information and ideas in virtual communities. It has become the basic need and quality of human beings to be social. The spectacular developments in communications and innovative and astonishing entertainment have given access to information and the ability to provide a voice for people who would never have been heard. It serves multiple purpose for information, entertainment, exchange of emotions, pictures , videos and ideas. Social media has brought a powerful revolution that has changed lives all round; it has changed the way people socialize. It has completely transformed the way of living all over the world. Social media has embraced lives

of young adults and teenagers as it has become big part of many teens' lives where they are exposed to current events, interact across geographic barriers , share important information, build their personalities and connect with friends and family .

In spite of having so many benefits this growing trend of social media has given rise to a very serious issue a major concern is the over the impact of social networking sites on academic performance of students general and undergraduates in particular for this research.

1.1 Statement of the problem

Growing trend of social networking sites has completely changed the way people live their life and also the way they communicate on daily basis.

It has gained more and more popularity among youth and tremendous growth has been reported regarding more usage of social media among students. Social media addiction has been reported among students as they spend most of their time on exploring social media. This addiction and growing trend of social networking sites is responsible for rise of deep concern over the possible impacts of social media on academic performance of students. This study investigates the possible impacts of social media on academic performance of college students .

1.2 Purpose of the Study

The purpose of this study is to look over possible impacts of social media on academic performance of collegiate. In order to report the study effectively students of St. Xavier's College were assessed.

1.3 Research Questions

Questions below were designed for proper outcome of this study .

1. Does spending more time on social media affect academic performance of students in a negative manner ?
2. Is Academic performance affected by nature of social networking sites?
3. Does gender play any role in the usage of social media ?
4. Is academic performance correlated to time spent on social media ?

REVIEW OF RELATED WORK

The internet is a global network that comprises man voluntarily interconnected through autonomous networks. The internet has enabled and accelerated new forms of personal interactions through instant messaging internet forums, and social networking services. The internet can be accessed almost anywhere by numerous means, including through mobile and smart devices. People use chat, messaging and email to make and stay in touch with friends worldwide. It has changed the Way of communication. The intention behind development of social media channels was to facilitate communications, and the youth has been the early enthusiasts of the digital media. It has become very popular among students. Platforms like

face book and twitter giver teens and young adults a sense of belonging and acceptance. High levels of engagements have however been a matter of concern on the academic performance of students. Different researchers carried out several researchers to analyze the impact of social media on the academic performance of students.

According to the research done by Len hart et al(2010) users between 18-29 years of age were found to be more active on social media operating multiple social media profiles. Pempeckyermoalaya, and Calvert(2009) did a study on the time periods spend by the students on social media. Analyzing indicated data it was found that most of the students were found active on social media during evening hours between 9 am to 12 pm and spent around 40 minutes on face book.

Sheldon(2008) stud found out that approximately 50 percent college students log into social media multiple times a day. Quan haase and ounge (2010) found that around 82 percent of college students log into face book several times. Pempeckit at el (2009) found out that younger student spend more time on social media than older students in order to connect with their old friends and people from their hometown.

Owusu- achaew and Larsen(2015) conducted a study on the usage and impact of social media on students and it was found that maximum students use mobiles with internet facility and majority of them were found spending maximum time on social media. It was concluded from the study that students spend approximately 40 minutes to 3 hours on social media per day. The study stated that a decline in the academic performance has also been recorded. Students who spend more time on social media were reported with low grades.

Further carpenski and derbenstein (2009) dominican university conducted a study on impact on social media on academic performance of college students and it was reported that students who use social networking sites scored less and had lower grade point average than the students who don't use social media. Comparatively students had good grade point average. Facebook has been major destruction reason.

Hasnain et al (2015) conducted a study on a relationship on social media and students academic performance and concluded that if used properly social media can have a positive impact and can help to attain knowledge and useful information which will help then to perform well in academics.

Khan(2012) presented a study on social networking sites more actively on entertainment purpose. Gender analyses was done with the help of questionnaire which showed that males use social media more compared to females.

However other study like ahmed and quiz (2011), hanquitti and shich (2010), passec and hanquitti (2009) presented a study on correlation between social media and students academic performance. A study was conducted at whitmore school of business and economics. This study was done on 11027 which stated that there is no correlation between how much time is spent on social networking sites and grades. (martin, 2009).

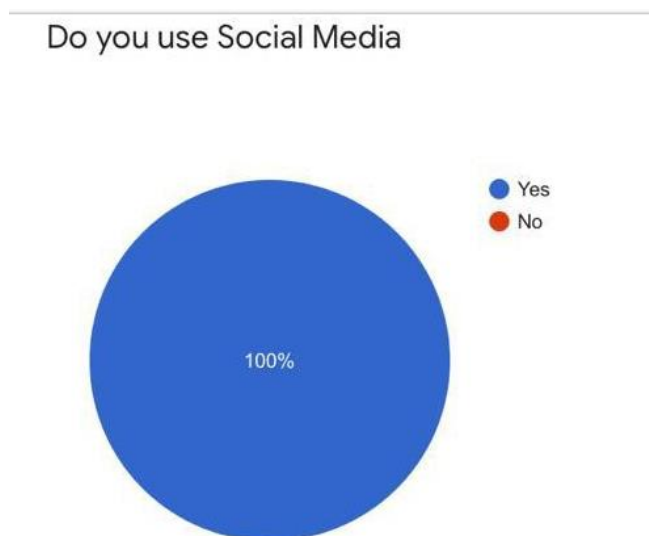
University of Hampshire(2010) study stated that student use of social media sites does not affect their academic performance according to recent survey done in United States, it revealed that approximately 90 percent teens have internet access and around 75 percent of them use internet once a day in which half of them were found using social media.(Martin,2009).

RESEARCH METHODOLOGY

According to the study, the primary data has been considered. The primary data for this research study has been collected via questionnaire. The sample of this study was drawn from targeted population of collegiate. The data has helped to analyze the impact of social networking sites on academic performance of college students. Secondary data has also been considered, which is gathered from some of the published research articles related to the study.

DATA ANALYSIS

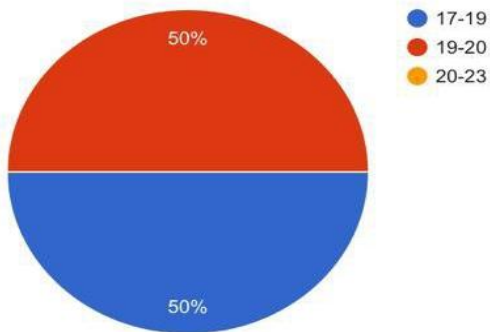
Following is the analysis of the data obtained from the survey conducted through questionnaire.



1.

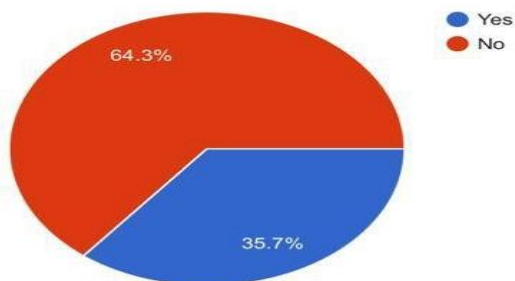
According to researches, Of all adults with internet access, 71% use social media. In our study all respondents use social networking sites.

To which age group do you belong ?



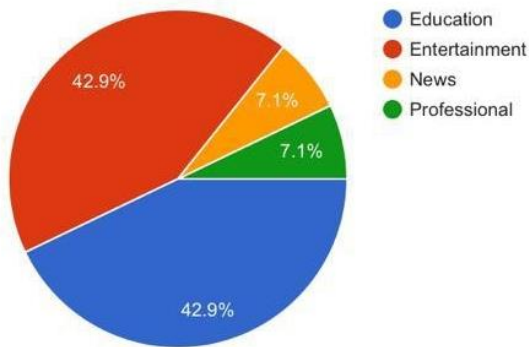
2. Around 50% of the respondents in our research are 17-19 yrs of age and the other 50% are around 19-20 yrs of age who have access to social media.

Do you forget or delay your college work/assignment because of using excessive social media?



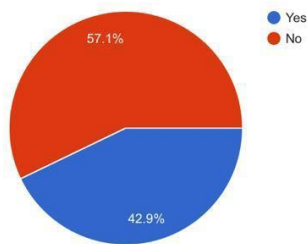
3. While social media offers unprecedented access and connectability, some are concerned that social media's overuse is inhibiting users everywhere and affecting them in adverse ways. Around 35.7% of the respondents forget or delay their college assignments due to social media addiction.

Aim of connecting to social media ?



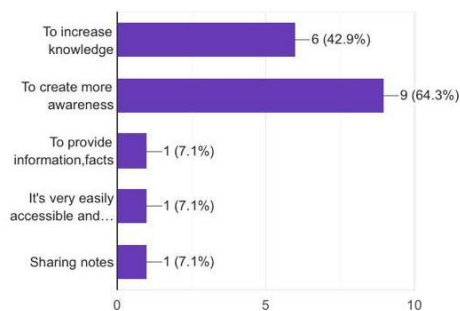
4. There are around 3.1 billion people who are active social media users worldwide. According to our research, around 42.9% of social media users use social media for entertainment purpose, while the other 42.9% use it for education purposes.

Did you found any positive impact on your academic performance after using social media ?



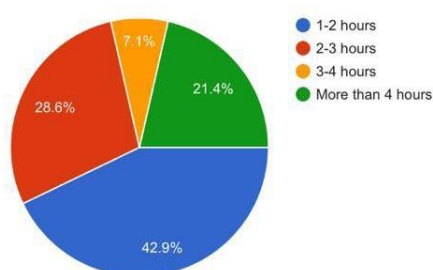
5. Past studies have found that students who spend more time on social media sites are likely to demonstrate poor academic performance. Around 57% of the respondents have not found any positive impact of social media on their academics.

If yes, then how these social media apps are useful?



6. With right strategy, social media can make any study more collaborative and efficient. In our research it was found that around 64.3% respondents feel social media as a useful tool to create awareness. Approximately, 42.9% use social media to increase knowledge. While others use it for sharing notes, because its ease of accessibility and to provide information and facts.

How much time do you spend on social media?



