3.3.2	**Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five years**
	3.3.2.1. Total number of books and chapters in edited volumes/books published and papers in national/ international conference proceedings year wise during last five years

HEI Input :

2022-23	2021-22	2020-21	2019-20	2018-19
6	10	39	1	1

3.3.2 Number of books and chapters in edited volumes/books published and papers published in national/ international conference proceedings per teacher during last five year

S.No	Name of the teacher	Title of the book/chapters published	Title of the paper	Name of the conference	Calendar Year of publication	ISBN number of the proceeding	Name of the publisher
1	B Rajani	Programming with C	NA	NA	2018	ISBN:978-93-5273-375-0	Himalaya
		Biochemistry for B.Sc., 2nd year by Telugu Akademi	NA	NA	2019	978-8181805959	Telugu Akademi
	Dr. S. Ravi Kiran						
Year 2020							
1	Dr. S Ravi Kiran	"Impact of Lockdown on Education, Economy & Environment in India	Mother earth is taking deep breath and nature is recouparating - A positive impact of Lockdown on environment in India	NA	2020	ISBN:978-93-89817-31-7	Ideal International E- Publication
			Teaching education for the adopion of virtual learning : An envitable measure created due to outbreak of COVID-19				
2	Dr. Meera Joshi	Impact of lockdown on Education, Economy and Environment	COVID-19 Lockdown ramifications on Education in India: A broad perspective	NA	2020	ISBN:978-93-89817-31-7	Ideal International E- Publication
3	Mrs. Raga Sudha Jonnada	Impact of lockdown on Education, economy and environ	The Pandemic's Impact on the Environment	NA	2020	ISBN:978-93-89817-31-7	Ideal International E- Publication
4	Dr.B.Leelamani	"Impact of lockdown on education, economy and environ	Lockdown: A practical means to contain the contagion	NA	2020	ISBN:978-93-89817-31-7	Ideal International E- Publication
5	Vasudevan	Impact of Lockdown on Education, Economy and Environ	COVID -19 and Environment-An oppurtunity to reboot planet Earth	NA	2020	ISBN:978-93-89817-31-7	Ideal International E- Publication
6	M Padma	Impact of Lockdown on Education, Economy and Environ					
7	G.Sunitha, G. Bindu	Advances in Science, Technology & Commerce and Man	Effect of stress on immune system	National E-Conference on Advances in Science, Technology & Commerce and Management	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
			Human-animal conflict with a focus on Asian elephants-veterinary care	National E-Conference on Advances in Science, Technology & Commerce and Management	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
8	Bindu C.S	Advances in Science, Technology & Commerce and Man	Disese in Diabetes Mellitus	Conference on National E-	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
9	Dr. B. Leelamani	Advances in Science, Technology & Commerce and Man	Nanotechnology-Based Drug Delivery system	Conference on	2020		Jupiter publications Consortium
10	P. Shailaja	Advances in Science, Technology & Commerce and Man	A study on Online marketing during covid	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
11	K.Sujatha	Advances in Science, Technology & Commerce and Man	insight to customer expansion in E-commerce	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
12	Unnamalai C	Advances in Science, Technology & Commerce and Man	Robust ways of Artificial intelligence in commerce	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
13	Radhika D	Advances in Science, Technology & Commerce and Man	Entrepreneurship-A case study of Jai...	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
14	Madhuri P	Advances in Science, Technology & Commerce and Man	The impact of chinese products on indian Markst	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
15	Mamatha R	Advances in Science, Technology & Commerce and Man	Online crimes in times of COVID-19	conference	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
16	K.Sunitha	Advances in Science, Technology & Commerce and Man	cyber security				

No	Author	Book / Conference Title	Paper Title	Type	Year	ISBN	Publisher
17	Chamundeshwari G	Advances in Science, Technology & Commerce and Mar	consument towards private lables in Hyderabad	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
18	K. Suresh	Advances in Science, Technology & Commerce and Mar	The summons faced by E-Commerce players	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
19	Haneesha K	Advances in Science, Technology & Commerce and Mar	Artificial intelligence based Autonomous vehicle	National E-Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
20	Arjuna Rao R, C.Suvana Lakshmi	Advances in Science, Technology & Commerce and Mar	Digital Forensic science on web browsers	National E-Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
21	Um prakash yadav & V .V.R Raman	Advances in Science, Technology & Commerce and Mar	The role of IOT,logistics&supply chain Management (LSCM) in industry 5.0	National E-Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
22	Padmini S ,I Madhavi	Advances in Science, Technology & Commerce and Mar	middle class income Group with regard t Banking	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
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31	J Vinita	Advances in Science, Technology & Commerce and Management	A study of Customer satisfaction toward restaurant	National E-Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
32	Sowmya Mohan Akhilesh	Advances in Science, Technology & Commerce and Mar	Impact of COVID-19 on indian IT employees	Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
33	P Jyothi	Advances in Science, Technology & Commerce and Mar	India	National E-Conference on	2020	ISBN:978-93-86388-38-4	Jupiter publications Consortium
34	Dr. B. Leelamani	Exponential transition of management practices and impl	CORONAVIRUS OUTBREAK	transition of	2020	ISBN:978-81-935201-9-2	Jupiter publications Consortium
35	Kumari Shalini A & Navaneetha N	Quality Education for all during Covid-19 crisis	Higher Education in Pandemic Era	NA	2020	ISBN:978-93-90154-59-4	Twentyfirst Century Publications
36	Akhila P	Biotechnology for Sustainable development	Adenosine Deaminase (ADA) deficiency : Are We	Biotechnology for Sustainable	2020	ISBN: 978935379253	Immortal Publications
37	Sangaha Mokshavi P	Biotechnology for Sustainable development	Role of Long Non-coding RNAHI9 in chronic myeloid leukaemia(CML)	Biotechnology for Sustainable	2020	ISBN: 978935379253	Immortal Publications
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39	G. Rahul	NA	NA	NA	2020	ISBN:81-9447-410-8	knrn PUBLICATIONS

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No	Author	Paper Title	Book Title	Type	Year	ISBN	Publisher
1	Dr.ShiVhar Biradar	Aadhunikta Hindi Sahity mein Naari Vimarsh"	Hindi sahithya me naari ka roop	National Level	2021		Aadhikaran Prakashan Delhi
2	Dr. B. Leelamani & Dr. V V R Raman	Women Empowerment in Digital India	Women- Enablers of change	International	2021		Vaagdevi Publishers
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7	R. Heena	Women-the multi tasker		International	2021	ISBN:978-93-85132-17-9	Vaagdevi Publishers
8	S.Lakshmi, J. Hariprasada Rao, Dr. Viswanadam Bulusu	Women- Enablers of change	A Comparitive study on Video conferencing tools:Meet,Zoom Microsoft Teams	NA	2021	ISBN: 978-93-90953-34-9	21st century Publication
9	Dr. Meera Joshi	A study and Mathematical and computational models in the context of COVID-19	Computational Modelling and Data Analysis in COVID-19	NA	2021	ISBN: 978-0-367-68036-7 (hbk), IS...	Taylor and Francis Group-CRC Book Press
10	Dr. B. Leelamani	Recent challenges in science, engineering and technology	Multi-dimensional Visual Stimuli of Face	NA	2021	ISBN:78-81-947388-5-5	Krishna Production House

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No.	Name	Title of Book	Title of Chapter / Paper	National / International	Year	ISBN / ISSN	Publisher
1	Dr V Nagavani	Role of Probiotics and Prebiotics in stress regulation: A F...	NA	NA	2022	ISSN:978-81-921823-0-8	Vagdevi publications
2	Dr. Shivhar Biradar	'Hindi Sahitya Evam Manaviya Muly'	"Ethics and humen values through literature"	International	2022	ISBN:978-93-95104-08-1	Parikalpana, Ajit Vihar,Delhi
3	Dr. Shivhar Biradar	Marathi Tatha Hindi Ka Santh Sahitya Tulanatmak Adhy	21 Vi Sadi Mein Tulanatmak Sahitya Ka Mahatva	National	2022	ISBN:978-93-94138-09-4	Saileja Prakashan, Kanpur,UP
4	Vasudevan R,M,Padma	Emerging Trends in Commerce, Management, Languages, Science & Technology	Crispr- A novel approach towards a fortified immune system	NA	2022	ISBN: 978-81-921823-0-8	Vagdevi publications
5	V.Sirisha	Python Programming Essentials for Artificial Intelligence	NA	NA	2022	ISBN:978-93-94002-52-4	Scientific International Publishing House
6	Dr.ShiVhar Biradar	"Dussehra"	NA	National Level	2022	RNI No.HIN/25443/75	Rashtra Nayak Prakashan

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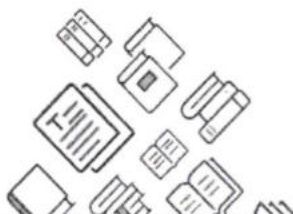
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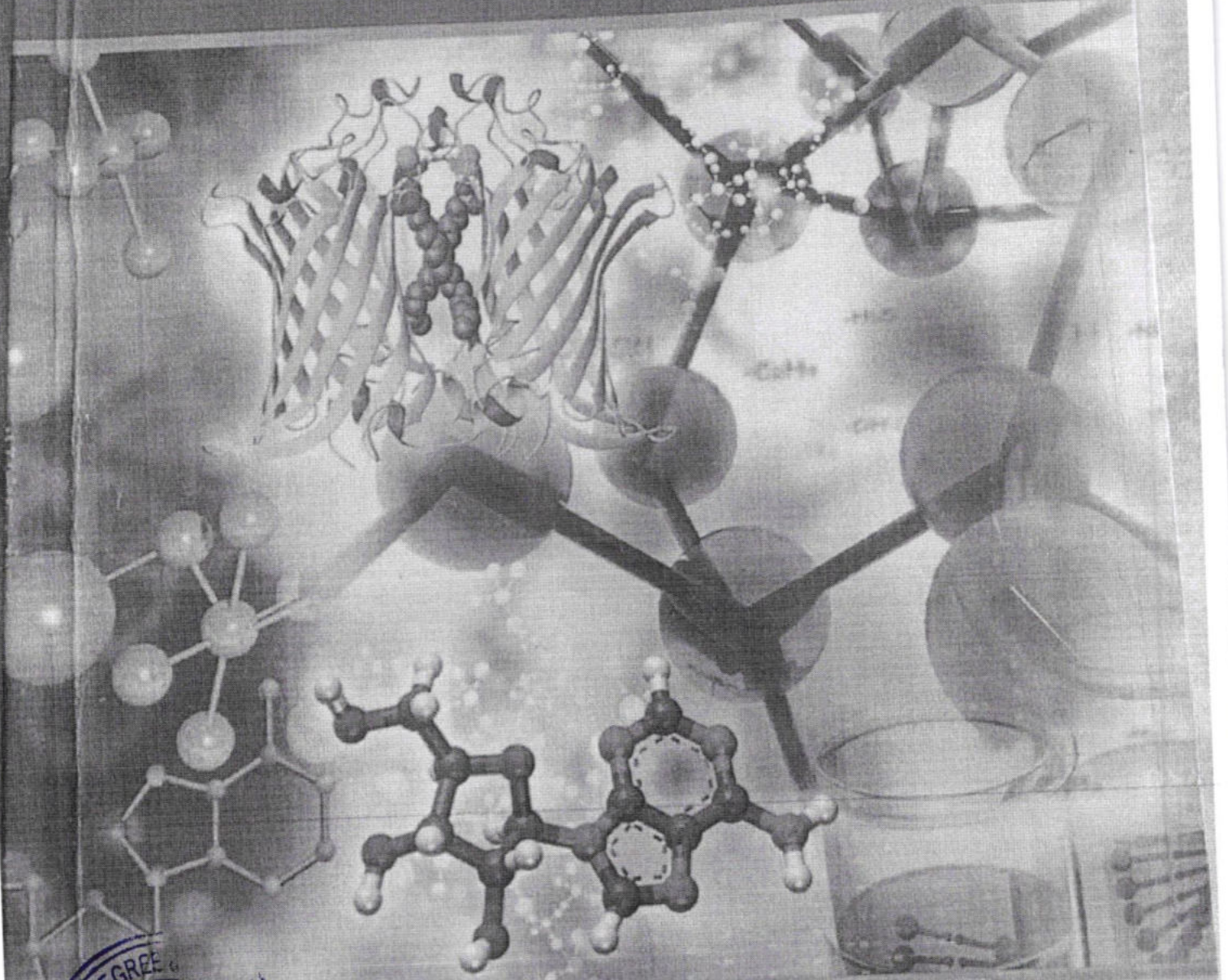
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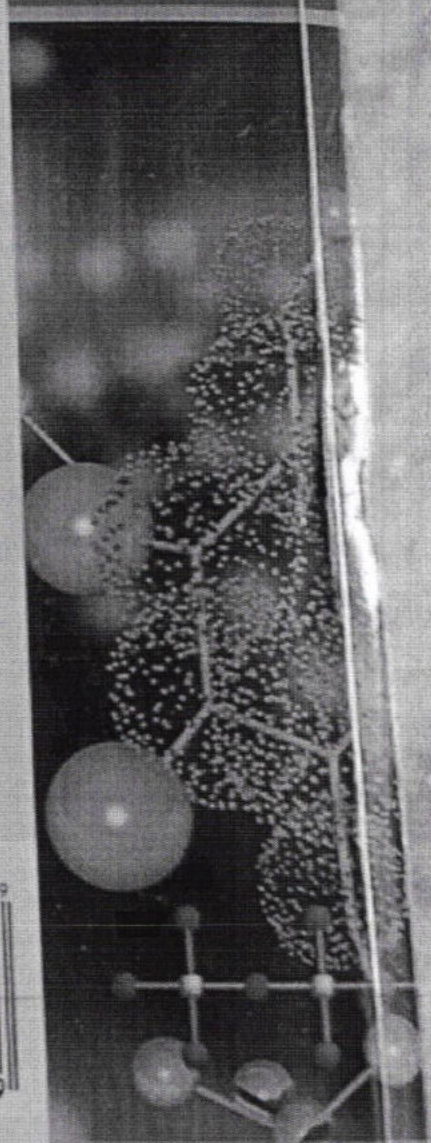
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MOTHER EARTH IS TAKING A DEEP BREATH AND NATURE IS RECUPERATING – A POSITIVE IMPACT OF LOCKDOWN ON ENVIRONMENT IN INDIA

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Abstract

The covid-19 pandemic is measured as the most critical global health calamity of this century and the utmost ever challenge faced by mankind worldwidewhich is responsible for more than 90,000 deaths. Despite of large dependency on Mother Nature, human beings ignored to conserve the natural resources for future generations by sustainable development and because of this the beauty of earth has lost. This led to the nature to take revenge and showcase its feelings to the mankind. In this regard, Covid-19lockdownwhich was introduced by the Government of India has struck a chord in every person to rethink on the importance of nature in day to day living. Because of this lockdown, tangible improvement has been taken place in nature which is an eye opener to human beings. This is the need of the hour that everyone to join hands and save the mother earth. This aim of this paper is to highlight the tremendous environmental changes that took place in the lockdown period in India.