7. Internet and social media addictions continue to grow as our dependence on technology increases. Estimates posit that over 210 million people suffer from internet and social media addictions worldwide. Teens who spend 5 hours a day on their phones are 2X more likely to show depressive symptoms.

CONCLUSION

Social media has become popular with passing time and many people got addicted to it and spend hours on social media. Now it has become a part of their daily routine. This study revealed that how social media affects the academic performance of students. The results revealed that social media affected the academic performance negatively. Therefore it is suggested that students should minimize their time they spend on social media as spending more time on social media will make them less productive and they will face problem in achieving or will not be able to achieve their desired goals.

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CHAPTER 12

A SUBSTANTIAL STRAIN ON COLLEGE STUDENTS

Jash Jaiswani and Mansi Bhandari

Dr. Gurneet Kaur Suri

ABSTRACT

(Lu) This study tries to break down the amount of pressure encountered by understudies along with the most widely recognized source of stress inside this gathering. The primary target of this study is to recognize sources of stress and their impacts on the understudy's life. The concentrate likewise proposes suggestions to limit the understudy pressure. The information for this essential examination has been gathered through a survey. An example of size 100 was taken and information had been gathered. According to the discoveries of the review, it is very evident that the greater part of the respondents feels anxious in their school life. School stress-creators have wide assortments, from scholastic work to vulnerability about the future, challenges in relational connections, pressure which the family gives, etc. It likewise prescribes specific ideas to adapt to the pressure.

Keywords: Stress management, Consequences, Academic life, Pressure, Strain.

INTRODUCTION

Stress is a complicated, dynamic process of interaction between an individual and their life. It is the conflict one responds physically, intellectually to the different circumstances. Stress is the crippling impact brought about by steady strain both at work and home. As such, stress is an external power that has control over sentiments. Although it is an unavoidable part of many activities at work and home, stress becomes destructive when it arrives at a force that hinders day-to-day activities. Student life is a changeover period. They do a course figuring, it will empower them to do or have something that they need, such as increased jobs, vacancies, or happiness in life. Studying is important for a course of progress but sometimes, changes can cause a great deal of tension. Stress is an inescapable part of life; it can negatively affect student's life and actual wellbeing, passionate prosperity, and scholastic achievement except if they figure out how to overcome it suitably. College Students' life experiences pressure connected with changes in way of life, expanded responsibility, new obligations, and social relationships. A high degree of stress can ruin work viability and lead to unfortunate poor performance in academics and wearing down. Presenting effective techniques might assist a student's life with keeping away from the disastrous outcomes of high pressure and strain.

REVIEW OF LITERATURE:

Presnall (2008): conducted the Student Stress Survey which showed that pressure and stress influence their physical and emotional well-being. Besides, the review surveyed 200 college Students aged between 18 to 24 chosen from schools across the country and uncovered that the primary sources of stress were monetary issues, relationships, family issues.

MacGeorge, Samter and Gillihan and Sasaki and Yamasaki (2007): Said that depression is a significant issue. Intrapersonal and relational elements were likewise followed by the therapists that generate extreme pressure and sadness.

Dixon and Robinson (2005): Most individuals experience stress that leads to body changes. Repeated stressful circumstances, cause strain and tensions on the body that adds to physical and mental issues.

Morris, Brooks, and May (2003): Expressed that the constant pressure and stressors are pointlessly consistent across all the students and have been found to contrast among conventional and modern students.

Causes of stress among students:

- The events that cause stress are referred to as stressors, and they might range from outright physical threats to giving a class presentation or taking a semester of the most difficult topic. The following are some of the most common sources of stress among students:
 - **Academics**-Fears about academic achievement can lead to stress symptoms like anxiety, insomnia, and changes in food and mood. According to Morehouse State University, youth have bad study habits, like cramming last-minute studies the night before examinations. Exam anxiety and heavy workload cause pupils to be stressed. A large number of tasks is the primary source of stress among university students
 - **Finances** - Money is a source of worry for all young people! The majority of young people do not have work, or the positions which they have do not pay as well as they would want. They seek to preserve their lifestyle and meet consumer demand for items such as mobile phones, bicycles, and automobiles. If they fail to meet the criterion, it results in anxiety.
 - **Relationships** - Another major source of stress is interpersonal relationships. Everyone desires friends, whether they be close pals or simply acquaintances. If a person discovers that making friends is more difficult than he or she anticipated, stress is prevalent.
 - **Career**-Job Stress is a chronic disease caused among the current youth that negatively affects an individual's performance and/or overall well-being of his body and mind. The high competition, an considerate work colleague, a lack of job security, etc. There are many causes of job stress. The students have fear of not getting the job opportunity and competition in the market. (D, 2013)
 - **Time Management**-A lack of time management so causes stress on youth, whether secondary or tertiary. Balancing academics, peer activities, and homelife can be difficult. Toss in a part-time job and the challenge increases!
-

OBJECTIVES

The principal objective of this study is to recognize the primary source of stress and its impacts on student's life.

-
- To analyze the different wellsprings of stress experienced by the students.
 - To analyze the outcomes of stress among understudies. (S.K. Dixon and S.E.R. Kurpius, 1998)
 - To propose suggestions to limit the student's pressure. (Blake & R.L., & Vandiver, T. A., 1988)
-

HYPOTHESIS

Theory accompanying speculations have been taken for the investigation of stress faced by undergrads.

HO: There is no important difference between gender and individual feelings of stress.

H1: There is a critical difference between gender and physical stress.

HO: There is no critical difference between gender and academic feelings of anxiety.

H1: There is critical contrast between gender and academic stress level.

RESEARCH METHODOLOGY

- **Research Design:** This study is detailed in nature. It incorporates reviews and reality findings of various kinds. The significant motivation behind elucidating research is a depiction of stress as it exists present.
- **Sample size:** Due to time restriction test of size 100 is taken for the overview with the help of the assistance of a poll.
- **Data collection**
 - ❖ **Primary data**

Survey strategy is used to gather the information from respondents and the information gathered with the assistance of a poll.
 - ❖ **Secondary data**

This study is gathered from the web, diaries, reference books, and project reports.
- **Tools Used for Analysis**
 - ❖ **Statistical method used**
 - Percentage analysis
 - ❖ **Statistical tools used**
 - Chi-square test

ANALYSIS AND INTERPRETATION

Table 1.1

Opinion about: which among the factors adds to the stress

Opinion	No of respondent	Percentage
Personal	37	37%
Physical	2	2%
Social	5	5%
Family	7	7%
Academic	52	52%
Psychological	4	4%
Total	100	100%

It is found from Table 1.1 that most of the candidates (52%) are stressed because of academic factors, 37% of the candidates are stressed because of personal factors, 7% of candidates are under pressure because of family factors, and 4% of respondents are stressed because of social factors, at last, 2% are stressed because of physical factors.

Chart: 1.1

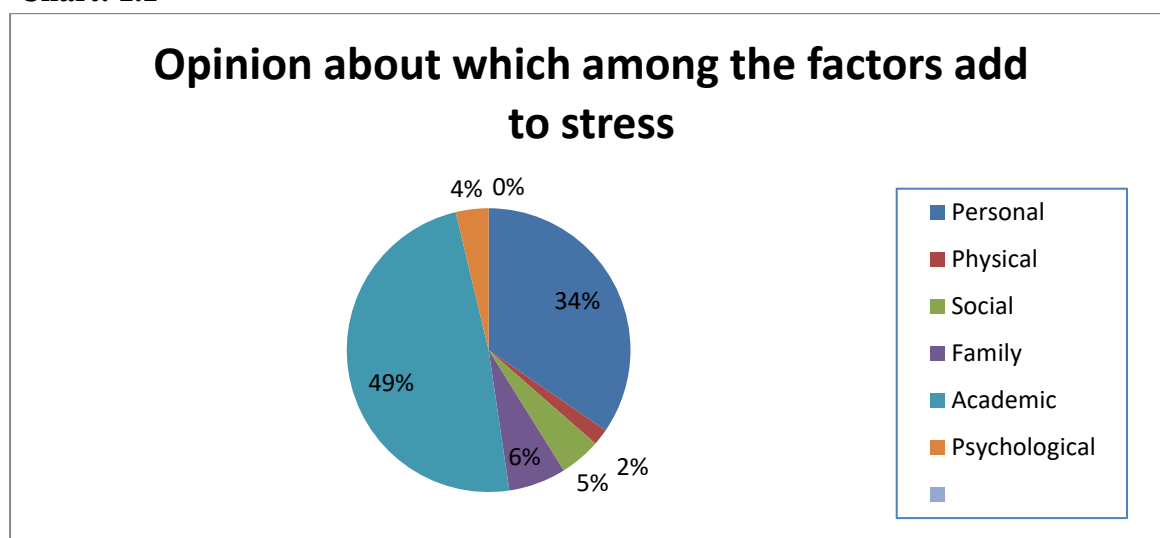


Table 1.2

Effects on stress on the body

Effects	No of Respondent	Percentage
Headache	68	68%
Upset of stomach	17	17%
Poor Sleep	12	12%
Breathing Troubles	3	3%
Total	100	100%

It is observed from the above table 1.2 that most of the candidates (68%) suffer from headaches, 17% of the volunteers have an upset stomach. 12% of the respondents suffer from poor sleep. A less percentage (3%) of the candidates have breathing troubles.

Chart 1.2

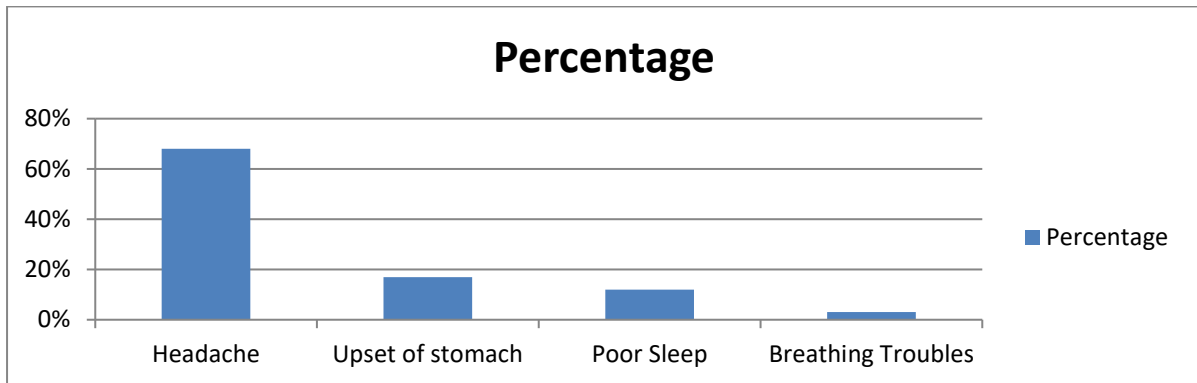


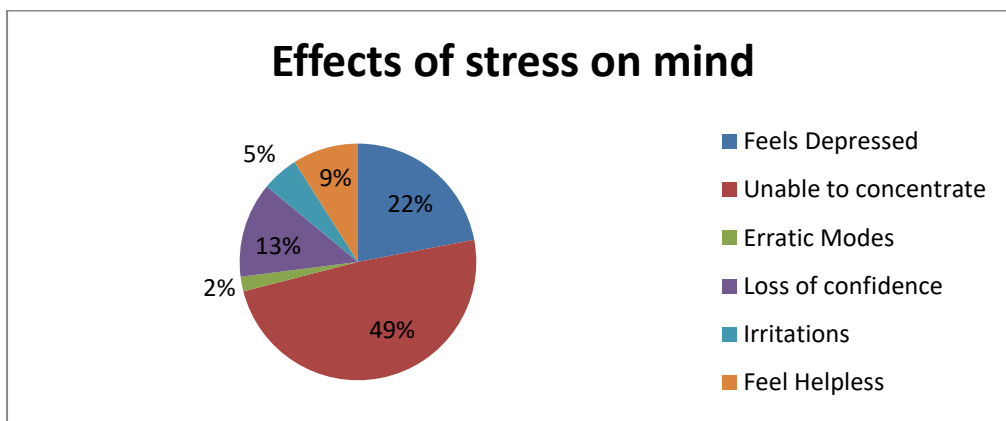
Table 1.3

Effects of stress on the mind

Effects	No of Respondent	Percentage
Feels Depressed	22	22%
Unable to concentrate	49	49%
Erratic modes	2	2%
Loss of confidence	13	13%
Irritations	5	5%
Feels Helpless	9	9%
Total	100	100%

Table 1.3 depicts that 49% of the students are unable to concentrate due to stress. 22% of the students feel depressed, 13% have lost their confidence and 5% of respondents feel irritated. Other 2% of the people suffer from erratic modes and 9% feel helpless.

Chart 1.3



CHI-SQUARE TEST OF INDEPENDENCE

1. To test the relationship between orientation and individual financial stress of anxiety

- Null Hypothesis (H₀)
- Elective Hypothesis (H₁)

There is a huge relationship between orientation and individual feelings of personal stress.

Table 1.4
Cross tabulation for gender and personal financial stress level

Gender	No Stress	Slightly	Average	Above Average	Severe	Total
Male	9	15	13	11	7	55
Female	10	9	14	4	8	45
Total	19	24	27	15	15	100

Degree of freedom = 4

Level of importance = 5%

Calculated value = 17.76

Chi - square table value = 9.48

Derivation

Hence the worth of chi-square is more than the worth of the table, we reject the invalid theory and reasoning that there is a huge relationship between orientation and individual feelings of anxiety.

2. To test the relationship between gender and physical stress level

- **Null Hypothesis**

(Ho) There is no critical relationship between gender and actual feelings of anxiety.

- **Elective Hypothesis**

(H1) There is a critical relationship between gender and actual feelings of anxiety

Table 1.5
Cross tabulation for gender and personal financial stress level

Gender	No Stress	Slightly	Average	Above Average	Severe	Total
Male	13	17	14	5	0	46
Female	14	20	14	6	0	54
Total	27	34	28	11	0	100

Level of significance=4

Level of importance = 5%

Calculated Value= 5.92

Chi - square table value = 7.815

Surmising that the value of chi-square is not exactly worth the table, we acknowledge the invalid speculation and infer that there is no critical relationship between orientation and actual feelings of anxiety.

3. To test the relationship between orientation and scholastic feelings of anxiety

- **Null Hypothesis**

(Ho) There is no critical relationship between orientation and scholarly feelings of anxiety.

- **Elective Hypothesis**

(H1) There is a huge relationship between gender and academic stress level and anxiety level.

Table 1.6
Cross tabulation for gender and physical stress level

Gender	No Stress	Slightly	Average	Above Average	Severe	Total
Male	13	11	9	11	9	53
Female	7	7	22	5	6	47
Total	20	18	31	16	15	100

Degree of freedom = 4

Level of importance = 5%

Determined Value = 2.37

Chi-square table value = 9.48

Inference

Hence the chi-square value is less than the table value, we accept the null hypothesis and conclude that there is no significant association between gender and academic stress levels.

Findings

- The majority of respondents (68%) said they are stressed at college.
- Academic factors are cited by the majority of respondents (51%) as a source of stress. And personal factor has caused 36% of respondents to be stressed.
- The respondents do not experience stress due to their religious beliefs, excessive anger, or loneliness.
- The majority of female responders are stressed because this was their first time studying in a university setting. (Brewer & Kristine , 1995)
- College rules and restrictions cause college students to be stressed. (Lee, M, & Larson, 2000)
- The Attitude of Faculty Members causes average stress for 52% of the responders.
- Under stress, 79% of pupils perform well, while 21% perform poorly. As a result,in some circumstances tension is required to perform a task completely.
- The majority of students are not stressed in their personal lives.
- According to this study,the majority of respondents (38%) relieve their stress by communicating with their friends.
- Music is used as a stress reliever by 32% of students.
- Stress has an impact on both the body andpsyche. Stress causes headaches and upset stomachs for more than half of the responders. Stress causes 52% of kids to be unable to concentrate.

Suggestions:

- Use any stress-relieving approach during stressful times, such as talking to friends, listening to music, completing hobbies, and so on.
- Colleges are advised to build a flexible course of career education based on students' future goals. (Saha.D, 2017)
- As a result, colleges should construct a flexible career education course depending on students' potential job development. This course must have psychological, mental, social, and cultural material and should be integrated into each department's formal curriculum.
- When drafting rules and regulations, college officials should use caution. Other students' minds should not be harmed.
- Colleges should give greater assistance and care to help students cope with various stressors, as well as identify students who are experiencing stress reactions as feasible. Furthermore, colleges can maintain a careful eye on students' physical and mental state and hence can provide consulting services to prevent the development of physical or mental disorders in students by using emotion-related surveys. (Agarwal, R.K, & Chahar, 2007)
- Colleges can also recommend students to professional consulting institutes if necessary. Faculty members should care about their students and must make every effort to treat them well.
- To guarantee that you are well-rested, practice appropriate sleeping habits. Sleep deprivation can lead to a variety of physical and emotional issues, as well as increased stress.
- Family support is beneficial for students who are stressed, regardless of how adaptable they are to the stress. While in college, students should take advantage of the support from their families.
- To prevent having unrealistic expectations from them and causing them more stress, family members should endeavor to understand their interests, specialties, and abilities. (Mathew, 2014)
- Exercise regularly. Physical activity can aid in burning off stress-related energy.
- Exams held at the college should be completed on time. Colleges should allow students plenty of time to study between two tests.
- Teachers should not overburden students with tasks that will put them under stress.
- Yoga is good for reducing stress, thus it's a good idea to build a yoga center for students at the college.
- To switch gears, read good books, magazines, and journals.
- To avoid the beginning of the stress-induced depression, college students should pay attention to their physical and mental health and assess their feelings at all times.

CONCLUSION:

In today's fast-paced world, stress is unavoidable. In this age of globalization, there is rivalry everywhere, and people will take any risk to succeed. Especially if the stress in academic

institutions is(Kumaraswamy)beneficial and does not have harmful consequences. These institutions have distinct work environments than non-academic institutions, variances in stress symptoms, causes, and effects should be expected by identifying the subproblems of each component of stress among college students. Academic work to uncertainty about the future, interpersonal relationship challenges to dating troubles, self-doubt to family issues, and the list goes of stress goes on!

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CHAPTER 13

A STUDY ON COMPARATIVE ANALYSIS OF CRYPTOCURRENCY AND STOCK MARKET IN INDIA

Palak Verma, Ritseh Kalyani and Jaya Bothra

Ms. Anjali Pareek

ABSTRACT

A crypto currency² is a digital or virtual currency that is secured by cryptography, which makes it nearly impossible to counterfeit or double-spend. Bitcoin is a type of crypto currency and now is one of the types of investment in Stock market³ as well. Stock market³ broadly refer to the collection of exchanges and other venues where the buying and selling and issuance of shares of publicly held companies take place. These financial activities are conducted through formal exchanges or via over the counter. Both the exchanges here provide the public for trading and investment, the only difference is that the stock exchange is done in the surveillance of government of India whereas crypto currency² trading cannot be regulated by the Govt. of India.

The general perception of the public about these financial instruments is not overwhelming. The union budget 2022 declared that crypto currency² is a permanent asset which is an investment for the future. The aim of this study is to highlight the issue pertaining the uncertainty and reluctance in the public with the choice of these as investment options. The paper will also dwell upon the analysis of government policies related to these markets.

Keywords: Financial markets, Crypto currency and stock market

INTRODUCTION

Crypto currency is an internet-based exchange medium for conducting financial transactions using cryptographic functions. Crypto currencies impact blockchain technology, providing decentralization, transparency and immutability. Since bitcoin has emerged in market from 2009 cryptocurrency become an important component of international financial market after development of approx 10 years .As of now bitcoin is biggest form of cryptocurrency .It is a form of digital currency which is operated free of control without any government or RBI interference.It is recorded in a blockchain form which means transaction are recorded in several computers which are linked through peer-to-peer network. In an equity finance, the ownership of the company consists of all the shares that are split. But many of us don't know about it.Still many of us lack basic terms or concepts of cryptocurrency. Rather people have more knowledge in traditional financial assets such as stock etc, which helps them more to understand cryptocurrency for ex. Correlation matrix or asset tree.This study addresses why

the giant concept is still a foreign concept. G7 and European union countries have made crypto a legal currency. Why do so many people still don't understand it? Why is financial literacy so low among Indians? To conclude this dissertation, this paper will introduce and stick to alternative crypto currency electives that interested students can learn more about.