1. Introduction

In COVID-19, 'CO' means 'corona,' 'VI' means 'virus,' and 'D' represents disease and 19 signifies the year. The covid-19 pandemic is known to be a great threat to the public across the globe and considered to help as an indicator of discrimination and paucity of social progression. Eventually every continent got affected by this and approximately 2.6 million affected cases and 183,820 deaths have been documented worldwide because of this calamity (Chakraborty and Maity, 2020). It is well known that human beings are very good at manipulating the nature for their own benefits since time immemorial. The increasing population, rapid industrialization and urbanization have been proved to be detrimental to the environment and led to the cause of pollution, climate change, depletion of water and other natural resources etc.(Bremer et al., 2019; Coutts et al., 2010). Global warming a serious alarm worldwide is because of high levels of greenhouse gases such as CO_2, CH_4, N_2O etc. Human beings started destroying

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TEACHER EDUCATION FOR THE ADAPTATION OF VIRTUAL LEARNING: AN INEVITABLE MEASURE CREATED DUE TO THE OUTBREAK OF COVID-19

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Abstract

The outbreak of covid-19 pandemic has traumatized the world in all fronts and fields.   The number of covid-19 positive cases if increasing exponentially on each passing day. To control the dangerous spread of pandemic almost fifty percent of the world is under lockdown. The lockdown pressed the system of education to face some situations and challenges like never before. The teaching and learning process is one of the fields which has been thriving to become better and better over the years. In this paper some of the challenges faced by the teacher and the learner are discussed along with some solutions or recommendations with a special focus on the teacher education for adapting effectively to the Virtual learning system of education.

1.Introduction

The access to information at the finger tips has generated demand for internet based teaching and learning. "The learning that takes place partially or entirely over internet" (US Department of education,2010) is defined as online education or virtual education. The educational environment is virtual when the interaction between the student and the teacher is with the help of Information and communication tools or technologies (ICT). Traditionally the on-campus teaching and learning is in lecture halls and laboratories. So far before the outbreak of covid-19 the education was mostly on campus in face-to-face mode. Although in some situations the ICT is used strategically to enhance the students learning experience and it is not a regular consistent practice.

After the outbreak of Covid-19 pandemic we have seen a sudden rise in use of ICT and the virtual teaching learning practices. There was no time gap to absorb this swift and sudden change both for the teacher and the learner. In a way we can say that, it was forced upon them to move to virtual educational

environment due to the necessity of completing the course work in time. The University Grants Commission(UGC) insisted that the course work must be completed through the online educational platforms in order to minimize the loss to the students in terms of not losing an academic year. Due to such circumstances the teachers suddenly started to even think about using online platforms for teaching. The availability of apps for implementation of online education is no doubt very encouraging. In this Scenario it is important to understand whether the teachers and learners are exposed to such practices of performing educational activities with the help of technology. It is also a question which needs attention, whether both are prepared to handle this situation with a positive outcome in terms of having knowledge about usage of various ICT. The virtual education can contribute significantly in the present period of lockdown provided the teacher and the student are aware of the information about ICT and usage of technology to promote virtual education environment. Currently controlling the pandemic is the priority but at the same time moving forward positively with life cannot be neglected. In moving forward, the academic activity is the core for any society. It is important to understand the challenges in this system to make it more productive.

1.1 Evolution of online education

The online education began in late 20th century. In Online education the teaching and learning might not happen simultaneously (Moore & Kearsley,2011). In the initial stages, the online education used chat rooms, instant messaging and texting (Sun, A., & Chen, X. 2016). The invention of @ symbol in 1972 for use in email(Maloney-Kirchman & Abras, 2003) followed by World Wide Web (WWW) in 1991for internet connectivity (Harasim,2000) were adapted as the platforms to host online education. Online education's adaptations later extended to working together via Google drive, Google Docs, Google hangout etc. Later came the era of Massive Open Online Courses(MOOCs) for self-motivated individuals based on their learning goals, prior knowledge and skills (MC Auley, Stewart, Siemens and corner 2010, Schoeder,2012). To provide easy accessibility to quality education by larger segment of learners the model of MOOCs was introduced in 2008 by Universities and Corporate sectors also (Sun, A.& Chen, X. 2016). Some of them which are worth mentioning are Edx in 2012 by Harvard University and Massachusetts Institute of Technology, eduMOOC in 2011 by university of Illinois Springfield., Coursera in 2012 by five universities – Princeton, Stanford, California/Berkeley, Michigan-Ann Abor and Pennsylvania together.

3.Factors of governing the phenomenon of virtual learning

The factors governing online education can be classified into two categories. They are 1)Infrastructure or facility related   2) Skills required for the teacher and learner.

2.1 Infrastructure/ Facility related: (Both teacher and Learner)

The major factors under this category are the availability of resources like the required electronic device or gadgets, Internet connection with reasonably good bandwidth,acccess to different types of Information and communication tools (ICTs).

2.2 Skills related

2.2.1Teacher

- Awareness about various Information Communication Tools(ICTs) to make the course more interesting and student friendly. Gaining the expertise over the usage of the ICTs by attending the trainings or by experimenting with these tools which can further contribute to the designing and conducting of a fine quality course .

- Designing the planned and structured flow of the courses in terms of reading material, lectures, assignments keeping in view the clear learning goals.

- Strategizing of assessment methodologies that sync with the level of difficulty and with the learning objective.

- Timely feedback and proper attention to the doubts posed by the learners.

The studies have shown that courses that facilitated increased performance and satisfaction were interactive. This provides the learners with the insight that kind of skill they are learning, its application in the current research scenarios. All of these factors involved in satisfaction come down to instructional and course design. Instructors should provide timely feedback and serve as facilitators of discussion and interaction just as they do in traditional courses. Based on the interest and abilities of the learners the instructor can also help the learners by referring to the resources that lie beyond the purview of the course so that the highly skilled learners can extract the maximum by learning. Courses should provide

opportunities for peer collaboration and sharing of ideas in order to develop an online community of learners, rather than feelings of isolation.

2.2.2Learner

- Awareness about various Information Communication Technologies.(ICTs) and the capability to use it for learning.
- Learner must be self motivated and self-directed so that they could have maximum benefit out of the courses.
- Having good time-management skills to complete the course in certain convenient time limit and pace without procrastinating work.
- Ready to be patient enough to collaborate with peers and colleagues as these collaborations are via digital platforms so they are time consuming processes.

The learner characteristics which contribute to positive outcome of course must be understood critically for optimizing the online learning experience. The online learner needs to be independent along with being aware of their responsibilities. Learners need to work consistently with a positive attitude being aware of needs and good management of emotional factors. In online education system the learner cannot expect a immediate assistance or support for understanding the concepts. So the learner must have patience without getting frustrated till some assistance is found.

3.Positive impact of the process of online Learning

The online learning is effective in giving a firsthand experience by watching the course videos, diagrams, animations etc. It motivates the learners to involve in learning abstract concepts with ease. Online education meets the needs of a student who struggles to learn in conventional classroom due to inhibitions or attitude issues. The learner can communicate with teacher through chat, email or phone in a personalized manner. It gives learner a feel of personal attention by the teacher. This system of learning improves the productivity of learners by enhancing professional skills to meet global demand by choosing a online course which are congruent with the learners career objectives. The access to the course work is easy. It promotes participative learning with the help of discussion boards, assignments, seminars, blogs etc. It is possible to grasp the concepts or theories as the learner can watch the lecture video again and again till the clarity is obtained without disturbing the teacher and one can learn at their own pace without compromising on self-respect. Virtual learning happens a tension free environment because the human

psychological parameters that play a role in influencing the learning of an individual are least in action while in this process.

3.1 The Times of Virtual Learning: Outbreak of the Corona Pandemic

The outbreak of the covid-19 pandemic was very shocking to the whole world as it started shaping as the most dangerous outbreak of a virus since the historic times. Even the education system was forced to accept this challenge. All the education institutes were shut and the students and teachers were not allowed in the institutions premises to hold classes. As a result the entire education system came to stand still point for certain amount of time. It took some time to absorb the shock but the educationists were keen to continue the education of the learners community without friction despite the vulnerable circumstances and the challenges posed by the virus. Then the only solution that surfaced for this problem was to opt to a different mode of learning i.e the online Learning.

3.2 Relevance of online education in present scenario of lockdown:

The online system of education which has many advantages is perfectly suitable or rather inevitable during the lockdown period imposed to control covid-19 pandemic. Since everyone has to stay indoors the only mode of communication with the outside world is through the digital sources or internet web. Hence if the learning has to happen it can happen only through the online classes, emails or various applications. The study material and assignment can be sent and received though mails or applications. In the same way the classes for completion of the syllabus must be conducted online. The online education is more safer compared to the conventional education with the practice of social distancing. The online teaching keeps the spirit of the students intact with regards to their connectivity with their study. Because of the lockdown though the economy of any country might suffer from a crisis but it would be more hampering to the country if its students and the education system loses its stability and track. As once the lockdown resumes, it would be more difficult to stream line the system of the country if the students and the education system goes out of flow. And the prevailing of the online education or the online classes keeps the stundent herd focused towards learning. As they are constantly occupied with work which implies that this way online learning contributes to the successful prevailing of the lockdown. It also minimizes the negative impact on environment caused due to transportation and manufacturing. Presently it appears that this mode of education is conserving many natural resources like petrol and electricity.

4.Challenges involved in implementation of online education for teachers and students:

4.1 Challenges faced by teachers and solutions/recommendations to overcome challenges:

- The most important challenge which is being faced by teachers presently is lack of resources. The teaching fraternity is not able to access the library physically for reference in preparing reading material and assignments. Though there is an option of accessing the e-books exists yet it does not fulfil the need to the full extent due to copyright issues in most cases the books (especiallly the prescribed books) could not be downloaded/ accessed. The teachers prepared the reading material with difficulty. The teachers had to type the material or scan it in order to send it to students. In some cases the material was uploaded in their respective websites. Since the situation emerged unexpectedly the reading material was prepared in a very short stipulated amount of time. The efforts were made in shorter time to achieve the learning objectives. This outlines the realization of the requirement that the teachers community though involved in the conventional teaching system should always have a digital copy of their teaching or reference resources as they can be easily shared and help the students in such ordeal times.

- The second issue which had to be resolved was completing the syllabus with the help of online classes. Under normal circumstances there is no institution in India which gives complete priority to the the online education system. Even in all the premiere level institutes or premiere universities the traditional classroom system of education prevails. The awareness with regards to the applications which help in conducting online classes was also almost negligible. The teaching community over came this challenge by gaining awareness about the applications and by learning to use them. They started the online classes. Another hindrance in managing this process was lack of internet connection of good bandwidth and power cuts.

- The faculty is not aware of the various Information Communication technologies (ICT) available for the smooth and effective conduction of online classes. There are various colleges, Universities and institutes which are organizing webinars on ICT. It is a very positive trend which has emerged for enhancing the skills of the teaching community. But one should remember "Rome is not built in a day". The efforts are being made by the teaching group towards learning tools for conducting effective online classes. They are organizing and attending webinars but that is not going to serve the purpose. They need to master using all the features of the applications/technology by working with it consistently. The whole traditional classroom experience from writing on board to interacting with learners must be brought into the online

class. For making this experience accomplishing the faculty needs to spend time during their home-lockdown period to develop such skills. Experts have expressed that this pandemic will stay with us for quite a long duration it has become mandatory for the teachers to gain these skills at the earliest. The number of experts in the field of ICT is also limited so it is suggested that the teachers explore and find technology which enables them in overcoming this challenge. Even post lockdown for some period it is expected that the teaching learning process is going to be online.

- Another aspect which is not yet addressed by any institute or University is conducting the term end exams or evaluation process in general. In addition to huge strength of student community, lack of resources is making this task difficult. Presently some adhoc measures are being suggested and are being implemented but these measures are going to put stress on the system in upcoming days and months. All the online exams which are being conducted mostly as entrances for admission into universities are in the pattern of multiple-choice questions (MCQS) which are easy to evaluate but the term end exams are a combination of descriptive and MCQS. If they are changed to MCQ pattern the ability of students comprehension cannot be tested. So, a lot of brain storming needs to be done to resolve this problem or a new technology has to emerge so that the things start moving in right direction.

4.2 Challenges faced by students and solutions/recommendations to overcome Challenges

- The most important challenge which is being faced by students presently is lack of resources.30 to 50 percent of students do not belong to the same place at which the educational institute is located. Most of them are from small towns, small villages or some remote place where the internet access is very negligible. In these circumstances it is impossible for the learners to join online classes. Even contacting through mail is not possible. With this kind of state of affairs, the student is bound to lose a lot of learning activity.

- Another major challenge is that of constructive usage of technology for learning purpose. The awareness about various online learning resources is insignificant among the students. The awareness is better among the students of engineering streams but it is poor in case of students from conventional or non-professional courses. The incident of pandemic was so sudden that the student community was not prepared to handle it. There is hardly a very small percentage of students who are making efforts to utilize the online courses for their skill development.

- As discussed in the previous section in this period of lockdown the students or learners need to be more self-regulated and self-motivated than the normal times. It is observed that the students are not utilizing
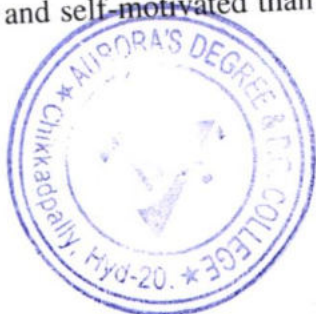
the time to optimum in building their potential as they lack the ability to plan, monitor and reflect on the strategies to succeed in academic field. It is observed that there is lack of discipline among the students who are not self-regulated and they delay and postpone the academic work. They are disorganized to the level that they are not utilizing ability of thinking in the pursuit of knowledge. The parents and teachers have a great role in drawing them our of this mindset. The parents can spend time and counsel them about proper utilization of time and their energy. Motivate them to take up some online course for their benefit. The teachers can also motivate the students for proper utilization of time & energy. The teachers can also assign some work related to academic curriculum or beyond the curriculum for optimal use of time and energy of students. The activities must be planned and assigned depending upon the capability of the student so that they feel encouraged to do it and earn knowledge or some skill.