LITERATURE REVIEW

As we understand without personal experience. Is that investing in crypto currencies is more risky as it is not controlled by governing bodies hence it is highly volatile which means it can have sudden bullish or bearish runs on the other hand stock market in India is controlled by **Sebi** where you can use the current scenario where **SEBI** controlled heavy losses by putting lower circuits on stock hence controlling losses of investors. We studied the dynamics of the crypto currency market by comparing it with the two traditional financial markets: foreign exchange and stock. We found that asset tree and correlation matrix are effective tools for analyzing the crypto currency market. The findings of study revealed that the crypto currency market has similarities and differences with the two traditional financial markets. These market dynamics could provide insight into the decisions that investors should make regarding their investments.

The characteristics of the crypto currency market are similar to those of the stock market. It has a diversity of central nodes and a correlation coefficient that's similar to the stock market's. Finally, due to its robustness and clustering structure, the crypto currency market is more fragile than traditional markets. discovered that the foreign exchange market is a stable market, while the stock market is less stable, and the crypto currency market is a weak market in terms of robustness, due to its robustness and clustering structure, the bitcoin market is more vulnerable than traditional markets. When it comes to robustness, we discovered that the foreign exchange market is steady, the stock market is less stable, and the crypto currency market is frail. In terms of clustering, unlike the foreign exchange market, which is grouped by geographic region, and the stock market, which is clustered by economic classification or geographic region, the crypto currency market has no discernible clustering rule and fluctuates more fast . Economic causes, public recognition and interest, and technological drivers may all contribute to the bitcoin market's fragility. It may be stated that the crypto currency market is always viable, with both technical and technological parts of its systems evolving.

Existing digital currencies are being enhanced while new ones emerge. Only market currencies created for use outside the confines of one system can compete in the digital currency market, which is segmented. Altcoins, which copy Bitcoin's properties, stablecoins, which are "pegged" to a certain legal currency, and cryptocurrency systems, which allow developers to create applications for using these platforms in various industries, have formed three main directions of sustainable development of cryptocurrencies with internal competition. This is owing to the market's extreme volatility, which permits cryptocurrencies to be used for speculative purposes. Despite its investor and speculator appeal, Bitcoin has a number of characteristics that differentiate it apart from fiat money and financial assets. On this front, the fundamental disadvantage of cryptocurrency is the difficulty of anticipating it,

as well as the inability to use it as a means of accumulation or payment as freely as legal currency. The primary consequences of this paper are that it provides a theoretical foundation for future cryptocurrency research.

Additional research will focus on adding more aspects into the same theoretical foundation and exploring novel techniques to model combination in crypto market prediction. In this study, we used daily prices to investigate the stochastic features of six main cryptocurrencies as well as the bilateral links between six popular cryptocurrencies and six stock market indices. employed a long memory technique based on fractionally integrated and cointegrated models for the investigation. We chose this method to explore the interdependence of the selected markets because it allows for considerably deeper dynamics than the classical models used in recent cryptocurrencies research, which focus solely on integer degrees of differentiation and so are predicated on the $I(0)/I(1)$ dichotomy. The findings of the univariate study show that most cryptocurrencies, including Bitcoin, Ethereum, Litecoin, and Stellar, have unit roots; Ripple has $d > 1$, while Tether has $d < 1$ (mean reversion). As a result, shocks will only be temporary for this coin. Except for Standard and Poor (S&P 500) and VIX, where the anticipated value of d is much below 1, the stock market exhibits $I(1)$ behavior in all circumstances. Nonetheless, the values are extremely high in all cases, indicating that large levels of persistence are present. The fact that orders of integration close to 1 are observed in the majority of cases does not contradict our findings, which were acquired using fractional alternatives rather than the traditional AR approaches used in all regular unit root methods.

We find no evidence of cointegration between the six cryptocurrencies in the bivariate study, and very little evidence of cointegration between the cryptocurrencies and the selected stock market indexes. The six most popular cryptocurrencies have a very low amount of connectivity, according to our findings. We conclude that the cryptocurrency market is proving to be a more important phenomena for financial markets than previously thought, owing to the diversification option it provides investors due to its low level of connectivity to traditional asset classes. This paper's conclusions could have ramifications for investors, market participants, and regulators. First, the low level of bilateral linkages between cryptocurrency market and stock indices found in this study may have implications on investor's choice of asset class to invest in, due to price independence. From a portfolio perspective, since price movements in the traditional asset class have no direct influence in the cryptocurrency market, investors or market participants can take capital and somehow invest in cryptocurrencies due to its inevitability benefits. Cryptocurrencies' investability and global accessibility may promote more liquidity in the cryptocurrency markets than assets held within borders. conclude that, in the coming years, liquidity in the cryptocurrency market will be compared more with traditional assets classes, as investors and market participants may be compelled to hold a cryptocurrency rather than an equity in a publicly traded company, based on Bitcoin exchange trading volume of \$1 billion per day through the first quarter of 2016.

Cryptocurrencies can be viewed as independent financial products with little to no systemic risk, which may increase their appeal to investors. Third, our results of no cointegration

within the cryptocurrency economy provide information for authorities and possible international investors. What investors can do differently to cement the diversification benefits associated with their investments in cryptocurrencies, based on the findings of this paper on the disparity among cryptocurrencies and disconnections between cryptocurrency and the rest of the traditional finance and economic asset class, is to call for policymakers and regulators to enact measures that will deepen the dispersed structural relations within the cryptocurrency market and with the rest of the traditional finance and economic asset class. There are various valuation methodologies to model and analyze the bilateral links between cryptocurrencies and traditional asset classes as the literature evolves. Copula has recently gained popularity as a tool for analyzing financial market data. As a result, we recommend using copula in the future to uncover the connections between the asset classes studied in this study and provide a foundation for future research, as cryptocurrency research is still in its early stages and requires more rigorous econometric techniques to establish stylized facts in the market. The variations of Bitcoin values are still poorly understood because cryptocurrency is a relatively untapped area of research. As cryptocurrencies expand in popularity and credibility, particularly with the introduction of derivatives markets, it's critical to grasp the variables that drive market movements. The Baltic dry index has a substantial positive correlation with long-term Bitcoin volatility, and Bitcoin trading volume has a significantly negative impact. It's worth noting that, despite the widespread press coverage on the subject, a lot of the series we looked at—such as crime-related statistics—didn't seem to explain Bitcoin volatility. Findings imply that GARCH-MIDAS-based Bitcoin volatility forecasts are superior to standard GARCH models. Our findings can be utilized, for example, to design improved time-varying portfolio weights when building Bitcoin and other asset portfolios such as equities and bonds. Because sentiment in tweets was found to be unreliable as a predictor of dropping cryptocurrency prices, it was excluded from the analysis. Price was strongly associated with both Google Trends and tweet volume. Furthermore, the fact that the correlation remained during both rising and falling prices suggests that the link is resistant to non-linearity and high variance. Because input variables followed the same non-linear tendencies as the result, a direct one-to-one comparison was done using a linear model. Furthermore, the use of different input variables for the previous 15 days allowed for the consideration of short-term trends. The model technique followed basic machine learning protocol, and the whole dataset was divided into two halves, with 80 percent used for training and 20 percent for testing. Because of the high correlation metrics, multiple linear regression was chosen as the modelling approach of choice. Figure 9 displays model residuals for predicting Bitcoin closing daily price using a 15-day window of Google Trends and tweet volume data in a linear regression algorithm. The trend is toward cryptocurrency regulation, and more broadly, all crypto-asset regulation, as well as increased trading on organized and regulated exchanges. This would be contrary to the Bitcoin's initial libertarian rationale, but it is an essential step to protect market participants and decrease moral hazard and information asymmetries. One is the need for a much closer examination of the 'market microstructure' of crypto exchanges. Some recent research already draws attention to the functioning of crypto exchanges. For example, Gandal et al. (2018) investigate price manipulations at the Mt. Gox Bitcoin exchange; a notable by-product of their research is the finding that suspicious trading on one exchange led to equal price

changes on other exchanges, suggesting traders can effectively engage in arbitrage activities across exchanges. Or does it disadvantage some investors, limiting regulatory oversight and allowing a core of participants to manipulate market prices at the expense of other investors? Do the technical arrangements support crypto exchanges, notably the use of distributed ledger or blockchain technology which eliminates the need for post-trade settlement, lead to more efficient trading outcomes in terms of price, liquidity and speed of execution? What about the regulation of cryptoexchanges and the problems of hacking with some prominent examples of theft and failure to enforce “know-your-customer” (KYC) Globally, regulators are shifting towards a tougher stance. Some exchanges want to work with regulators and be completely compliant. Others would rather operate outside of the law. A simple argument is that investors and users must be protected against financial and technological hazards. However, as the papers in this special issue show, cryptocurrencies are not the same as traditional assets, therefore the validity of classic arguments like systemic stability, consumer protection, and competition promotion is debatable. Similarly, we must determine whether consumer protection is required. Such protection optimizes resource allocation and supports economic growth and welfare in traditional asset markets and banking, but it is not directly relevant to cryptocurrencies and existing crypto assets. An extra dimension that arises from the studies in our special issue is the Cryptocurrencies have a different sustainability and environmental impact than other asset classes. Last but not least, how cryptocurrency technology may affect traditional fiat currency issued by central banks is a serious concern. 15 According to new research on the competition between cryptocurrencies and fiat money, the introduction of privately issued cryptocurrencies could impair the central bank's monetary policy powers, resulting in welfare losses (Zhu and Hendry 2018; Schilling and Uhlig 2019). When private currency competes with central bank-issued e-money, Fernández-Villaverde and Sanches (2019) find that the former should vanish in equilibrium, but it's unclear what happens if cryptocurrencies aren't a perfect substitute for fiat money.

RESEARCH METHODOLOGY

The main method we chose for data collection was questionnaires because questionnaires are a low-cost, rapid, and effective approach to collect significant amounts of data from a big number of people. because the researcher is not required to be present while the surveys are completed, data can be obtained fast. when conducting interviews with large groups of people is impractical, this method is useful however, one issue with questionnaires is that respondents may lie in order to maintain social status. most people want to project a nice picture of themselves, therefore they may lie or stretch the truth to make themselves look better, such as when students inflate their revision time. questionnaires can be a cost-effective and quick way to assess the behavior, attitudes, preferences, opinions, and intentions of a large number of people.

OBJECTIVES

- To thoroughly understand the stock & crypto difference.
- People perspective on which is more preferred.

- Why crypto currencies are so volatile?
- Why crypto is more riskier than stock market?
- Reason for not introducing stock as a subject in schools and colleges?
- To analyze the peoples perspective on new financial budget regarding crypto.
- Analyzing of youth knowledge on cryptocurrency and stock market.

DISCUSSIONS \ FINDINGS

QUES1- In your opinion, which is more risky, investing in stock market or investing in crypto currencies and why?

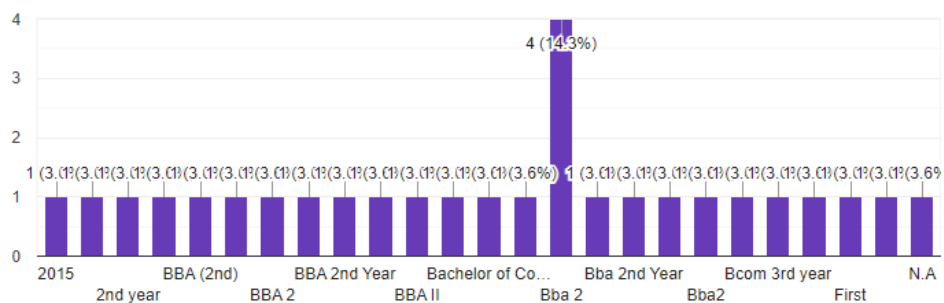
ANS- Crypto is more risky

- Bank nifty.
- Stock market Because there are no guarantees of profits when you buy stock, which makes stock one of the most risky investments
- Investing in crypto currencies is more risky as it is not controlled by governing bodies. Hence it is highly volatile which means it can have sudden bullish or bearish runs. On the other hand stock market in India is controlled by SEBI where you can use the current scenario where SEBI controlled heavy losses by putting lower circuits on stocks hence controlling losses of investors.
- Crypto currency, as the market is more violatile
- Crypto , because a central govt's will never want a decentralised currency system, its more volatile, only few top crypto's will survive, blockchain will survive but currencies may or may not.
- Crypto currencies because in stock we can predict by watching its history and stock never fall down so fast and crypto currencies can fall dow easily.
- Investing in crypto currencies. Because they are very volatile & there is no authorised body upon it.
- According to me Investing in crypto currency is more riskier as there is more fluctuations in very less period of time and recently the 30% tax law over crypto has also made it less evident to invest in.
- Crypto currency because it is not been legalised in India till now
- Crypto currency because its not stable

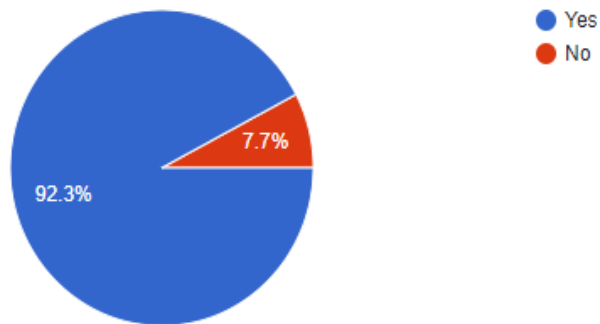
- Crypto because of it's highly volatile Crypto currencies Valuation base 24hours open market Depend upon trends and trends can be created and manipulated.
- Crypto currencies, it is very obvious because of such huge fluctuations of these blockchain currencies.
- Both, they are completely unpredictable
- Crypto currency because they have very fluctuating rates
- Both are similar but crypto is a bit more risky as you can manipulate the rates in stock market
- Investing in crypto currencies is very high risky as the market is very volatile it has high peak of volatility which can make investors wealth to very high and to zero in a single day where as stock market has limited volatility as there is a rule of lower circuit because of that investor's wealth can't be zero in a minute he gets time to get exit and also we don't have any fundamentals or financial transactions or records of any crypto currency due to which we can identify which area is good to invest where as we have whole fundamentals technicals and financial statements of every listed company due to which we can have a vast idea of best area to invest.

Ques 1- Which group of generation is mostly involved in this activity?

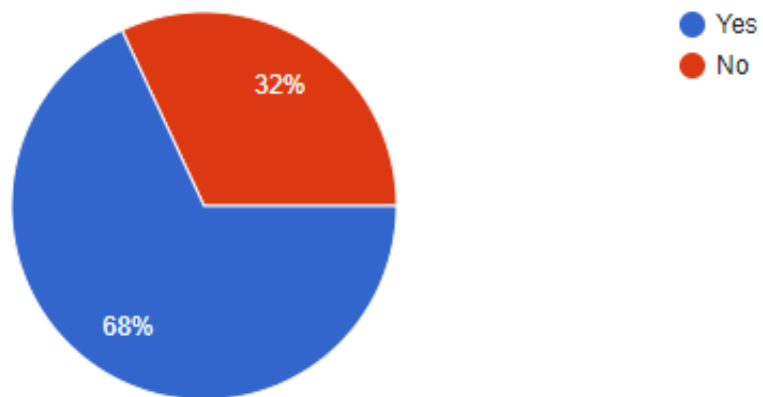
Stream (Year)



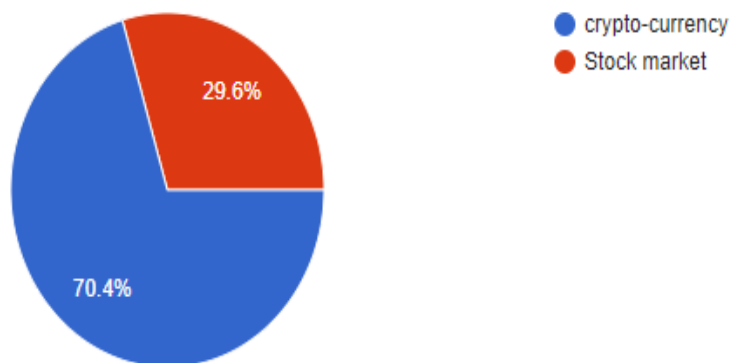
Do you know anything about crypto-currencies or Stocks? *



Do you invest in crypto or stock ?

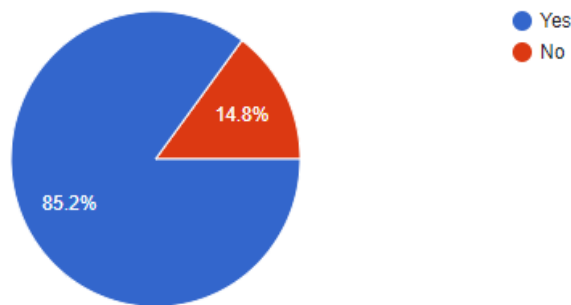


According to you which among these two is more complex to understand?



Do you know anything about Bitcoin and Nifty50

QUESTION



QUES6 -Investing in stock market is more profitable or investing in crypto currencies and why?

ANS- Stock market for at least 1 year -

- Stock market because it has less fluctuations as compared to crypto
- Investing in crypto is more profitable as it rises with time and rises with great margins
- depends how you trade, but yeah crypto is more volatile, you can earn multifold if you played the right side in very little time.
- It's totally depends on the time period and risk bearness . If one wants more money in less time with high risk then should prefer crypto currency and if one wants more money in longer period of time and less risk then should prefer investing in stock market.
- Stock market, because you can analyse the future of the companies but it is difficult to predict or analyse the future of a crypto currency
- Diversifying in both of them is more profitable, having only a small percentage of overall income (assuming 5%-10% invested in crypto) will give higher returns in net-worth as crypto currency is volatile which can give huge returns or losses in just 1 day. With exception that investing in coins by understanding their white and yellow paper along with the technology they're backed on, team, market value and many other factors, one can make good amount of profit.
- Investing in stock market is more profitable because proper wealth and profits are good when we get it in a proper time easy and one day profit don't last for long as it makes us greedy which further results in losses. And as we are indian and according to rules taxes on crypto is very high as compare to capital gain through stocks which also a reason for making stock market more profitable. In 2020-2021 bull run

investors have get a very wonderful returns of 100 to 1000% where as people who invested in bitcoin in 2010 there money where bad debt for years and now they have get instant results which is not a good sign.

- Stock market is more secured than crypto because it changes gradually but crypto can change overnight
- Crypto is more profitable in short time
- Can't say it's totally depend upon timing At what time you enter in any trade and exit in that particular trade.
- "Higher risk Higher return“
- It's just a game of more risk ,more money and crypto is more riskier than stocks
- I guess crypto because Crypto currency is a good investment if you want to gain direct exposure to the demand for digital currency, while a safer but potentially less lucrative alternative is to buy the stocks of companies with exposure to crypto currency.
- Investing in both are profitable.
- Crypto currency because it is very unstable

CONCLUSION

From the above research we concluded that to bring cryptocurrency in the mainstream we have three big challenges: regulations, security and the market. Firstly if we talk about the regulation, the govt of India has to come together with the RBI and other authorities to form one regulatory frame work for these new asset class. At the present moment, after the budget of 2022 governments are struggling to address that cryptocurrencies are cutting through the traditional boundaries of fiat currencies, commodities, and value in general even though it has been recognized as an asset for the company. Around the globe we see different interpretations of what crypto assets are and can represent. Secondly, we talk about the securities , the hacking of the channels by illegal medium has disturbed the mindset of the people regarding their money / asset security. But ya we can say after blockchain security things came in control but with great power comes great responsibility’, and in the first place it goes for its daily users. Having financial independence does mean you are fully and wholly responsible for your own security and asset. Properly securing and storing your keys is vital role in the mechanism. The third key challenge is to attract institutional investors to invest in the cryptocurrency.but the underlying block chain mechanism has proven the biggest support for crypto ecosystem without any large financial players. the drawback that comes with the blockchain mechanism is regarding that we are unable to convert the crypto assets into the viable – alternative asset class and even into one of the principal platforms for transferring of value across the Internet transaction or money.