- In this period of lockdown, the students are having lack of community and social connectedness. This might lead to a situation where they may feel lost and isolated which is a greater challenge. It is possible for the students to get connected using digital sources it cannot replace the face-to-face campus interaction between student to student, student to teacher. They are missing the extracurricular and co-curricular activities which are held at the campus. It is responsibility of all of us that is the teaching fraternity and the institutions need to maintain the communication with the learners to maintain the academic and moral tempo. It is to be appreciated that many institutes are conducting online quizzes, webinars and many such activities keeping the teacher and the learner fully absorbed in the education related activities.

5.Conclusion

The lockdown due to outbreak of covid-19 has exposed us to many unprecedented challenges. We all know that facing challenges leads to new opportunities. This lockdown has given the teachers an opportunity to change and redefine their pedagogy of teaching and adapt the online mode of education. This has created a necessity for the teacher to learn various Information and communication technologies (ICTs) to be used for education process. The up gradation of knowledge and skills of the teachers is mandatory even in the time of crisis. The effort made by the teaching community in upgrading their own expertise during this challenging period of emergency caused by lockdown will determine the outcome of achieving success in overcoming the present challenges. The more the teaching community enlightens itself will lead to generate best results and practices which can be implemented to strengthen the education process and make it dynamic and positive to face any kind of challenges. A teacher is first a

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learner forever, even during the lockdown period. This mindset of the teachers must be transferred to the students. This is an opportunity for the students to focus on themselves and their work without paying attention to other factors. If this is understood and the actions are taken accordingly by the students under the guidance of teacher the student would be a transformed professionally into a better student by the end of lockdown period.

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2020   Maths

8

COVID-19 LOCKDOWN RAMIFICATIONS ON EDUCATION IN INDIA: A BROAD PERSPECTIVE

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Abstract

The COVID-19 pandemic and lockdown measures throughout the world and specifically in India have several ramifications on the Education system. There is a sudden unexpected shift from the traditional classroom based education system to an online based education system. The lockdown has given a good opportunity and ample amount of time for the young students to acquire new skills through digital platforms, to learn moral and family values through frequent family interactions and being more hygienic in addition to attending the online classes conducted by educational institutions. On the contrary there are various challenges with online education system and closure of the educational institutions. This situation requires quick reforms in the education system to embrace digital technology and encouraging personal development of the student fraternity.

1.Introduction

In lieu of the ongoing COVID-19 pandemic disease and subsequent closure of schools & colleges, Department of Education, Government of India has recommended resuming teaching & learning process through online classes for the student fraternity. This Online Education system serves as a good interim solution in the current lockdown situation when social distancing has become a norm to prevent COVID-19. However, the lockdown and online education system has both pros and cons and require quick reforms in the education system to embrace digital technology which we shall go through in detail in this chapter.

2.Personality development of students during lockdown

The lockdown and subsequent closure of educational institutions in India has immensely helped in keeping the Covid-19 infection & fatality rate low when compared to many other developed countries as of mid of May 2020. This strategy reduces people from being exposed to the virus which in-turn saves valuable lives amongst whom the future generation potential leaders, scientists, astronauts & entrepreneurs can thrive towards making India a super power.

This lockdown has given an opportunity for students to spend quality time towards learning new soft skills through digital devices, media & other latest technologies which would vastly improve their knowledge and talents and make them competent in the modern day world. It has also given students who are always under stress some essential leisure time as they are able to interact with family members at home and the extended family through virtual platforms and thus by the exchange of ideas amongst the family members and imparting of wisdom from the elders onto the younger one's is an invaluable process taking place for the students at home while also involving themselves in doing household chores. Many students are now learning to be hygienic all the time and the meaning of the quotes "cleanliness is next to godliness' & "health is wealth" is now being truly understood and put to work by them.

3. Traditional classroom benefits:

Due to the lockdown & closure of educational institutions, students and teachers both are finding it difficult to cope with the missing physical teaching classroom environment.

Traditional classroom education involves a lot of interaction between students & teachers and students & their peers. As teachers through years of acquiring the teaching skillset possess good classroom management skills like maintaining eye contact with the students during teaching as it effectively is the most proven concentration fixating technique which draws the students to understand the subject in an easy way. Also, in typical physical classroom setup if the students have any doubts on the subject, they can inquire about it in the classroom right away and get them clarified. Teachers can also cite various relevant examples for student's clarity, based on mass understanding levels in accordance with the needs

of the subject/topic. But during virtual online classes as there is limited time and teachers have limited control over the students the above said elements do not work with the same efficiency.

The extra-curricular and co-curricular activities that take place inside educational institutions make the students physically & emotionally, active and strong. These activities are also the stress busters. A lot of learning happens through these activities. Competitive spirit, understanding levels and individual personalities develop through such activities. Students simultaneously also improve their spoken, written and social skills while being at the educational institutions and also during their interactions with their peers. So the all-round development of the students is hindered to a large extent due to the long stay at home during lockdown, physical activities at educational institutions with their peers is also a big miss for the students. Hence the student's life being restricted only to the family environment can cause a major impact on social skills for the students especially for those who are already passive.

4. Challenges with online classes:

As many of the teachers and students lack formal training about virtual/online teaching, the quality of teaching and learning seems to be reduced. The problem of Teachers dealing with technical glitches is altogether another domain which needs a special mention as they seem to be struggling to maintain good quality audio, avoiding noise disturbance, using mute/unmute features, using proper presentation modes, etc. While younger school students unable to maintain constant attention to the online classes is been another struggle of sorts. Also, it has been observed that even many college students are unable to work on the assignments effectively or not putting much thought into them as much as they do during classroom training.

To top it all, many of the students from under-privileged families do not have the opportunity to utilize the online classes due to the costs involved for necessary Laptops/Computer desktops/smart phones, Internet, etc. Some students also face imminent distractions during these online classes as they are called for by their parents to help them in agriculture and other occupational works etc. in order to meet their ends during the ongoing difficult times of lockdown amidst covid-19 pandemic.

5. Student perspective:

When we look at the impact from students' perspective at various levels of education, there are mixed feelings among the students. Students aspiring to seek admission in major professional courses are very

much confused and areuncertain about their future as their scheduled examinations got postponed and their routine time table got abruptly disturbed.

The mental health of the students is also taking a huge toll as it is building anxiousness and creating lot of stress due to the uncertainty created by the lockdown extensions as well as due to the rapid spike of Corona cases. A long wait for the vaccine & medication to tackle the virus and also the effect of this pandemic on the global economy which is resulting in the reduction in the number of jobs are also affecting the students enormously.

However, students who are not career oriented and are already addicted to high screen time are getting more addicted now which in turn causing health issues like eye problems, weight gain and certain psychological disorders. As the students get habituated to the present circumstances of lockdown staying at homes, laziness can increase and the zeal of learning may reduce. This can lead to decrease in motivation for education and raise in dropout rate of the students. The students who are in real pursuit of acquiring knowledge always try to find ways to make the best use of available free time and resources. They can spend time on completing various certificate courses, learning new languages, developing new skills & hobbies, gaining in-depth knowledge in subjects of their liking, understanding their own strengths & weaknesses and utilize the time constructively for their career planning.

Many universities, libraries and publishers are making e-books, book series and videos available for free or discounted rates for students. Some are conducting workshops, webinars and online competitions through media for attending from home itself and ensuring continuity of learning during the lockdown. Students can take advantage of these and scale up their knowledge and skillsets. As physical activities like sports, drills that are usually mandatory in educational institutes for student's well- being are missing during lockdown, it is important for the young people to continue physical exercise at home and stay fit.

6.Parent perspective:

If the closures of educational institutions continue for longer time then the parents may fall prey to negative thinking and assume burden to pay the educational fees/ transport charges/rents and in turn may opt for Distance Education or home schooling for their wards while also forcing their children to take up small odd jobs while studying through Distance Education system. For students coming to cities from rural areas for education, their parents may find it better that their ward may rather get occupied with their

family occupations and can do better in those fields rather than staying away from families and risking Covid-19 infection.

7.Loss of food benefits:

InGovernment schools & colleges, where food benefits are usually provided towards extra nourishment for students and since these institutions are closed due to covid-19 pandemic, the students who are mostly under-privileged also happen to miss their food benefits. This can lead to malnutrition and reduction of immunity and in turn make them vulnerable to Covid-19 infection and compensating the same by providing extra nourishment towards their children would bring more woes to the parents who are already dealing with existing stress and anxiety due to lack of livelihood during this pandemic.

8.Life lessons from the pandemic for students:

As Covid-19 impacted education globally every student in the world is feeling the impact and slowly the students do get adapted to the new situation. Students have learnt lot of life lessons and values during this pandemic and lockdown. They learnt being more hygienic, eating hygienic food that is cooked at home and using limited resources effectively as new non-essentials cannot be bought during the lockdown. They also learnt minimalism and quickly understood the importance of time, family bonding, health, education, money and survival needs. These values cannot be taught in such a short span of time at the educational institutions.

In future, the present generation students as now are being forced to learn lives most valuable lessons can withstand any crisis as this experience of pandemic and lockdown has increased many moral and ethical values among the youth. These life lessons will definitely be useful and will be passed on to the next generations.

9.Reforms required in Education System:

The following measures can be implemented to bring about reforms in the Education system to embrace digital technology and to encourage personal development of the student fraternity:

- Every teacher at every level should get trained and gain in-depth knowledge in Information and Communications Technology (ICT) tools in order to conduct the online classes in an efficient way.

- At every level of education, one or two subjects should be imparted through online platform or self-learning through digital media even after the lockdown is lifted.
- Every student should be given the details of various websites, SWYAM Courses, free educational TV channels such as SWAYAM PRABHA, DEEKSHA, foreign universities offering free online certificate courses, digital apps, virtual museums, virtual tours of universities and digital books in the libraries which are either free or can be bought.
- With time, institute managements must change their policies, fee structure, facilities they provide to staff and students.
- Institutes should also provide some tripods, white/black boards with markers, teaching aids for facilitating teaching from home. Besides conducting regular classes, they should organize some fun events using online classes, quizzes, asking what students have learnt, making videos, anything that is fun to make the learning process as more interesting.
- Universities to have advisory/health centres/information sites for COVID-19 or other infections.
- It would be great if personality development classes are made compulsory at every level of education.
- Changes in the examination patterns would also be required.
  a. Online exams to be increased
  b. Open book system for some of the exams to be included
  c. Credits for extracurricular and co-curricular activities
  d. Credits for good citizenship, adherence to hygienic practices and social responsibility
- Competitions on future problem solving, creating innovative digital apps, Artificial Intelligence (AI), etc. have to be introduced on a large scale among student fraternity.
- The bright and talented students can impart training to the lower classes students under few bridge courses and awards/rewards/ cash prizes/certificates can be given to them, which increase the soft skills & confidence for the students and also enable knowledge sharing among student community.
- Students to devote more time for self-learning.
- Promote reading books (Fiction/Non-Fiction) from a very young age.

10. Conclusion

Considering all these aspects it is imperative for the students, parents, teachers and management of educational institutions to adapt to the changing times while supporting the initiatives of the governments,

embrace digital technology in education systems and ensure a bright future for the youth and bring glory forIndia.

No Pandemic can stop a learner to learn and a teacher to teach when both are passionate in doing so!

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https://coronavirus.jhu.edu/map.html

Chapter has been authored based on
- Author's personal educational & family life experiences as an individual & citizen of India.
- Opinions of my family members & friends who are academicians & experts in various fields and from couple of bright students.

2020
Biotechnology

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THE PANDEMIC'S IMPACT ON THE ENVIRONMENT

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Abstract

An environment is a natural unit consisting of biotic factors in an area functioning together with all of the abiotic factors of the environment. Environment plays an important role in healthy living of human beings. It matters because it is the only home that humans have, and it provides air, food and other needs. Humanity's entire life support system depends on the wellbeing of all the environmental factors. When India imposed a nationwide lockdown a week ago, it was designed to stop the imminent spread of the novel corona virus. The sudden fall in pollutants and the subsequent blue skies signal a dramatic shift for India- which has 21 of the world's 30 most polluted cities, according to the IQAir Air visual's 2019 world Air Quality report. COVID-19 and the consequent lockdown underscore the fact that equity has to be fundamental to improving the environment and is central to any vision of sustainable development. And this means equity between nations, within generations, and across generations. It is our collective duty to find a way forward on the environmental question that does not put the burden of resolving it on the workers of the world. Our national environment makes human life possible and our cultural environment helps define who we are. It is therefore essential that our population and economic growth are environmentally sustainable. The corona crisis also presents India with an opportunity to invest in a clean energy future.

. Introduction

India is currently under the biggest lockdown.In view of the outbreak of **Coronavirus**, about 130 crore people have been asked to stay home. As the Coronavirus pandemic spreads globally, threatens lives and destroys the world economy. It also has a profound impact on the environment. India is home to 21 of the world's 30 most polluted cities. While the complete shutdown of India's economy was designed to stop the spread of Covid-19, it is having an ancillary health benefit of cleaning the air that millions of people were choking on. The world's largest Coronavirus lockdown is having a dramatic impact on pollution in India.

The lockdown order **shut down** offices, schools, movie theatres, malls, markets and non-essential service providers. All modes of public transport such as metro trains, buses, inter-state trains, domestic and international flights for civilian movement have also been stopped.In a matter of months, the country has been transformed. It is all aimed at controlling the spread of Covid-19, and hopefully reducing the death toll. But all this change has also led to some unexpected consequences. As industries transport networks and business has closed down, it has brought a sudden drop in Carbon emission.In order to curb the spread of new Coronaviruses, pollution and greenhouse gas emission have declined across the country(Fig II).