Another point which we discovered while the research was the lack of knowledge and trust of the people regarding the crypto currency and the technology used for the same. While trust in today's technology excludes moral volition, as technology has typically left moral code of conduct and decision-making to its users, this seems to hold especially true when technologies, such as blockchain mechanism or other automated technologies like automated vehicles, which eliminates the necessity of having a human intervention in the usage process. With these technologies, users are left in their vulnerable and rendered to the capacity of technology to help achieve their goals (e.g., A electric vehicle user believe it's more convenient and cost effective than oil used vehicles.).

Even we found that the people are still in confusion that is crypto a currency or asset after the financial bill-22 it's like people think it's illegal or money will be locked somewhere at unauthorized plat form . With the above points and research we would like to conclude that the govt. should make schemes regarding the understanding of the stock as well the crypto market so that the people can understand and use the money or we can savings in an effective way just like the use in Govt. policies. Even we would like to suggest their should be a subject regarding stock market and crypto in high schools or colleges for the young generation to get the knowledge correctly.

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CHAPTER 14

SUFFERINGS OF ANNE FRANK AS AN ADOLESCENT DURING NAZISM

Ananay Vishwas

“I’ve found that there is always some beauty left - in nature, sunshine, freedom, in yourself; these can all help you.”

— **Anne Frank, *The Diary of a Young Girl***

The rise of Hitler as one of the most inhumane Dictators, history has ever witnessed, still sends a shiver down our spine when we look back at the times of Nazism. The discrimination based on race, as Jews being an impure race and Germans being on the top of the hierarchy, bore the seeds of hatred against Jews which ultimately led to The Holocaust. The trauma and anguish people went through during the times of Hitler are excruciating. One such record we find in ‘The Diary of a Young Girl’ an autobiography of Anne Frank that gained worldwide fame posthumously after her diary was published. Annelies ‘Anne’ Marie Frank was born in the city of Frankfurt on 12 June 1929. Though the specific cause of her death is undetermined, she died in March 1945 in a concentration camp near Hanover, Germany. She lived with her family in the Secret Annex for 25 months during the most fragile years of human life – her adolescence. Apart from experiencing the thick and thins of teenage, she was also a victim of the sufferings by being forced to live in a hiding. It was the time when Anne wanted to confide in someone trustworthy but fails to find anyone and thus her diary Kitty becomes her partner to confide in. In her autobiography, she mentions numerous occurrences of clashes and disputes with her parents. The communication gap with the other people in the hiding, which is conspicuous in her diary tells us about her mental state and thoughts. During the night the booms of bombs scared her and she used to creep nearer to her mother as her haven. These events particularly had a tremendous traumatizing impact on her. Another important psychological aspect is the exploration of sexuality and identity. According to Erikson’s Eight Stages of Psychological Development – Adolescents must integrate various roles into a consistent self-identity. If they fail to do so, they may experience confusion over who they are. She used to think about her existence and role as a young woman. But another feature that can be seen in her is Resilience in Development. Though Anne was amidst ample crisis and hardship and sufferings she mentions “I don’t think of all the misery, but of the beauty that remains.” She chose to see the beauty and goodness in the world even after seeing so much misery being inflicted upon the people of her race. This paper explores the psychological impacts and adolescent life of Anne Frank that are still relevant in contemporary times.

Keywords: Trauma, Adolescence, ‘Anne Frank’, Race, Suffering

Adolescence is a transitional period marked by substantial changes in physical maturation, cognitive abilities, and social interactions. Physical maturation most clearly distinguishes adolescence from childhood (Laird, 2013).

Adolescence is a very fragile period marked by different changes in physical and cognitive processes. It is the period of life when a teenager wants to become independent but in reality, they are still dependent on their parents. Adolescent faces many temptations and troubles during their teens and this is the most important time when people around them need to support them. The growth of a teen must occur under normal conditions and in any conditions if a teen suffers from trauma and physical and mental abuse and isolation it has an enormous impact on it.

If we look at this aspect from the point of view of Anne Frank, we will find that during her lifespan she suffered from mental trauma and it had a fatal impact on her which can be seen through her diary entries. She was the victim of the Holocaust at a very young age. The time when she should have been enjoying her life, learning with her companions, going out with friends but she was punished as her social life was taken away from her and she was traumatized looking at people of her race being killed and brutally treated. She was terrorized by such treatment of Jews and she started to think that one day her family will also have the same deadly fate. In this paper, we take a detailed look at the traumas and sufferings that Anne had been through. This paper also discusses the relationship of Anne Frank with the other inmates of the Secret Annexe and relates it to her psychological aspects.

First of all, we need to understand that 'The Diary of A Young Girl' is not fiction but a real account of a teenage girl's suffering during the Holocaust. The situation of Anne Frank during Nazism is quite similar to what humanity has gone through and still living in its after-effects. We are living in the post-pandemic scenario and are facing its immense impact on us. People faced troubles in their finances, health, and families, and more importantly, the pandemic hit all of us mentally than physically. We can relate to the situation of Anne Frank now, in a better manner because we all were isolated from the outside world being bolted inside our houses for months and living in fear of being attacked by the vicious virus. In the same way, Anne was isolated and was terrorized by being caught by the Nazis. There were times when she felt an urge to go out and meet her friends and lead a normal life back again but she couldn't do so. Moreover, the disputes with her parents and sister and disagreement with the Co-inhabitants of the annexe made Anne self-doubt. There was a time she felt that no one could ever understand her and even her parents were incapable to comfort her.

Annelies 'Anne' Marie Frank was born in the city of Frankfurt on 12 June 1929. In 1933, Franks moved to Amsterdam from Germany due to the rise of Hitler. Anne Frank began her diary in 1942 when she was thirteen years old. It ends abruptly two years later – just three days before she and her family were dragged out of their hiding place in Amsterdam by the SS and deported to a Dutch concentration camp, from where they were loaded onto a packed cattle wagon on the last transport to Auschwitz in September 1944.

It is important to look at the life of Anne before she was forced to flee to hiding. Through her diary, it can be deciphered that even before going into hiding, Anne felt that whatever was happening with the Jews was unfair. We look at the times of Hitler and realize that he wanted Germans to be on the top of the hierarchy of all races. Theatres, pools, public transportation, and many other facilities were segregated depending upon race. Jews were not allowed to sit in the same garden as Germans or go to the same restaurants. Even the basic human rights like the right to education were segregated based on race. Jews were sent to special Jewish schools which is evident when Anne had to leave the Montessori Nursery school and go to a Jewish School. She clearly states in her diary all the restrictions that were imposed on Jews. Jews were supposed to wear a Yellow Star so that anyone could identify them as Jews. In the passage in which she mentions these restrictions she repetitively mentions the word Jews which suggests that her mind was already occupied with the thought of Jews being an inferior race.

Being an adolescent when a person enters a malicious world waiting to devour him/her but still with a hint of innocence, Anne never understood the idea of segregation and separation. She always wondered if everyone could live together with peace and harmony and what massive change it could bring in this ruthless world.

Anne's fear of her family being dragged to a concentration camp came true when her sister Margot was called to Germany for deportation. At this time Franks were forced to flee to hiding. They were prepared for this and soon on the streets wrapped up in layers of clothes the Frank family headed towards the Annexe. Anne had a good relationship with her father which with time in hiding strained. This is seen from the beginning itself. Even when they reached Annexe, Anne and her father together put effort to make the place comfortable for living, opened the boxes, laid the beds, and made sure that everything was in place. The initial days were spent arranging the Annexe and not much happened in Anne's life. Living in Annexe was not an easy task for them. The inmates had to be very careful while talking to each other so that no one could hear them. They even had to walk slowly so that their footsteps were not heard. Soon The Frank family was joined by Van Daans. At this time things got more complex as there were seven people in the Annexe and with more people more miscommunications take place. Similarly, many miscommunications took place in their life Anne and she started to get irritated with it. It is very evident that even there are many people in someone's life still that person can be lonely. This was the case with Anne Frank, now that Annexe had eight people still she found none to confide in.

It won't be wrong to mention that each day of the Annexe was monotonous yet different from the others. If one moment the people were happy and laughing the very next moment terror would sweep over their happy faces. Even the slightest noise from outside would scare them to death. Not only this but there were many instances such as banging on the door, the office worker almost finding the hidden door behind the bookshelf leading to the Annexe, and the break-in of the burglars. Each time such a thing happened Anne would think that she takes a step closer to death.

As mentioned previously even the basic right to education was taken away from her, she used to read the books which were given by their helpers. The only source of news about the outside world was their helpers who supplied them with books, provisions, and other necessities. During the nights when the booms of bombs scared Anne she crept closer to her father as her haven.

Electra Complex and Anne Frank

The Electra complex is a term used to describe the female version of the Oedipus complex. It involves a girl, becoming subconsciously attached to her father and increasingly hostile toward her mother. Carl Jung developed the theory in 1913. This is justified because at times she considered that her father understands her more than her mother. She was even rude to her mother and felt agitated whenever she tried to explain something to her. She even refused to say prayers with her mother and asked for her father. Though with advancement in her life in Annexe, Anne started to feel that even her father supported her sister Margot more than her. She felt as if her father also was incapable of understanding her.

" . . . if only there were no other people in the world."

These were the last words written in Anne's diary before the people living in hiding were caught by Nazis. Unfortunately, the hiding place was raided in August 1944 and all the inmates were sent to different concentration camps. The last to die were the two sisters, Margot and Anne, due to the typhus epidemic. The diary was retrieved by Miep Gies, who gave it to Anne's father, Otto Frank, the family's only known survivor, just after the Second World War was over. The diary has since been published in more than 70 languages. First published under the title *Het Achterhuis. Dagboekbrieven 14 Juni 1942 – 1 Augustus 1944* (*The Annex: Diary Notes 14 June 1942 – 1 August 1944*) by Contact Publishing in Amsterdam in 1947, the diary received widespread critical and popular attention on the appearance of its English language translation, *Anne Frank: The Diary of a Young Girl* by Doubleday & Company (United States) and Vallentine Mitchell (United Kingdom) in 1952. Its popularity inspired the 1955 play *The Diary of Anne Frank* by the screenwriters Frances Goodrich and Albert Hackett, which they adapted for the screen for the 1959 movie version.