As lockdown kept more people at home and the traffic was overwhelmed, the streets plagued by pollution all over the country became empty, tiresome and quiet spaces(Fig I).The pandemic has turned the world outside our doorsteps into a newly formed wilderness. Now in addition to the necessary workers, public spaces are areas that can be ventured into, so for most of us, our world has shrunk to the size of houses.
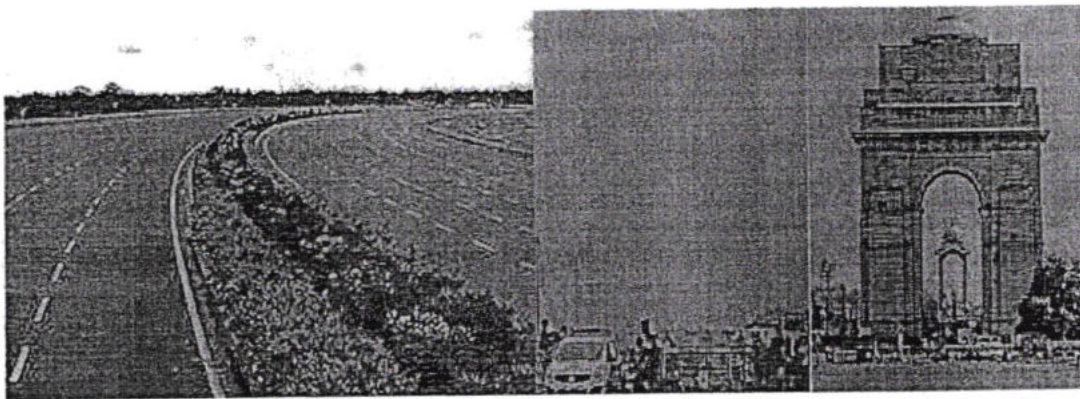
Fig I: LOCKDOWN ROADS IN INDIA Fig II: POLLUTION FREE INDIA

All of these are unexpected upward trends in the Coronavirus crisis.Facts have proved that global air quality can be significantly and rapidly improved.The change has been created by lockdowns that have grounded flights and shut factories. But **environmentalists** warn it could be temporary.The central government that is our **Honourable Prime Minister Shri Narendra Modi**has urged people to avoid unnecessary travelling, significantly reducing the traffic movement across the country.

It is the lockdown impact which resulted in local factories like shutting down of industries and construction and traffic have contributed in improving the air quality. Rain is also helping, but the curbs on local emissions are playing a significant role.

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According to the data of the **Central Pollution Control Board (CPCB)**, the air quality in the national capital is presently in **"good"category**. Under the "good" category, pollution is considered to be at the lowest and the air is believed to be the healthiest to breathe. Moreover, 92 other cities with CPCB monitory centers have recorded minimal air pollution, with the air quality in the range of "good" to "satisfactory".

Amidst gloom, there is a silver lining. **Mother earth seems to have rejuvenated itself**. Smog has given way to blue skies(Fig III), marine life is seeing an increased activity and pollution levels have dropped and animals as well as birds are moving about on their own accord(Fig IV).The load of **plastic and non-biodegradable waste was reduced**.The recent heavy rains in the north and west of the country have also helped the country's pollution levels. Rain is a very effective aerosol removal process from the atmosphere and can bring down particulate matter values.
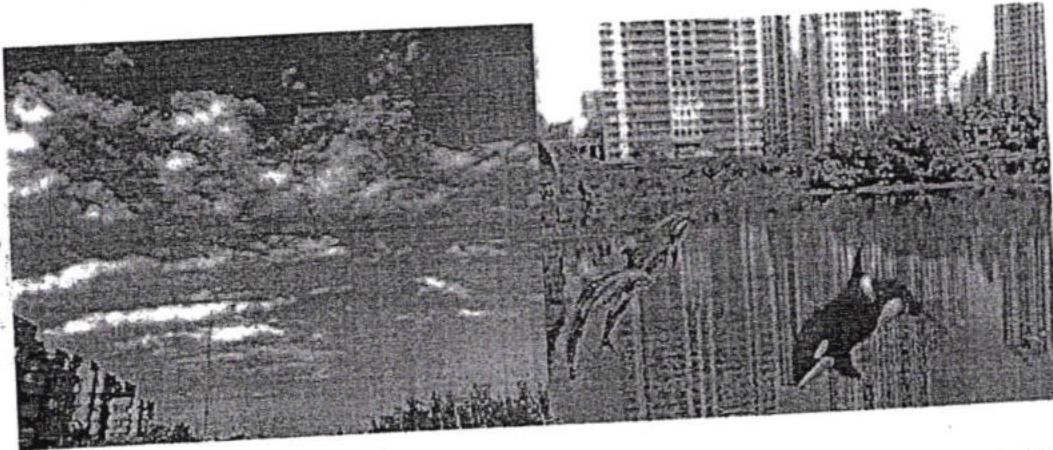
Fig III: BLUE SKIES DUE TO LOW POLLUTION   Fig IV:DOLPHINS APPEAR DUE TO AMIDST LOCKDOWN

Due to the lack of cars, emissions of **Carbon dioxide, Nitrogen dioxide** and other pollutants and fine particulate matter. Its impact on oil prices has not caused much implosion.The pandemic's impact on the environment has been staggering. Carbon emissions from the burning of fossil fuels are heading for a record 5.5-5.7% annual drop.In Delhi, air quality is usually the worst city in the world. Due to traffic congestion, the pollution has dropped by 59%, and pollution caused by PM 2.5s has been reduced by about 75%.India's capital is one of the world's most polluted cities, wild animals are roaming boldly in locked down cities(Fig V), and many people can see the Himalayas(Fig VI).
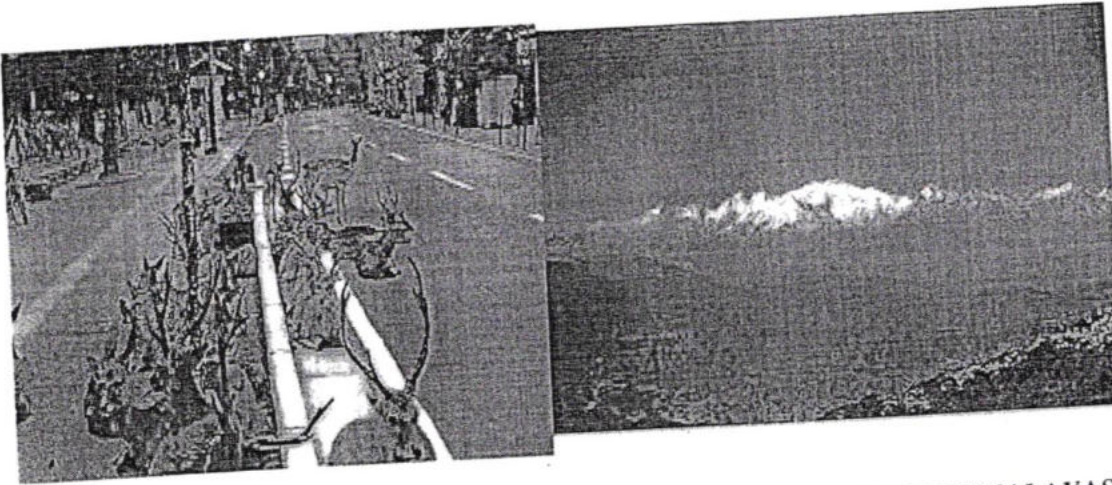
FigV: ANIMALS RECLAIMING CITIES   Fig VI: CLEAR VIEW OF HIMALAYAS

The data from the **Central Pollution Board (CPCB)**, part of **India's Environment Ministry**, was collated by the **Centre for Research on Energy and Clean Air (CREA)**. Nitrogen dioxide also have a 71% fall. Mumbai, Chennai, Bangalore and Kolkata have also recorded a fall in their air pollutants.

According to the center run **System of Air Quality and Weather Forecasting and Research (SAFAR)**, the impact of the measures taken due to the Coronavirus outbreak has resulted in a drop in fine particulate pollutant by 30% in Delhi and by 15% in Ahmedabad and Pune.The level of Nitrogen oxide pollution, which can increase the risk of respiratory conditions, has also reduced. Nitrogen oxide pollution is mainly caused due to high motor vehicles traffic. In Pune it has reduced by 43% and in Mumbai by 38% and in Ahmedabad by 50%.Welcoming the reduction in pollution, environmentalists urged the government to treat it as a **"wakeup call"** and stop its **"obsession"** with **"development"** at the cost of the environment.

On 22ⁿᵈ **April, Earth Day** catalyzed calls for the current crisis to be a turning point in our relationship with nature. We need to turn the recovery into real opportunity to do things right for the future. Just like Coronavirus, green home gases do not respect national borders.Cleaner air has perhaps been the single greatest positive effect of the lockdowns on the environment.But not all the environmental consequences of the crisis have been positive. Volumes of non recyclable waste have risen, severe cute in agricultural and fishery export levels have led to the generation of large quantities of organic waste, maintenance and monitoring of natural ecosystems have been temporarily halted, and tourism activity to natural areas has ceased.Due to the decline in exports of agricultural and fishery products and the decline in production levels, the unemployment rate in both sectors has increased significantly.
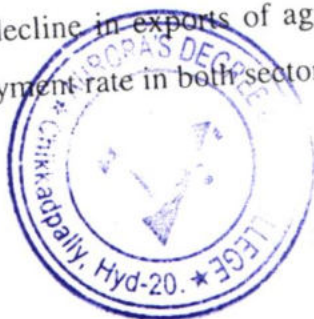
Our homes will need to change too. In an effort to make them more energy and heat efficient, many workspaces, flats and apartments, blocks don't have operable windows. But if we are going to be spending more time indoors, our homes will need to be better ventilated and offer more light. There is a need to avoid something called **"Sick Building Syndrome"** which happens in entirely sealed and start re-circulating pathogens through their systems.All food generates greenhouse gases to reach our plates, but when nearly a third of it is thrown away as waste, each spoonful of food was responsible greenhouse gas emissions before it even got to your plate.The **cultivation, processing, packaging and transportation** of the food we eat all cause climate change.

Air Quality Index (AQI) is a very reliable indicator that reflects the level of air pollution and is therefore a good way to understand the impact of the lockdown, at least on our lower atmosphere.Due to the Coronavirus pandemic and the subsequent social and economic impact, attention must be paid to the threats to the environment and natural resource base from the environment and natural resource base.

2. Conclusion

Many of the environmental challenges caused by Coronavirus crisis will gradually resolve on their own once the crisis comes to an end and previous levels of economic activity resume.The present generation will discover the critical importance and need for a focus on public health and the quality of air we breathe. Centre has provided the list of districts falling under **the red, green and orange zones** to the state. The classification depends on the number of active cases and the doubling rate.

All India Institute of Medical Sciences Director**Mr.Randeep Guleria** said India should brace itself for a jump in cases, with modelling showing the peak of infections and the community support is needed to fight the virus and contain it. Health Ministry Joint Secretary**Mr.Lav Agarwal** said it is possible that with adherence to social containment, India may never hit the peak. But as we talk about relaxations and return of migrants, it is important that we learn to live with the virus and practice behavioural changes. So **"learn to live with the Coronavirus"**.The environment and economy are really both two sides of the same coin. If we cannot sustain the environment, we cannot sustain ourselves.

"Be a part of the solution not part of the pollution".

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LOCKDOWN: A PRACTICAL MEANS TO CONTAIN THE CONTAGION

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Abstract

No one would have expected in their wildest dreams that an invisible creature would have silenced the entire world from the perspective of regular routine. Perhaps, the world would have not come across this term 'lockdown' as much as it did over the last few months. No one would have expected a situation that has stagnated the world for months and the current situation is one of its kinds in the history of human evolution to be witnessed by the human race. The amount of impact as a consequence of the health crisis has been regarded as one of the most crucial conditions that have manifested the life style of humans. As a matter of fact, the ongoing scenario has been an acid test to all the citizens of the nation because of the extent of psychological impact it imposed on people. The world is under health emergency due to the crisis of the ongoing pandemic that forced people to manifest their routine. Lockdown was the only feasible measure to counteract the intensity of the pandemic by reducing social gathering. Since, several studies claims the spread of the disease among people through contact, lockdown has indeed reduced the spread of the disease to a greater extent by ensuring social distancing and self quarantine measures. As of now the nation has been closed for almost 45 days as an attempt to curb down the disease outbreak and it might possibly extend based on disease intensity in days to come. The current write up attempts to comprehend lockdown and emphasizes on the measures implemented by government to imp nationwide lockdown.

1.Introduction

Though humans are considered as alpha from the point of view of their existence, survival and adaptation, several challenges has in turn questioned this claim which indeed has envisaged a different perspective. Since the dawn of time, human beings have adjusted to cope up with situations and circumstances that have confronted them at every point of their lives. Environment has undeniably framed the extent of social behavior among humans which enables them to mend their ways according to the circumstance. It could be a valid point to make that manifestations in the surroundings will trigger the circumstantial behavior among humans. A very similar scenario is being experienced by people all over the globe because of a nanoscopic biological particle that has taken the world by its stride and has provoked nations all over the globe to impose restriction on the residents and lockdown has been the basis for instigating
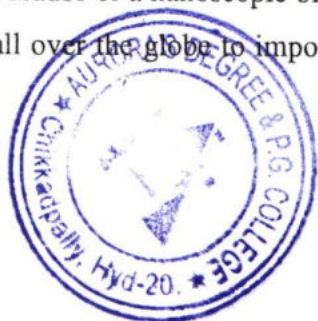
awareness among people against the pandemic. It started on the 24th of March 2020 when the government of India has decided to lock the country [Gettleman *et al*, 2020]. Till then no one would have come across a term lockdown which has gained prominence due to the outbreak of the pandemic that has been terrorizing the lives on the planet. Lockdown was the only option to counteract the mass clinical manifestation that was brought upon the human race. In simple terms, lockdown was an attempt to cope up with the global health crisis in order to reduce contact transmission among people. India was not an exception to the global pandemic but was in a better position from the context of the number of cases in comparison to it neighboring contenders. When the lockdown was initially implemented in India, the number of positive corona cases was 500 which have exponentially increased over the due course of time [Gettleman *et al*, 2020]. However, reports have claimed that the lockdown has certainly reduced the outbreak of the pandemic in India which was shown to spread at a rate of doubling for every six days by April 6th to eight days by April 18[th][Shekar Gupta, 2020]. Lockdown has indeed changed the perspective of people towards life as it has been an acid test to people all over the world and has tested their psychological abilities. In fact, in the history of mankind it was for the first time that everyone on the planet regardless of their financial position was on the same contour. The health crisis that aroused as a consequence of global pandemic has had the same impact on every individual. As a matter of fact, every aspect of a nation from the context of public welfare and development was severely hampered. Various facets ranging from public to private domain was stagnated.

1.1 Official and authorized cue

Different government and non government organization were forced to hold back on their policies due to the nationwide lockdown. Though everyone was equally experiencing the impact of the crisis, the poor people and those who depend on their daily earnings for survival were the ones to receive the severe impact due to lockdown. In spite of the several constraints among people from the context of their usual routine, several organizations has requested for the extension of lockdown in an attempt to curb the intensity of nCoV-19 disease [India Today, 2020]. Lockdown has completely changed the lives of those who bank on daily wages because the daily wage workers have completely lost their income due to the ongoing lockdown. As a matter of fact, the Government of India has further extended the lockdown in an attempt to curb the intensity of the disease which has further deteriorated the conditions for those who are under the poverty line. In Orissa and Punjab the lockdown procedure was extended till May 1st after the end of first phase which was later implemented in states like Maharashtra, Karnataka, West Bengal and Telangana [HT Digital Streams Ltd, 2020 & Bennett, Coleman & Co. Ltd, 2020]. However, the

Government has taken the appropriate measures to ensure the safety and modesty of those who got estranged during the lockdown and has sent those people who have commuted from different parts of the country in search of work to their respective places through special trains. On the 14th of April 2020, the central government has decided to further extend the lockdown till the 3rd of May 2020 with some relaxation in areas that are less affected or have been strictly contained after the 20th of April 2020 [Livemint, 2020]. The lockdown has also had its impact on multinational firms like the IT industries and has led to an upsurge in recession which has risked the job of many employees who are on the verge of losing their jobs. The economy has gone in to doldrums due to the stagnation of every single deals/contracts/businesses/matters etc due to lockdown. Though the intention of imposing restrictions on various activities through lockdown was to reduce the outbreak of the clinical manifestation, it has severely impacted the normal lives of the people and it would probably take around few years to restore the conditions as they were in the past. The lockdown not only affected the industries and government policies but it also had a stern impact on the academics and the education system. Universities and colleges all over the nation have been closed up to 3rd May 2020 which might be further extended depending up on the situation and the scope of having regular classes seems to be impossible for the current academic year.

The schools, Colleges and academic institutions may remain closed even after the end of the third phase of lockdown that is scheduled to end by May 3rd 2020 [www.indiatoday.in, 2020]. The lockdown has indeed given rise to an ocean of questions in the young minds about the fate of exams and degrees. Students in the final year who are about to pass out are extremely in dilemma about the conductance of the examination. However, center has provided clarity on this issue and has proclaimed that the exams will be conducted after the conditions are conducive and several Universities and colleges are conducting online classes to cope up with the syllabus.

2.Impact on our daily activities and behavior

But this cannot be considered as an alternative because technology cannot serve as the only option for coping with the academics because many students who have gone back to their home towns and villages may not have the access to these facilities. In addition, to these ill effects that has arises due to lockdown, another common aspect that we very often come across in news is the upsurge in domestic violence. The increase in domestic violence during the course of lockdown has reached its peak and has been an issue of severe concern [ngc.com, 2020]. As a matter of fact, the increase in domestic violence is an indication on
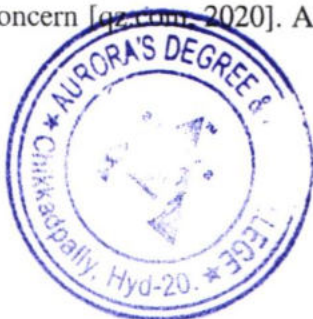
the psychological state of an individual during lockdown. Lockdown is used as a basis for imposing stringent norms for monitoring the situation during the health emergency and has in turn laid the platform for social distancing measures like self quarantine and physical isolation. Lockdown was regarded as the only means to combat the contagion because it was the only way to prevent public gathering in places like malls and other recreational centers like cinema halls and multiplexes [indiatoday.in, 2020]. Another main reason for prioritizing lockdown over the other options is the lack of a suitable vaccine or medicine. Since the contagion is known for its rapid outbreak through contact, lockdown was the option to avoid public gathering in an attempt to lessen the spread of the disease. In a different point of view, lockdown has also influenced the searching patterns of people on the internet. According to certain reports, lockdown has changed the way people search on Google as lockdown has increased the proximity between the people and online platforms. During these unprecedented times, while the nation is under lockdown, digital dependence among the people has exponentially increased as the people are utilizing their time on digital platforms in order to stay productive indoors during the shutdown [thehindubusinessline.com, 2020]. In a sense the COVID-19 pandemic has changed the way of our work.

It has changed our normal means of communication with others in comparison to the recent past. Technology has been the main medium of communication of formal and informal level among people during the lockdown period.

Hence it could be rightly said that the lockdown has in turn increased the dependency of people on technology. As many people are working from homes and they rarely step out of their houses, procurement of grocery also has been through online means in order to avoid public gathering. As a matter of fact, COVID-19 pandemic is creating a paradigm shift in the behavior of the consumer.

3. Lockdown Scenario

The previous section attempted to disclose the impact of lockdown on various sectors ranging from industries to academics and briefly deciphered the extent of changes brought upon the citizens due to lockdown. The current section will further add to the information and will expand the consequences of the lockdown by substantiating related facts. The first case of novel corona disease was reported on the 30th of January 2020 in the state of Kerala when a student travelled to the state from the Wuhan province of China [Ward, 2020]. By the mid of March 2020, the nCoV-19 cases closed up to 500 which provoked Indian government to impose stringent measures as an attempt to slow down the pandemic. On 19th March 2020, honorable PM, Mr. Modi has urged all the citizens of the nation to maintain self isolation on
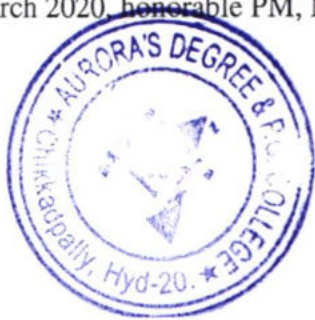
the 22nd of March 2020 as a mark of attempt to curtail the outbreak of the disease which was referred as Janatha Curfew. This could be considered as the onset of the lockdown. The Janatha Curfew which was imposed for the duration of 14 hours by the central government was extended to 24 hrs in states like Telangana which slowly got prolonged as it was very obvious from the speech of PM Mr. Modi who cited the People's Curfew as a stepping stone of a long battle against COVID-19. Every citizen were asked to strictly follow the norms of the janatha curfew by staying back in their houses with an exception of few essential services like media, medical and police services [BBC news, 2020]. At the end of janatha curfew on the 22nd March 2020 at 5.00PM, every citizen was urged to express their solidarity to all those including medical staff, police and media by clapping hands and ringing bells. The purpose of this act as instructed by the honorable PM was to express our appreciation to all those involved in essential services who have enlightened every citizen of the nation by risking themselves during the health emergency [India Today, 2020].

3.1 Impact of the first lockdown (25th March 2020- 14th April 2020)

It was on the 24th of March 2020 when PM Mr. Modi addressed the nation for the second time after his speech on the 19th March 2020. It was during his second live interaction with the nation when PM decided to shutdown the nation for 21 days. There was also scientific reason for this 21 days lockdown from the context of virus incubation period (the time from the initial contact to the first possible symptoms). It was a belief that if we stop the people from unwanted gathering, the intensity of the disease could be reduced and we have succeeded to some extent in evading the disease which is very obvious from the number of cases in comparison to countries like Spain France, Italy. The United States of America which is regarded as the most developed nation also couldn't stand a chance against the virus. The first lockdown in India was started on the 25th of March 2020 and lasted for 21 days. It was scheduled to end on the 14th of April 2020. Prior to lockdown on the 22nd of March 2020, the Indian government has suspended the Indian railway services easing on the freight operations during lockdown for the transport of essential goods. Official announcement was made by the Indian railways in accordance to the running of special trains apart from the regular freight operating trains for transporting essential goods and edibles [Republic world, 2020 & Nandi, 2020]. The lockdown has also witnessed desperate behavior of people as they were provoked to stock essentials in advance to cope up with dry period during the nationwide shutdown. Stringent action was taken on those who have violated the norms and regulations of the lockdown. The state and central government have done their part from the context of safeguarding the people by announcing special packages as relief fund for the poor and the affected

people. The packages were aimed at providing food security measures for poor households including medical insurance coverage [Nirmala Sitharaman, 2020]. The reserve bank of India on the 27th of March 2020 has announced apposite measures to mitigate the economic impacts of the lockdown [The Hindu, 2020]. On the 5th of April 2020, India has expressed its gratitude at the behest of the honorable PM to all those who were fighting against the contagion. The people have expressed their gratitude in solidarity for corona warriors by lighting candles, lamps and torches as an action of display in return to the selfless services offered by medical professionals, police, media and the municipal employees. This act of gratitude in support of selfless service lasted for nine minutes and was well received among the citizens. Towards the end of the first lockdown that was scheduled to be lifted up by 14th April 2020, the COVID-19 incidence drastically plummeted.

3.2 Second lockdown (15th April 2020 to 3rd May 2020)

On the 14th of April 2020, the central government at the orders of the PM has extended the lockdown for another 21 days up to 3rd May 2020 with a conditional relaxation after the 20th of April 2020. The relaxation was only applicable in the areas of strict containment of the disease. During the formal announcement of the lockdown extension, it was officially declared that every area will be thoroughly evaluated for COVID-19 containment and easing from the lockdown would be allowed based on the extent of emergency and the number of positive cases. The easing would be revoked in cases of the emergence of new cases after relaxation [Dutta, 2020]. The lockdown areas were later on divided into zones based on the extent of prevalence of the diseases and the most affected areas were identified as hotspots. It was on the 16th of April when the lockdown areas were divided in to red, orange and green zones with the red being regarded as the hotspot areas. The orange and green zone signifies the areas with moderate and no infections respectively [BBC, 2020]. The government during the second phase of the lockdown has decided to provide the ease on sectors like agriculture, dairy, aquaculture and plantations and also announced relaxation on these sectors including firms selling farming supplies. On the 29th of April 2020, the government of India according to the guidelines of the ministry of home affairs has allowed the interstate movement of stranded people who had come from different states on a daily wage pay. The ministry of home affairs has instructed all the states to frame a protocol to receive such people and screen them for through health checkups and send them to quarantine if they test positive to COVID-19 [BBC, 2020].

3.3 Additional extension (from 4th May 2020-17th May 2020)

The ministry of home affairs and the government of India on the 1st of May 2020 decided to further extend the lockdown by a couple of weeks till the 17th of May 2020 with some relaxation in some areas [Ministry of Home Affairs guidelines, 2020]. The country was divided in the zones based on the extent of COVID-19 prevalence and this status would be revised once in a week for updates on the pandemic. The areas under the red zone were strictly monitored without any relaxation. The orange zone areas were exempted from the public transport facilities with an exception of private transport and the green zone areas were permitted with 50 percent of public transport for normal movement. However, this extent of permissible activities could be revoked on the basis of COVID-19 incidence [India Today, 2020].

3.4 Further extension till the month end (May 2020)

According to the recent reports, the lockdown has been extended till this month end (May end) as an attempt to curb the outbreak of the disease which is scheduled to end on the 29th of May 2020 [livemint.com, 2020]. The lockdown in Telangana has been extended till the 29th of May 2020 which was made formal after the live media conference of the honorable chief minister. Restrictions were imposed on the people as they were asked to procure the essentials by 6.00pm and no was allowed to loiter out after 7.00pm. The curfew continues across the state from 7pm to 7am.

4.Conclusion

Humans and microorganisms have shared the same environment over the eons and this interaction between these biological entities has disclosed several hidden facts from the context human-microbe coexistence. As a matter of fact microorganisms have been employed by humans for research purposes in order to resolve scientific challenges and setbacks. However, the darker side of these invisible creatures cannot be denied as they are associated with several diseases capable of manifesting human health and well being. In the recent past, the outbreak of a pandemic resulted in worldwide health concern and has raised the necessity of appropriate measures for safeguarding humans. It could be rightly said that circumstances trigger the conditional behavior in humans. This statement could be validated from the current scenario that has indeed forced people to adapt a contrasting life style different from what it used to be in the past.No one would have ever expected that a disease would inactivate the entire globe but life never disappoints anyone because it is full of uncertainties. The nation has witnessed many facts over the last few months which have provoked the legal bodies to implement appropriate measures to cope with the health crisis that had become a global emergency. Though the first case of COVID-19 was confirmed on the 30th of January 2020, the shutdown of the nation as the only measure was imposed in March 2020

due to the concern over the health emergency. Since the implementation of the first phase of lockdown that started on the 25th of March 2020, the nation has witnessed several measures that were taken in accordance to the health crisis and safeguard the people. One of the main issues related to the disease is the lack of a suitable vaccine or medicine to counteract the efficacy of the disease. Hence, the only way to lessen the wide spread of the disease is by limiting public gathering and lockdown is the easiest way to achieve social distancing.

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COVID-19 AND THE ENVIRONMENT – AN OPPORTUNITY TO REBOOT PLANET EARTH

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Abstract

The COVID-19 outbreak is now a global tragedy. Hundreds of thousands have died, healthcare systems are buckling, and the future is uncertain for millions of people whose livelihoods are collapsing. COVID-19 is a reminder of how vulnerable even our modern, technologically advanced societies are. Covid-19 is an SOS signal for the human enterprise, bringing into sharp focus the need to live within the planet's 'safe operating space', and the disastrous environmental, health and economic consequences of failing to do so. Our economies, livelihoods and wellbeing all rely on nature, from the food we eat, to controlling our climate, regulating disease and providing spiritual fulfillment. Without nature, there would be no life. There have been both positive and negative indirect effects of COVID-19 on the environment.The symbiotic relationship between humans and all other life on Earth, stresses that preserving and sustainably managing biodiversity is necessary for mitigating climate disruption, guaranteeing water and food access, and even preventing pandemics.The credits and subsidies that many governments are handing out so generously in this moment are not just a necessity—they are also a chance to direct economic progress towards sustainable development. This is an important insurance policy to avoid future pandemics. A successful recovery from this global pandemic will be one that brings a new era of social and economic prosperity for all within the planet's natural capacities to perform. A new relationship with nature and an efficient use of our natural resources will be key to this success.

1.Introduction
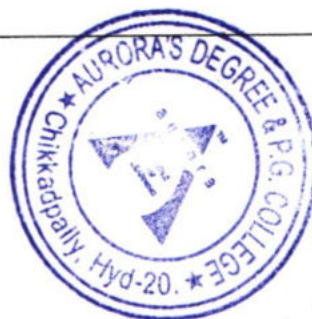
In late 2019, an acute respiratory disease emerged, known as novel coronavirus disease 2019 (COVID-19). The pathogen responsible for COVID-19 is severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2, also referred to as the COVID-19 virus), a member of the coronavirus family.