When we critically analyze the text of "Diary of A Young Girl" we would find many details about the mental state of Anne Frank. It is usually said that humans are social animals. We need people around us to talk to, to share our emotions and thoughts but when we observe the life of this teenage girl where generally, the teenager thinks as if the whole world is against him/ her, Anne couldn't find the right person to talk to. Even before moving into hiding, Anne felt that no one around her understands what was going on with her. She felt strongly that she needs someone to talk to and share her secrets with and when she couldn't find such a person, she took her diary as her best friend. She even named it Kitty. She mentions in her diary that,

"Paper has more patience than people."

This can be simply explained because she has accounted for most of her days of Annexe in the diary. It is that a paper has a quality that it can not talk back and give its opinions, because sometimes a person just needs another person to unveil his/ her thoughts and deepest feelings and in turn, they do not want any input at least at the given moment. That's what Anne longed for, someone who could just hear her and not judge her for what she was saying. Instead every time she said something unacceptable or not what she was expected to say or do, she immediately faced retaliation from her mother and Mrs. Daan. It can be said that her relations with her family were not good and she wanted one true friend.

Anne wanted to escape from reality!

Usually when people are stressed and in a difficult situation, they try to escape from the situation. They try to find different options and methods and ways in which they can escape from the brutal reality of life. There are many different ways to escape such as making up stories, writing, focusing on a hobby, and a lot of other methods. Similarly, when we look at the life of Anne Frank we see that she also wanted to escape from the harsh reality of the Nazis torturing the Jews and she chose to write a diary. It would be not wrong to consider that her diary entries were merely a way of escaping the harsh truth. To substantiate this we look upon the time when she has written that what kind of world she would want to live in. She also mentioned that when all this misery will get over she cannot even imagine how happy she would be. This brings us to our next point Anne longed for the long-lost freedom. She was captivated not only physically in an Annexe but was also trapped in a vicious circle of never-ending depressing thoughts and unpleasant emotions. Her desire to meet her friends again and live a normal life is visible through every word she has written in her diary.

"An empty day, though clear and bright Is just as dark as any Night."

These are the poetic lines she has written in her diary. Through these lines, we can infer that she was in great distress and the specific usage of the word Empty suggests that she was feeling hollow and empty inside. She was surrounded by dark clouds of terror, misery, and death. She used art as a means to release her anguish and anxiety and her innermost feelings.

Another major point to be highlighted is that Anne was aware of the two personalities she possessed. By this, we don't mean to say that she had a split personalities rather we focus on the fact that she was facing an internal conflict. She mentions that at times she was Anne who is impulsive like any other teenager. We can consider Anne to be irrational, childish, and immature. She would pick up fights with her family member and thought that she only was the right person with the right thoughts. But at times she behaved more gracefully, in a mature manner. She tried to understand what her parents and her sister is trying to explain to her. She was more calm and composed and thought twice before taking any action. Eventually, the fear of being killed vanished from her heart and mind. She mentions that though she could see Aircrafts flying over the Annexe she felt fear no more. This may be

because at this point she started to accept the reality rather than living in denial. Probably she accepted the fact that one day each one of us has to leave this world behind and so will she.

Anne Frank Suffered from Post-Traumatic Stress Disorder

Posttraumatic stress disorder (PTSD) is a psychiatric disorder that may occur in people who have experienced or witnessed a traumatic event such as a natural disaster, a serious accident, a terrorist act, war/combat, or who have been threatened with death, sexual violence or serious injury. People with PTSD have intense, disturbing thoughts and feelings related to their experience that last long after the traumatic event has ended. They may relive the event through flashbacks or nightmares; they may feel sadness, fear, or anger; and they may feel detached or estranged from other people. People with PTSD may avoid situations or people that remind them of the traumatic event, and they may have strong negative reactions to something as ordinary as a loud noise or an accidental touch.

The majority of symptoms of PTSD could be seen in Anne Frank. She had difficulty maintaining healthy relationships with her parents and other inmates. She had nightmares that would scare her. Once she had a nightmare that one of her best friends Haneli was being dragged by the Nazi military and taken to a concentration camp. Her friend's clothes were torn she accused Anne of leaving her behind in misery and pain. One rational explanation for this could be that she was guilt-ridden. She felt as if it was her mistake that she was quite safe in the Annexe as compared to her friends.

Eva's Story: A Survivor's Tale by the Stepsister of Anne Frank

The 1988 edition of this book, begins where Anne Frank's ends. The girls were close friends in childhood, but Anne, her sister Margot, and their mother succumbed, while Eva and her mother survived. It is an entire account of the Holocaust as it occurred in the Vienna- Holland journey — the Nazi invasion, hiding in Amsterdam and being deported to Auschwitz- Birkenau. There is a full account of the author's experiences there. They survived because of the support that the mother and daughter, and her mother's friend who had an important position in the infirmary, gave to each other despite the starvation, illness, and relocations. The post-war period is equally interesting — their surfing the fluctuating tides of Russian advances and retreats, and finally victory with its own challenges — especially the immediate post-war period in Russia among the various camps that were converted into hospitals and DP camps. This has always been one of the best-told accounts of this period of history and bears testimony to the courage of the human spirit and the phenomenon known as “camp shvesters” or camp sisters It made all the difference between survival or not. This edition includes an interview with Eva Schloss who was reunited with Otto Frank after the war, and her mother eventually married him.

CONCLUSION

It can be concluded that Anne Frank's "Diary of A Young Girl" holds different emotions and the text is still relevant in contemporary times. Especially after the post-pandemic scenario, we have been through almost a similar type of mental change and trauma by being bolted inside our houses for months, isolated from our families and friends. Though we didn't have a man hunting us down and taking the life of the human race but a deadly virus that had an immense impact on the world at a global as well as societal and individual level. One thing we can learn from what we have been through and from the life of Anne Frank is no matter what the situation is, we need to find a way out of all miseries of life. Life is never easy and probably is unjust, it is in our hands if we choose to remain cheerful or not. As Anne Frank mentions in her diary,

“I don't think of all the misery, but of the beauty, that remains.”

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CHAPTER 15

PORTRAYAL OF WOMEN IN ‘HAMLET’: A FEMINIST EVALUATION

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ABSTRACT

Hamlet, a tragedy set in Denmark is the longest play written by William Shakespeare was published somewhere between 1599 and 1601. It is considered one of the greatest works in literature. It is still widely performed due to its portrayal of diverse characters with specific traits and problems that they face.

Ophelia is another character of the play but being a woman, we observe that her character is often patronized and foreshadowed by the male characters of the play. In this research, the author performs a qualitative study on how the patriarchal society ill impacted women during those times. A detailed review of Ophelia’s character will be done, which shall help understand the portrayal of women in literature and how it was also an imitation of the struggles of women in real life during the Shakespearean times. Through this, we can scrutinize the ways through which women were oppressed and how the oppression persists even today in different forms.

This research will analyse the different ideals of femininity and how traits of an “ideal” woman were used against women that robs them of their human feelings as portrayed in the play through the characters of Ophelia and Gertrude. The paper will also trace how these ideals have persisted through the years in altered forms and have been constantly used against women.

Reading the play from a feminist point of view will shed new light on Ophelia’s character and how her struggles still hold relevance. A study on the mistreatment of Ophelia by Laertes, Polonius, and Hamlet that ultimately led to her death is essential as it shall sensitize the readers towards women’s struggles and aid in viewing them through a different perspective.

Keywords: Ophelia, Hamlet, Women, Oppression, Mistreatment, Feminism

INTRODUCTION

Oppression against women has persisted long since recorded history, and patriarchy has settled its roots deep into the culture of our society. Literature is said to be the mirror of society, and aptly so. What literature offers us is merely a reflection of the cultures, traditions, experiences, and thoughts that had prevailed in those times. However, injustice has been done to the portrayal of female characters throughout history, they have often been portrayed as one-dimensional subordinate characters, with no depth and complexity to them.

Shakespeare's works have often been a reflection of the society and general nature of humans. 'Hamlet' set out to be the greatest tragedy written by Shakespeare revolving around the motifs of vengeance and addressing essential philosophical questions of life and humankind which was one of the reasons for its great success and relevance even today, yet it lacked one aspect, that is the portrayal of Ophelia and Gertrude in the play. This becomes particularly disappointing for young women, to read a distorted view of women portrayed in such a dim and limiting light with no potential to grow and expand as a character. When analysed through a feminist lens, the representation sets out to be a façade, where those characters could have been given an edge and an original personality, straying away from the general conventions. Whether it can be considered as a flaw or a genius improvisation by Shakespeare according to the face of society in those times.

England at that time held immensely patriarchal views, that oppressed women and deprived them of their basic rights. They couldn't own property and needed to marry to protect themselves and have a legal guardian for their child. They didn't have the right to be educated and were forbidden from schools and universities which automatically debarred them from working in medicine and law. The patriarchal nature of Elizabethan culture meant that males were regarded as the leaders and women as their subordinates. Women were considered "the weaker sex," in terms of both, physical and emotional strength. They were dominated and controlled by their husbands once they were married and when single, they were supposed to be cared for by their father, brother, or another male relative.

The paper aims to review the representation of the women in the play 'Hamlet' and how they have been portrayed in a dim light, constantly patronized and foreshadowed by the male characters in the play. It goes on to infer from the representation of Ophelia, how these ideas of stereotyping are still relevant in society. It is an analysis of Ophelia and Gertrude's character, scrutinizing the 'ideal' traits of a woman and gender roles being represented here and how did the patriarchal setup in those times shape the female characters. The paper shall review the play through the principles of feminist literary criticism.

Feminist literary criticism is literary criticism that is influenced by feminist theory or, more broadly, feminist politics. It deals with "the ways in which literature (and other cultural productions) reinforce or undermine the economic, political, social, and psychological oppression of women" (Tyson 83) It criticises literary language using the principles and philosophy of feminism and examines gender roles in old texts and strives to eliminate gender inequalities, demanding for equal, respectable and better representation of women in literary works and various genres.