The COVID-19 outbreak is now a global tragedy. Hundreds of thousands have died, healthcare systems are buckling, and the future is uncertain for millions of people whose livelihoods are collapsing. Emergence of Covid-19 was the result of the over-exploitation of the natural world.

Case Comparison
WHO Regions

Americas	3,560,591 confirmed cases
Europe	2,358,953 confirmed cases
Eastern Mediterranean	716,151 confirmed cases
South-East Asia	422,825 confirmed cases
Western Pacific	195,487 confirmed cases
Africa	155,762 confirmed cases

Jan 31   Feb 29   Mar 31   Apr 30   May 31

Source - https://covid19.who.int
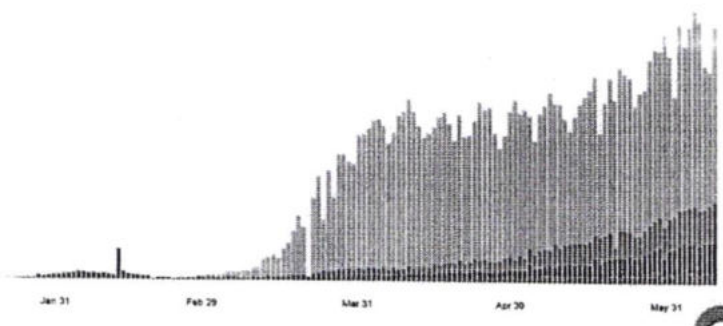
Globally, as of 2:10pm CEST, 12 June 2020, there have been 7,410,510 confirmed cases of COVID-19, including 418,294 deaths, reported to WHO.

In the context of COVID-19 infection, medical experts have warned that existing health problems, such as chronic obstructive pulmonary disease (COPD) or heart disease are critical determinants of lung damage risk; and results of a recent study indicate that long-term exposure to nitrogen dioxide–largely the result of burning fossil fuels–may be one of the most important contributors to COVID-19 fatality.

2. Nature's Revenge - Environmental Origins of COVID- 19

2.1. Healthy planet, healthy people

Nature is our life-support system. Healthy natural systems provide so many essentials like water, clean air, fertile soils and a stable climate. They also give us food, medicines and materials and directly underpin our economies. The interconnected nature of all life on this planet encompasses the links between ecosystem stability, the environment, and human health including zoonotic diseases.

Unfortunately, human activities are placing these natural systems under greater and greater stress, and in turn exposing our society and economies to growing nature-related risks.

2.2. Zoonotic Diseases

It has beenwidely reported that COVID-19 is a Zoonotic disease. The transmission of zoonotic diseases from animals to humans has long been recognized as a serious threat by global health experts. Studies show that 75% of all emerging diseases come from wildlife. The biggest lesson that we need to learn is that COVID-19 is more than an illness. It is a symptom of the ailing health of our planet. Humanity's dysfunctional relationship with nature has caused this wider disease. Understanding this root cause is critical, if we want to rise stronger after the crisis. COVID-19 evolved into a pandemic due to the now well-established risk cocktail of the 21st century: ecosystem destruction, species loss, global warming, colliding with risky human behavior like illegal wildlife trade.

Source : https://earthsky.org/human-world
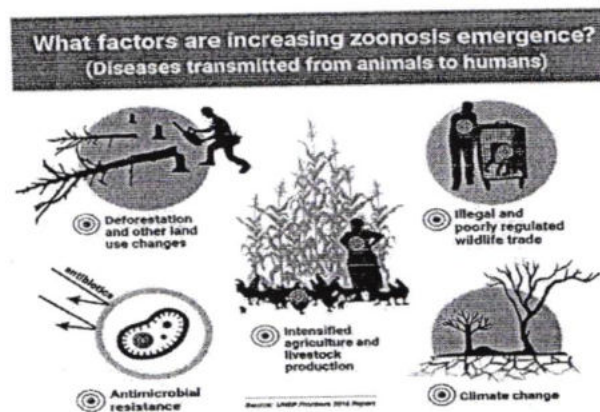
3. Environmental Perturbation - Key Driver of Pandemics

i.First the loss and degradation of natural habitats must be recognized as a key driver of emerging infectious diseases from wildlife. When an area of land is deforested and converted to agriculture, or used for infrastructure development, it reduces the natural habitat available to species and can bring them into more regular contact with each other as well as humans. This gives microbes a greater ability to move between species and to make the jump to people.

Zoonoses that emerged or re-emerged recently are Ebola, bird flu, Middle East respiratory syndrome (MERS), the Nipah virus, Rift Valley fever, sudden acute respiratory syndrome (SARS), West Nile virus, Zika virus disease, and, now, the coronavirus. They are all linked to human activity.

ii.In addition to being a key factor in land conversion, how we produce our food also has the potential to drive pandemics — raising domestic animals in high density appears to make disease spread and evolution more likely. The lack of genetic diversity in these operations increases the chance of rapid spread of viruses, while the sheer number of animals increases the likelihood of viruses mixing.

iii.The wildlife trade is another activity that is bringing wildlife into close contact with people and providing microbes the opportunity to mix between species- Illegal and unregulated markets must be closed down, for the sake of humanity and for wildlife.

iv. Climate changeis a fourth force which in the longer term is likely to be a growing driver of the emergence of zoonotic disease outbreaks - As our planet warms, the distribution and abundance of many species, including the organisms that transmit diseases between animals, are expected to shift, creating further opportunities for viruses to jump.

v.The Biodiversity Crisis

Biodiversity loss and climate change exacerbate each other. The loss of species and habitats contributes to climate disruption, which in turn can accelerate biodiversity loss — both of which can contribute to the rise of pandemics.

4. Impact of Covid-19 On Environment – The Double-Edged Sword

There have been both positive and negative indirect effects of COVID-19 on the environment.

4.1. A Blessing in Disguise

In the wake of COVID19, majority of the countries have implemented pre-emptive and remedial measures. These include a strict lockdown, the most extensive travel restrictions and industries shut down.

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An unexpected corollary of these measures is that levels of air pollutants and warming gases over some cities and regions are showing significant drops due to reduced electricity demand, industries, transport networks and businesses being closed down. Reduction of environmental noise level has been observed.

4.1.1. Changes in Air Pollution/Quality

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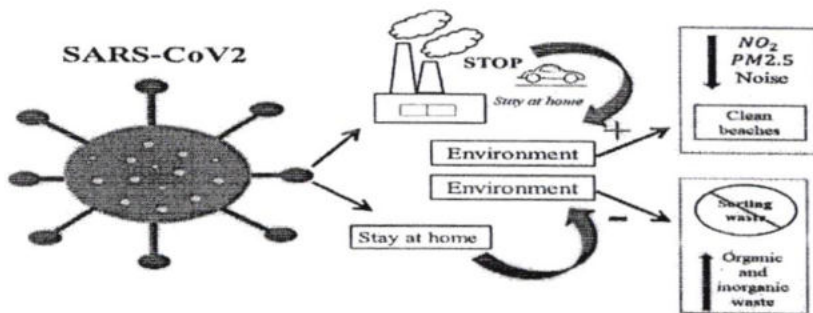
In China, emissions fell 25% at the start of the year as people were instructed to stay at home, factories shuttered. In Europe, satellite images show nitrogen dioxide (NO_2) emissions fading away over northern Italy. A similar story is playing out in Spain and the UK. Due to quarantine, NO_2 was reduced by 22.8 µg/m^3 and 12.9 µg/m^3 in Wuhan and China, respectively. PM 2.5 fell by 1.4 µg/m^3 in Wuhan but decreased by 18.9 µg/m^3 in 367 cities.

Large reduction in airplane emissions would further the recovery of ozone hole.

Emissions of the planet-heating gas CO_2 have also fallen sharply. The International Energy Agency has forecast the CO_2 impact of the crisis, suggesting emissions could fall by 8% this year, some 2,600MtCO2,equivalent to the annual emissions reductions needed to limit warming to less than 1.5C above pre-industrial temperatures.

Source: https://www.unenvironment.org
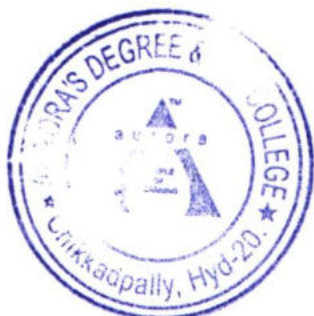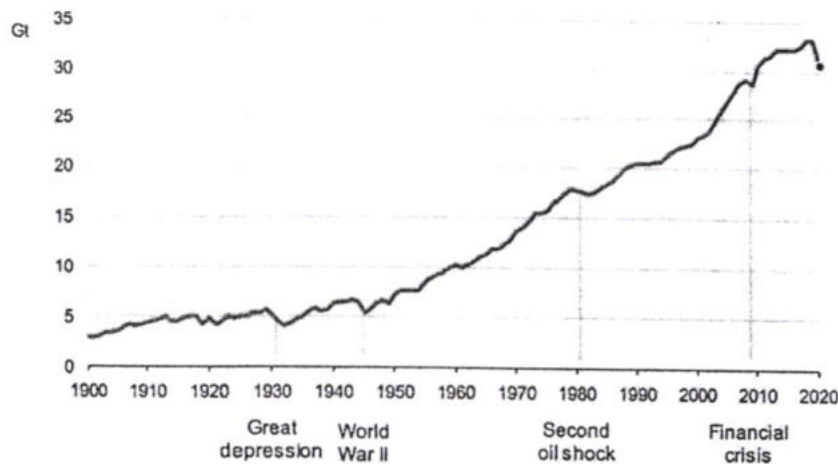
A Nature Climate Change study published last month showed that human-caused CO_2 emissions had fallen by as much as 17% during the height of the worldwide lockdowns in early April. Emissions for the year to date, from 1 January to 11 June, are 8.6% lower than in the same period for 2019, and emissions for the whole of this year are likely to be between 4% and 7% lower than for the whole of last year.

Records reflect a rising renewable share of the electricity mix of countries around the world – where demand has declined during lockdowns – as shown in the chart, below.
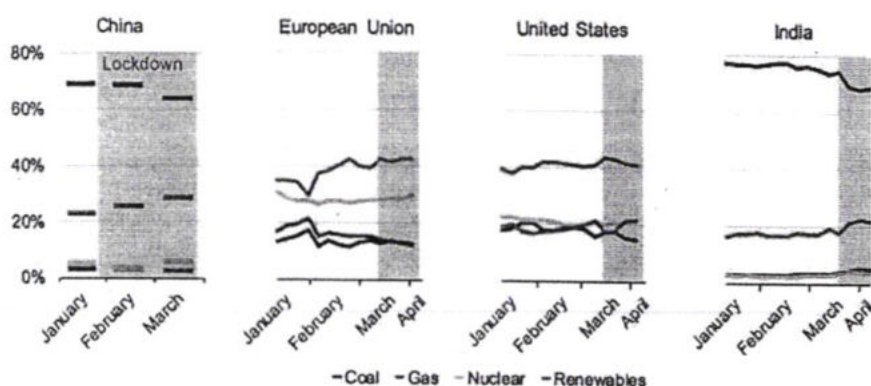
Changes in the electricity mixes of key emitters in 2020 so far, with the implementation of lockdown strategies indicated by grey shading. Source: IEA Global Energy Review.

Source: https://www.iea.org/reports/global-energy-review-2020
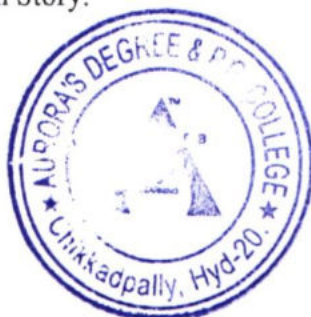
The Indian Story:

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Several environmental factors that saw improvements in India as a result of the lockdowns, are namely air quality, noise pollution, water quality, and biodiversity among others.

Analysis of official Indian data across the nation's entire 2019-20 fiscal year shows the fall has steepened in March, due to measures to combat the corona virus pandemic. The country's CO_2 emissions fell by an estimated 15% during the month of March and are likely to have fallen 30% in April. On an average, reduction in particulate matter (PM) concentrations over southern part of India is around 50-60%, and over the Indo-Gangetic basin, including Delhi, UP, Bihar, West Bengal etc it is as much as 75%.

It is estimated that CO_2 emissions fell by 30m tonnes of CO_2 ($MtCO_2$, 1.4%) in the fiscal year ending March, in what is likely to have been the first annual decline in four decades.

Annual CO2 emissions fell 30MtCO2 (1.4%) In the financial year 2019-20

Source: https://www.iea.org/reports/global-energy-review-2020
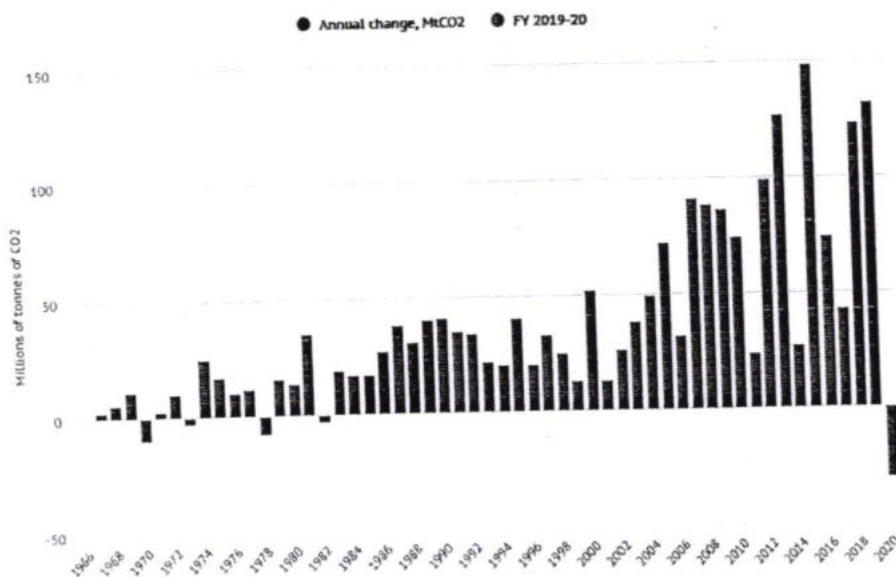
4.1.2. Reduction of Environmental Noise Level

The imposition of quarantine measures by most governments has caused people to stay at home. With this, the use of private and public transportation has decreased significantly. Also, commercial activities have stopped almost entirely. All these changes have caused the noise level to drop considerably in most cities in the world. Several water sources, including river Ganga, have become less polluted and cleaner.

4.2. The Flip Side

Despite certain short-term positive impacts, there are several distressing environmental consequences of COVID 19 pandemic. Huge quantity of unrecyclable waste and organic waste has risen due to lockdown and stay-at-home policy to check virus transmission.

Safe management of domestic waste could be critical during the COVID-19 emergency. Medical waste such as contaminated masks, gloves, used or expired medications, and other items can easily be mixed with domestic waste.

However, once the pandemic ends, countries will most likely revive their economies, and GHG emissions will skyrocket again.

5. Environmental System Upgrade- Insurance Policy to Avoid Future Pandemics

COVID-19 has demonstrated the interdependence of humans and our environment. Representing one of the estimated 8 million species on the planet, we are a key part of an intricate, delicately-balanced web of life. Damage to one part of the web upsets the balance and affects the whole system.

But, the pandemic also represents an opportunity to plan a better recovery and build a better future. We must also look ahead to what we can learn from this crisis to prevent future risks.This means the protection and sustainable management of our global commons—such as our atmosphere and the earth's rich diversity of plant and animal species—must be center-stage of priority-setting in our societies.The spread of this virus has proven once and for all that, in this globalized world, there are no local problems—pollution and pathogens know no borders. Faced with the multifaceted impacts of COVID-19, multilateralism has to evolve. Governments, businesses, the UN, international organizations, scientists and individual citizens need to unite as a single global community to safeguard people from avoidable risks.

Recovery plans built on the concept of fulfilling human rights, including the right to a healthy environment, entail concrete actions and policies that aim towards achieving a stable climate, waste-free and low-carbon economy; creating millions of jobs in ecosystem restoration; building health, water and sanitation infrastructure and sustainable agriculture, reduced exposure to toxic substances, and healthy

ecosystems and biodiversity. Ending deforestation, tightly regulating wildlife trade, and closely monitoring hotspots where people, wildlife and domestic animals mix will help prevent future pandemics.

Stopping deforestationwill not only reduce our exposure to new disasters but also tamp down the spread of a long list of other vicious diseases that have come from rain forest habitats—Zika, Nipah, malaria, cholera and HIV among them. Governments should prohibit the sale of live wild animals in so-called wet markets, where pathogens have repeatedly crossed over into humans. This is an opportunity to embrace renewable energy, green technology and sustainable new sectors that put the planet on a fast-track path to decarbonization.

5.1 UNEP's Response -- The Way Forward

The United Nations Environment Program (UNEP) is stepping up its work on mapping zoonotic threats and protecting the environment to reduce the risk of future pandemics, such as the COVID-19 crisis currently sweeping the globe

Source: https://wedocs.unep.org/bitstream/handle/20.500.11822/32285/ZD.pdf
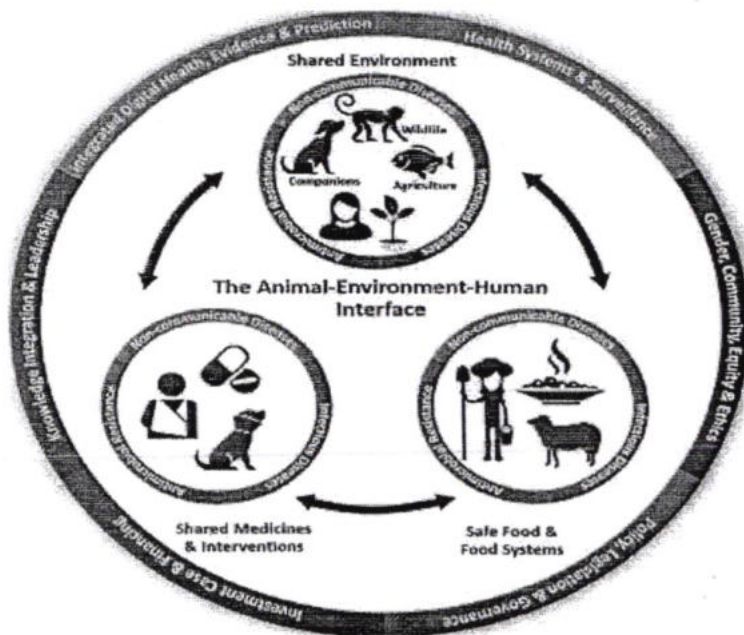
This will take the form of several key interventions:

1. Zoonotic early warning system

A new zoonotic risk and response program will be developed to improve capacity to reduce threats of zoonotic diseases, in coordination with key partners.

2. National zoonotic risk reduction action plans

While many countries already have action plans for dealing with zoonotic diseases, UNEP will explore how it can work with partners 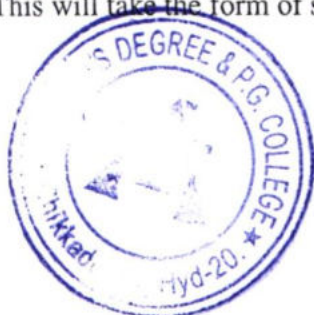to further support Member States in both rebuilding post-pandemic economies better and reducing the threat of zoonotic diseases in the future.

3. Ambitious new biodiversity targets

UNEP will seek to reduce one of the main drivers of zoonotic disease transmission–the degradation of ecosystems–by increasing the ambition and commitmentto new global biodiversity targets and their means of implementation.

4. Reviewing the implications of moving environmental governance and multilateralism towards virtual, and thus lower environmental footprint, meeting platforms.

5. Supporting decision makers to deal with the spike in hazardous waste

6. Scale up and accelerate sustainable consumption and production

The sustainable management of natural resources, including the smarter use of materials (such as biomass, fossil fuels, metal ores and non-metallic minerals) has many benefits.

Natural resources ↑
It reduces the rate at which natural resources are depleted.

Economic development ↑
Opportunities include reduced material supply dependencies and economic diversification towards circular economy business models and jobs.

Waste and emissions ↓
Lower levels of inputs help reduce waste flows and emissions and reduce costs for producers and consumers.

Environmental impacts ↓
It limits the environmental impacts that occur with resource extraction in agriculture, forestry, fishing, mining and quarrying.

Source: https://www.genevaenvironmentnetwork.org/resources

Looking ahead, it is crucial that we rebalance our relationship with nature to secure a sustainable future for people and the planet. World leaders must step up and acknowledge the close connections between people, nature, and climate, and take action to reduce nature-related risks.

6. Conclusion

COVID-19 has made it crystal clear that we must form a blueprint for an economic and societal future that factors nature into everything we plan and build. Transformative action on protecting and restoring nature and the biodiversity of our planet is urgently needed. We have much more to gain from working with nature than against it. We need to use the reboot to incentivize sustainable innovation and green investment.We need to use the reboot to incentivize sustainable innovation and green investment. Nature-based solutions have the capacity to protect, sustainably manage and restore both natural and modified ecosystems. The focal strategies should be to capture opportunities for leap-frogging to green investments, such as renewable energy, smart housing, green public procurement, public transport, — all guided by the principles and standards of sustainable production and consumption.

These actions, - sound management of hazardous medical and chemical waste; strong and global stewardship of nature and biodiversity; and a clear commitment to "building back better", creating green jobs and facilitating the transition to a carbon neutral future will be key to a resilient and sustainable future and to our reaching the Sustainable Development Goals. And that, of course, remains the future we all want.

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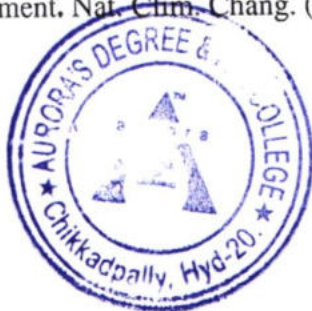
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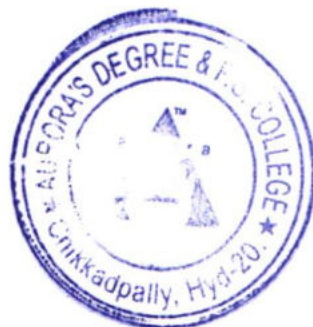
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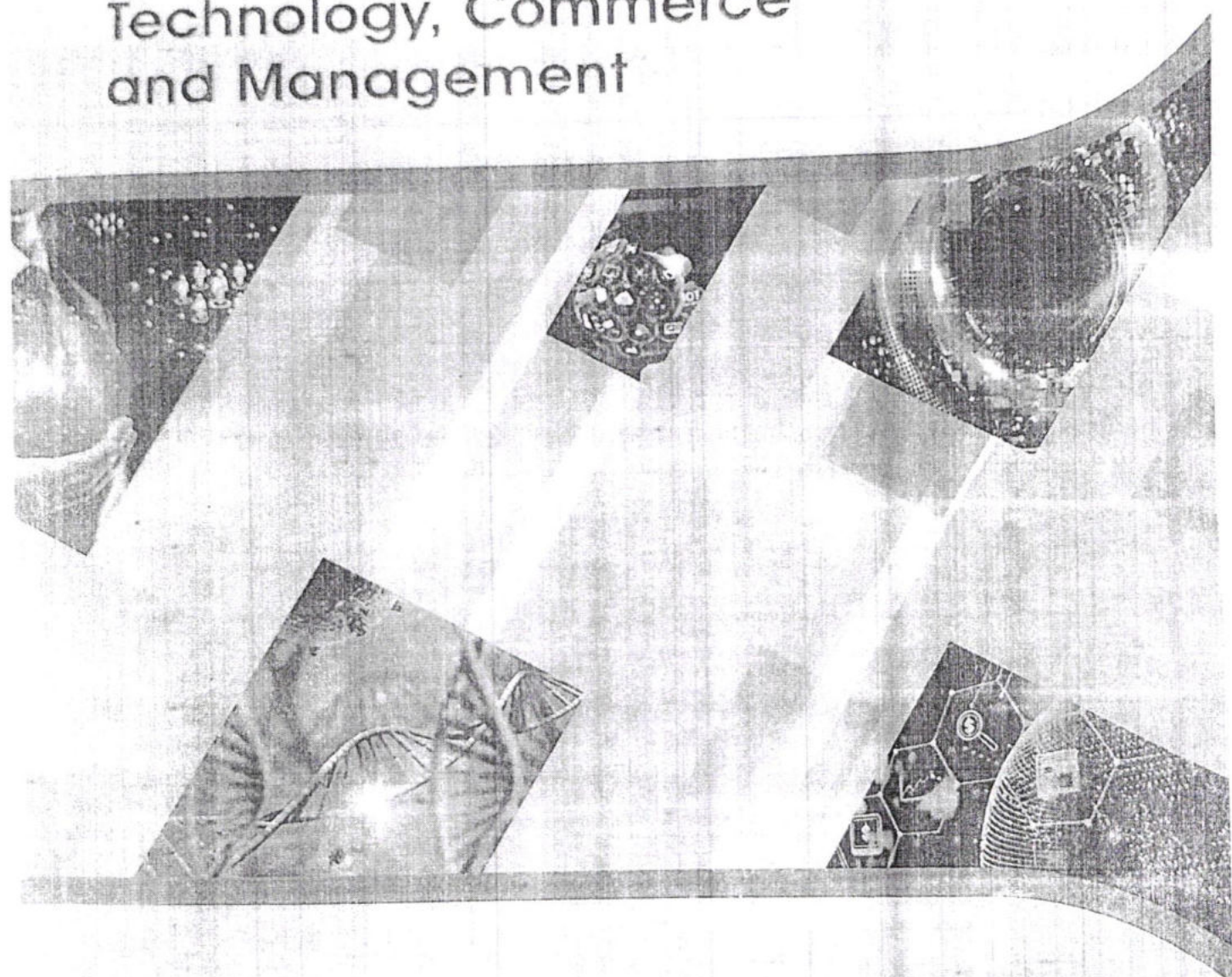
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Effect of Stress on Immune System

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Abstract

In the current generation stress has become a part of life. The busy scheduling of daily routine has made man a machine which is leading to severe stressed conditions. Stress can persist for few hours to days or years. Stress is sometimes a driving force that helps us in rising to the occasion but at othertimes it has detrimental effects. In chronic cases it will have effect on body's immune system. If the stress is not controlled it leads to chronic inflammation followed by development and progression of many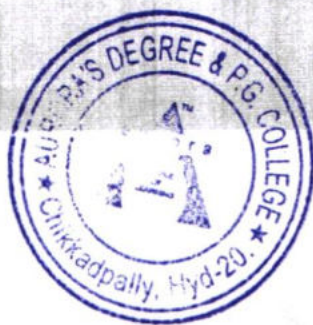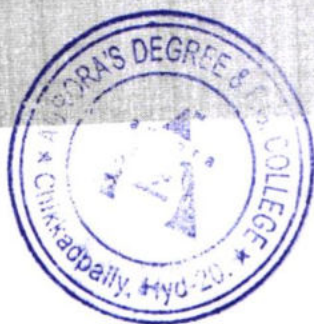 diseases such as arthritis psoriasis long term stress leads to cardiovascular problems such as increased heart rate and heart diseases as well as gastric ulcers type II diabetes ,hormonal imbalance, various cancers and mental disorders. Stress also has intense effect on immune system and immunity. Short –term stress experienced during immune activation stimulates innate or primary and adaptive or secondary immune responses. Mechanisms that activate immune system involve the changes in dendritic cell, neutrophils, macrophages and lymphocyte maturation and function and also production of different cytokines. In contrast long–term stress represses both innate and adaptive immunity by changing the cytokine balance, stimulating low grade chronic inflammation that suppresses the function of immune-protective cells. The article provides an overview of how stress affects the immunity and effects of good stress and bad stress that promotes health and healing.

Keywords: Stress represses, detrimental effects, immune response, cytokine and inflammation.

Introduction

Stress is a comprehensive phenomenon all around during lifetime all human beings. All people have experienced it throughout their lifespan and also throughout entire history. Stress is one of the distinctive features of life and its presence has been much focussed such that it has been addressed in all eras of fine arts and literature(Ader R et al, 2001). The reason for the widespread of stress in human communities is the complexity of human social, personal, and ecological environment, multiple and simultaneously interactions of human with surrounding issues, and diversity in stress expression (Berkenbosch F et al,1987). Now many people have understood the interrelationship between stress and becoming sick. Many diseases such as cold, influenza, herpes and allergies appear to weaken the body whenever we are severely stressed at work or in the home. Because of intrinsic connections like these, many researchers are today exploring whether (and how) stress and illness are actually linked. One specific focus of this research is to study the effects of stress on the immune systems; ultimately, if stress affects immunity, that would be one way in which stress could contribute to illness.