LITERATURE REVIEW

There has been a significant change in how women were portrayed then versus now. It owes to the feminist movement and constant thriving of women to improve the scenario for women throughout the world.

Wildan Swash Adnan, the author of "Psychological feminist reading of queen characters in Shakespeare's Hamlet, King John, and Henry VIII" has researched upon the queen characters in Shakespeare's plays that aims to "provide the reader with an overview of the queen

characters as important figures of the period.”The author has concluded that women are portrayed as immoral beings according to textual evidence. But the author believes that the absence of the word “strong woman” doesn’t simply imply that strong women did not exist. The women of Shakespearean plays are important as they create conflicts and contribute (whether indirectly) to the main action and have been seen to be put in challenging situations that they have bravely handles, hence enunciating their “strongness”.

In the essay “Shakespeare’s Representation of Women” by Mathilda Samuelsson, the aim is to analyse the importance of the female characters in Hamlet that are, Gertrude and Ophelia. By deconstructing the characters of Ophelia and Gertrude in the play, an understanding of the portrayal of women in ‘Hamlet’ by Shakespeare is established. The author concludes that Gertrude is rather a strong woman, contrary to what the play depicts. The author believes that Gertrude’s actions have a rational behind them, that is “to rule for the state’s interest”. The author also proves the madness of Ophelia to be rational and declares her suicide as an act of independence and self-reliant decision making.

Even though the portrayal of the women in Hamlet seems irrelevant, Ophelia and Gertrude when deconstructed, have a new depth to their characters. They are strong women who try to take control of their actions and life even under the suffocating patriarchal society.

SEEING OPHELIA THROUGH A FEMINIST LENS

“We can imagine Hamlet’s story without Ophelia, but Ophelia literally has no story without Hamlet”-Lee Edwards

Can we describe Ophelia in one sentence without mentioning her as a love interest or her physical appearance?

Written between 1599-1601, ‘Hamlet’ is regarded as one of the most powerful and popular tragedies in English literature. It is centred around the prince of Denmark seeking vengeance for his father’s treacherous murder, by the present king of Denmark, Claudius. As a common trend in Shakespearean tragedies, the story had only one hero or at the most two (in love tragedies).

Ophelia is the ardent lover of Hamlet. She is depicted as a beautiful woman who is as tender as a flower. When represented in contemporary drama, she is depicted with flowers in her hair, delicate and pure. Ophelia serves as a typical example of the stereotypical representation of women in history under a patriarchal setup. She checks off all the traits of an ‘ideal’ woman. She is a young, beautiful lady who is liked by everyone. She is obedient and submissive and does what is told, without arguing or keeping her perspective in the forefront. Ophelia’s actions do not play a fundamentally significant role in the plot and it can be argued that her character was only formed to fulfil the void of a ‘love interest’ in the story, without any further development.

Ophelia doesn’t try to get out of the patronizing and suffocating situation that she is in, at every point in her life, her actions are dictated by her father and brother. Her not attempting to change her suffocating condition can be justified by the historical and cultural context of those times. The play is set in an extremely patriarchal society where if she would have not

obeyed their wishful commands, she would have been shunned by the society or even worse. It can also be that she is so brainwashed and conditionalized to a life that she is living that she doesn't know anything right beyond it. She is unaware of the possibility of another life, a life of independent choices and freedom with access to rights. She has grown up in the absence of a mother, in a male-dominated household with her father, Polonius, and her brother, Laertes. She is submissive and obedient to them as this is the only life she has ever known. This can be seen when Ophelia replies to her father "I do not know my lord, what I should think.", indicating that she cannot think for herself. She has been made to believe that she is incapable of even thinking about what is right and that every thought that she ponders upon independently is supposedly foolish and naïve, and not worthy of consideration. She doesn't have a say in whom she can love, as she is ordered by Polonius to not meet Hamlet anymore. Polonius says to Ophelia, "you speak like a green girl," in response to Ophelia putting her faith in Hamlet's love for her. Polonius completely dismisses her thoughts, declaring her as foolish to have been seduced by Hamlet's insincere advances under the pretence of his love. He is also implying that Ophelia is incapable of being loved truly by a man and can only be used as a pawn in a man's ulterior motives.

The idea that a woman's reputation holds utmost importance is constantly perpetuated in the play. This idea is well depicted in the 18th-century novel "Pride and Prejudice" by Jane Austen. It portrays a society where a woman is supposed to behave in a certain way, and her reputation and character are sacred to her. The depiction of a society where if the woman doesn't conform to those social norms, making her vulnerable to become an 'outcast' in the society. Polonius says that Ophelia's reputation will be marred if the word of her affair with Hamlet gets out. This becomes a question of the woman's reputation, without a taint on the man's reputation. How is it that if Hamlet is dishonest in his love for Ophelia, it will be Ophelia's reputation that is at stake? Whether it be a consequence of an action of a man or a woman, it is the woman's reputation and character that is put up for society to dissect and scrutinize. Her image in front of her father and brother is what matters to her the most. They dictate her at all points in life. She has grown up in an age where women weren't treated as individual beings capable of making their own decisions or possessing emotions.

"Frailty thy name is woman," says Hamlet as he is frustrated by the ordeals he is facing and somehow it becomes a reason to attribute "weakness" to a woman's disposition. Hamlet forms this perception of women since his mother has incestuously married Claudius, the brother of his father. He declares women to be synonymous with weakness and implies that women are emotional beings who are so weak that their rationale is blinded by their emotions. Hamlet's further misogyny is depicted when he asks Ophelia to "Get thee to a nunnery!". He uses "nunnery" as a pun, on one side he means to say that she should go live in a nunnery, as with a religious community to preserve her chastity and never breed sinners like Hamlet. Here he is victimizing himself while also shifting the blame upon a woman to have conceived children that are sinners. His view of women is limited to their chastity and their ability to reproduce, perpetuating the idea that the only purpose of a woman is to procreation. And if it is the man who turns out to be a corrupt, immoral being, it is upon the woman who has conceived him. On the other hand, he means 'nunnery' by the slang term also known as a brothel, indicating that she should overindulge. This is a reflection of his misogynistic view

on women and their lustful and deceiving nature that he has decided upon through the example of his mother. He believes that every woman shall commit adultery and declares it as their inherent nature. From this, we come to the idea of basing a woman's modesty and dignity in her chastity. The idea that a virgin woman is pure has long been prevalent in many cultures and still prevails today. Indian culture for one, is obsessed with a woman's virginity. Before marrying, it becomes extremely essential that the woman is a virgin. This idea was seen in the "Ramayana", a popular Sanskrit epic in the Indian subculture, when Sita had to prove herself as "pure". Women are viewed as entities, they shouldn't have been "touched by another man", they are assets to the husband and must conform to the social norms that prevail. Ophelia sets out to be an example of a "pure" woman. The idea of chastity is so deeply and ardently emphasized in the play, that it tells us that a woman's chastity held importance even in Elizabethan era. In another instance, Ophelia mentions to Laertes, "I would give you some violets, but they withered all when my father died:" The violets are again symbolic of the modesty and chastity of a woman. Upon the occasion of Ophelia's funeral, Laertes speaks, "Lay her i' th' earth, And from her fair and unpolluted flesh May violets spring!" Laertes expresses pride in the fact that Ophelia's "flesh" is "unpolluted", that she is a virgin. It is seen as an emblem of purity and virtuousness. Even the choice of words, i.e., "unpolluted" he uses to refer to her virginity is deeply rooted in misogyny, implying that a woman who is not a virgin is "polluted". 'Virginity test' is a practice to determine whether a woman is a virgin or not, which is highly discriminating and dehumanizing and places her self-esteem and her whole sense of belonging in her virginity. It is extremely shameful and horrifying that these tests still take place in parts of the world, and are common in Afghanistan, often practiced without the woman's consent. These notions of "ideal womanhood" encourage these practices and further perpetuate misogynistic notions.

We do not know what Ophelia was actually like, as her role is negligible and even the small part that she speaks is influenced by the male characters of the play. The only instance that can be argumentatively seen as an act of independence is her drowning herself. It can be seen as an act of independence on her side, finally sick of being patronized and undervalued, she performs an act of retaliation, unauthorized by anyone.

As society transcended into modern forms of expression of art, there has been a significant improvement in the portrayal of female characters. Yet it only happens to represent a very basic and cliched representation of a "strong female character". This tag of a "strong female character" has rather become a marketing gimmick than an empowering motive. It is often that the female characters have their own goals, visions, hobbies, their interests and are powerful, strong, and individual beings. But as soon as the plot moves further into the climax, the female character suddenly loses the utter power that was depicted at the initial stage of the drama/movie and becomes "feminine" and "petite", like a damsel in distress, waiting for the male hero to overshadow all her qualities and power proceeding to save her. Or the main plot that female characters contribute to the plot is by being killed or captured. They are often depicted as product of their love life, and their physical appearance. Even in old texts, women's characters were only dichotomized into "good" or "bad". While the male counterpart's character had depth, complexity, and flaw(s). The male character was made interesting, demanding, and powerful contrary to a woman's character; she could either be

the cruel villain or the love interest of the her. In Shakespeare's other play namely, Macbeth, the character of Lady Macbeth has been given a certain depth but is still only the cruel, ambitious villain of the play. We also see this in 'Hamlet', where Hamlet and the other male characters have been portrayed as complex, intelligent beings with humane flaws while Ophelia and Gertrude are portrayed as unjustifiably shallow.

CONCLUSION

We see how Ophelia and Gertrude become paradigmatic of what it meant to be a woman in those times. Exploring Ophelia's characters through instances from the play, we understand her perspective, possible causes for her actions, and her circumstances. This paper sensitizes the readers toward women's plight in early times, not to only portray them as victims but to take away an essential understanding of a woman's circumstances and their social and political situation. This research paper calls upon an increased awareness and consciousness of the misrepresentation of female characters in male writings in literature and modern artistic expression. Females are stereotypically portrayed in a negative light by male writers, and thus are perceived as weak and incompetent by society as a whole, according to some feminists.

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