Stress

In psychology, stress is said to be a feeling of mental pressure and tension. Low levels of stress might be desired, useful, and even healthy. Stress, in its positive form, can improve biological, psychological and social health and facilitate performance. One of the most important issues in stress studies, is its definition. Stress is an ambiguous and wide concept which is attributed to varied phenomena and definitions. The variety of stress concept is both its characteristic and its deficiency. Its characteristics are the multidimensionality and coverage of a wide range of every-day-life experiences. In a comprehensive and simple definition "stress is any influence of internal and/or surrounding environment on living being which disrupt its homeostasis".

Types of stress

Based on the review of the literature, stress could be classified in different ways :(1) based on the nature of the stressor (physiological, psychological) (2) based on its influence on individual (positive seustress, negative distress), and (3) based on the exposure time of stressor (acute or short-term, chronic or long-term).
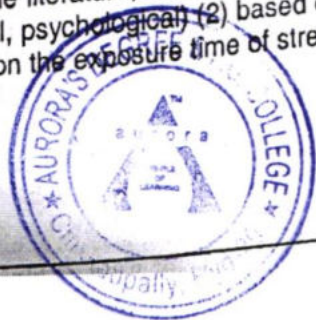
Table 1 Definitions of stress

Author	Definition of stress
Shalev *et al*,2000	Stress is a normal psychophysiological response to events which result in the sense of threat, sadness, dysphoria and imbalance in people.
McEwen ,2007	In medicine and biology, stress is called to any physical, psychological and or emotional factor which results in physical and or psychological tension.
American Psychiatric Association,2014	Stress is described as a sense of being overwhelmed, worry, destruction, exhaustion and lethargy. Therefore stress can influence people of all age groups, sex, race and situation and can result in physical and psychological health.

Table 2 Classification of stress

Types of stress classification	Classes
According to the nature of stressor	Physiological stress / Psychological stress
According to the stress influence on individual	Positive eustress / Negative distress
According to the exposure duration to stressor	Acute stress(short term) / Chronic stress(Long term)

Short –term stress experienced during immune activation stimulates innate or primary and adaptive or secondary immune responses. Mechanisms that activate immune system involve the changes in dendritic cell, neutrophils, macrophages and lymphocyte maturation and function and also production of different cytokines. In contrast long–term stress represses both innate and adaptive immunity by changing the cytokine balance, stimulating low grade chronic inflammation that suppresses the function of immune-protective cells.

Immunity

Immunity is the resistance offered by an individual against the entry of a foreign particle. The immune system is the body's defense mechanism to protect the body from the microorganism and infection. Good health is dependent on the proper functioning of the immune system and like other systems of the body it is vulnerable to the effects of stress. The main function of immune system, is to protect us from pathogenic organisms and also their products which are harmful to the body.WBC, the immune cells of the circulate in the blood throughout the body. They are located in various organs, such as the bone marrow, thymus, lymph nodes and spleen. The different kinds of white blood cells are lymphocytes, macrophages, neutrophils, basophils, eosinophils, natural killer cells. Of these cells the most important one are lymphocytes. Lymphocytes are of two types-B-lymphocytes and T-lymphocytes. B-cells mediate the humoral immunity whereas T-cells mediate cell-mediated immunity. Antibodies which are the end products of humoral immunity, are the glycoproteins produced by B- lymphocytes. These glycoproteins are produced in the body in response to the entry of antigen or foreign particle. Once antibodies are produced, they adhere to the harmful substance and mark it for destruction by other cells of the immune system thus prevent it from causing infections. Natural killer cells also play an important role in establishing immune response. The killing potential of natural killer cells is important because they are one of the fastest responders of the immune system in the fight against viruses and tumours.

Stress and Immunity

Stress alone is not responsible for making us ill or getting infected by harmful microorganisms. It weakens the ability of the immune system to respond to the entry of the microorganism making us more susceptible to infection. The ability to recover from the disease also slows down as the immune system is suppressed in favour of dealing with the stress. Stress also has an indirect impact on the immune system in individuals with unhealthy habits such as smoking, drinking too much alcohol and caffeine, eating too much sugar, processed foods, improper sleep and no physical activity. In view of this, the relationship between the stress and immunity has been considered for decades (Khansari et al., 1990; Dantzer and Kelley, 1989). The predominant feature of the association of stress and immunity is that people under stress are more prone to have an impaired immune system and, as a result, suffer from recurrent illness (Khansari et al., 1990). Also, old anecdotes describing resistance of some people to severe disease using the power of the mind and their thought processes, has promoted this attitude (Khansari et al., 1990). In about 200 AC, Aelius Galenus (Galen of Pergamon) said that melancholic women (who have high levels of stress and, thus, impaired immune function) are more susceptible to have cancer than women having positive and exposed to less stress (Reiche et al., 2004). This may be the first recorded case about the relationship between the immune system and stress. In one of the old studies in the early 1920's, researchers found that the activity of phagocytes decreased in tuberculosis whenever emotional stress was induced. In fact, it was also suggested that living with stress increases the risk of tuberculosis by suppressing the immune system (Ishigami, 1919). After this study, the other researchers suggested that the individuals having a stressful life style are more vulnerable to get infections or diseases and are also more prone to recurrent infections.(Holmes and Rahe, 1967; Calabrese et al., 1987). Over the past several decades, much research was carried to investigate the role of stress on immune system function (Dantzer and Kelley, 1989); Segerstrom and Miller, 2004). These studies have revealed that stress mediators can pass through the blood-brain barrier and exert their effects on the immune system (Khansari et al., 1990). Thus, the effect of stress on the immune system is now an accepted relationship or association.

Stress can directly influence immune signaling in two main ways, by reducing the inhibitory effects of glucocorticoid actions, or by directly stimulating the immune system via HPA axis and SAM (Liu et al., 2014; Wohleb et al., 2015). But not only the neural components of stress engage the immune system, the immune system also affects the CNS, modulating the HPA axis (Berkenbosch et al., 1987; Linthorst et al., 1994; Angeli et al., 1999). Therefore, acutely, stressful experiences enhanced levels of circulatory pro-inflammatory cytokines (Steptoe et al., 2007). Some of these inflammatory cytokines are either locally produced by activated microglia (Wohleb et al., 2015) or get access to the brain through circumventricular sites (Vitkovic et al., 2000) or are transported (Banks, 2006). Stress can exert influence on the function of the immune system by altering processes in the CNS and neuroendocrine system (Khansari et al., 1990); Kiecolt-Glaser and Glaser, 1991). Following stress, some neuroendocrine and neural responses result in the release of corticotropin-releasing hormone (CRH), adrenocorticotropic hormone (ACTH), and other stress mediators (Carrasco and Van de Kar, 2003). However, it was also found that the lymphatic system, which is a part of the immune system, also plays an important role in releasing these mediators (Khansari et al., 1990). For example, thymus peptides, such as thymopentin, thymopoietin, and thymosin fraction-5, cause an elevation in the production of ACTH(Goya et al., 1993). In addition, the occurence of CRH in thymus has been proven (Redei, 1992). Not only these the interleukin-1 released from phagocytes also has a role in the secretion of the ACTH (Berkenbosch et al., 1987). Moreover, natural or synthetic glucocorticosteroids (which are the final stress operators) are known as anti-inflammatory drugs and immune suppressants and their role in the inhibition of lymphocytes and macrophages has been demonstrated as well (Elenkov et al., 1999); Reiche et al., 2004). Additionaly, their role in inhibiting the production of cytokines and other immune mediators and decreasing their effect on target cells during exposure to stress has also been investigated (Reiche et al., 2004).

In the case of physiological mechanisms, stress is associated with the activation of several systems such as the hypothalamic-pituitary-adrenal axis and the sympathetic nervous system. The stimulation of these two pathways results in increased levels of specific hormones in blood, namely cortisol and the catecholamines (epinephrine and norepinephrine). The levels of these hormones in blood are related to immune functioning. For instance, acute increase in cortisol and epinephrine levels is associated with decrease in the number of white blood cells in circulation. Proliferation of lymphocyte and the activity of natural killer cell also decreases when there is an acute increase in cortisol and epinephrine. Specific behaviours that modulate the immune response. Stressed persons tend to sleep less, exercise less, have poorer diets, smoke more, and use alcohol and other drugs more often than non-stressed people. These behaviours have all been shown to affect the immune system. Other hormones released under stress - includes growth hormone, prolactin, and the natural opiates (beta endorphin and enkephalin) these hormones have been involved in influencing the immune system. At a cellular level these hormones become attached to receptors on white blood cells and so

affect them.t direct health consequences of such a decrease have not been established. Stress not only affects the adrenal steroids but also other hormones. For instance, the secretion of growth hormone will be inhibited during severe stress. It was also proved that long-term administration of CRH into the brain ventricles results in the decrease in the secretion of growth hormone (Rivier and Vale, 1985). Stress also causes the release of opioid peptides to be changed when a person is experiencing stress (McCarthy et al., 2001). In fact, stress alters the secretion of hormones that play a crucial role in the function of the immune system (Khansari et al., 1990). Till date, it has been shown that various receptors for a variety of hormones which are involved in the function of the immune system are affected by stress. For instance, ACTH, vasoactive intestinal peptide (VIP), substance P, growth hormone, prolactin, and steroids all have receptors in different tissues of the immune system and can modify its function (De la Fuente et al., 1996; Gala, 1991; Mantyh, 1991). Addtionally, active immune cells are also able to secrete various hormones; thus, the results of some studies revealed that these hormones, acting as mediators of immune system, play an important role in balancing its function (Blalock et al., 1985).

The interpretation of these changes in the immune system due to stress is difficult. Even though decreased natural killer cell activity is evident in certain human diseases (such as cancer, chronic viral infection or autoimmune diseases), the direct health consequences of such a decrease have not been established. Severe stress can lead to cancer by suppressing the immune system (Reiche et al., 2004). It was found that, stress can reduce the activity of cytotoxic T lymphocytes and natural killer cells and lead to growth of malignant cells, genetic instability, and tumor expansion (Reiche et al., 2004).Many studies have revealed that increase in the plasma concentration of norepinephrine, after the induction stress, has an inverse relationship with the immune function of phagocytes and lymphocytes (Reiche et al., 2004). Lastly, catecholamines and opioids that are released following stress have immune-suppressing properties (Reiche et al., 2004). The relationship between negative psychological states (such as anxiety and depression) and immune system variables have also been investigated. The results of the investigation suggest that depressed and anxiety states are associated with decline in the lymphocyte proliferation and natural killer cell activity, also with variation in the numbers of white blood cells and the number of antibody circulating in the blood. It also seems that the ability of the body to produce antibody to a specific antigen or substance is associated with the level of anxiety and therefore stress that the individual is experiencing is inversely related to the number of antibody produced after exposure to the potentially harmful substance. Nevertheless, it is clear that stress has an adverse effect on health, probably mediated-at least in part -by the body's immune system. It is hoped that future research will show how, by reducing stress, we can improve health.

Stress and Wound Healing

Wound healing advances through several overlapping stages and any delay or inhibition of any one of the stages can slow down the complete phase of the wound healing process. The immune system plays an important role, particularly in the early stages of the wound healing cascade, by the production of the important proinflammatory cytokines, such as IL-1α, IL-1β, IL-8, IL-6, IL-2, and TNF-α.
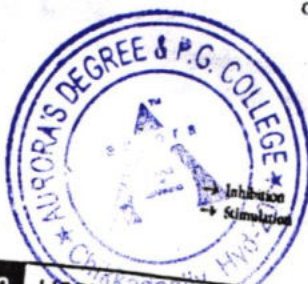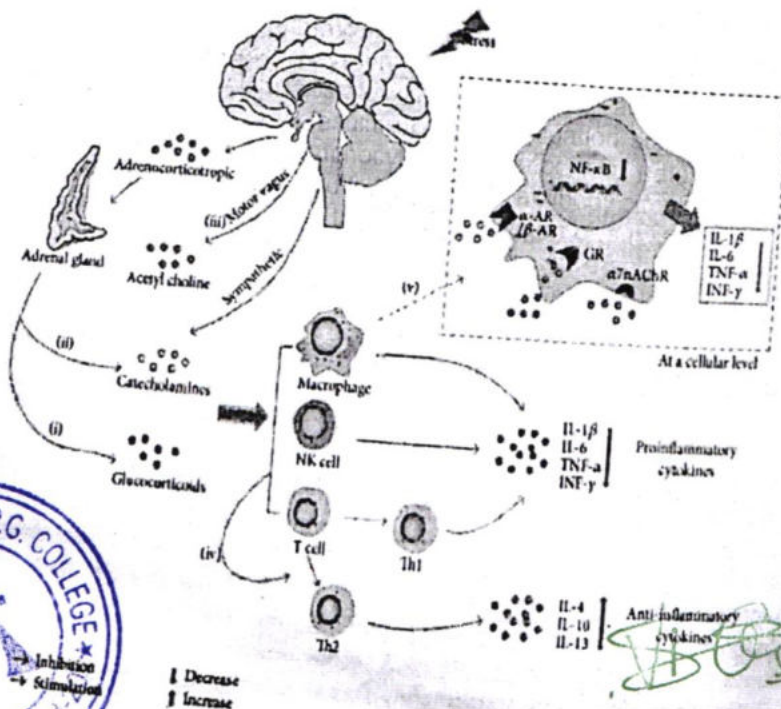
thought to promote resistance and facilitate recovery. For example, an overall decrease in activity allows the sick individual to preserve energy resources that can be redirected toward enhancing immune activity. Similarly, limiting exploration, mating, and foraging further preserves energy resources and reduces the likelihood of risky encounters (e.g., fighting over a mate). Furthermore, decreasing food intake also decreases the level of iron in the blood, thereby decreasing bacterial replication. Thus, for a limited period, sickness behavior may be looked upon as an adaptive response to the stress of illness. Like other aspects of the acute stress response, however, sickness behavior can become maladaptive when recurrently or continuously activated. Many characteristic features of the sickness behavior response show an overlap with major depression. When compared with healthy controls, increased rates of depression are reported in patients with inflammatory diseases such as MS (Mohr et al. 2004) or CHD (Carney et al. 1987). However, when compared with individuals facing similar disability who do not have MS (e.g., car accident victims), MS patients still report higher levels of depression (Ron & Logsdail 1989). In both MS (Fassbender et al. 1998) and CHD (Danner et al. 2003), markers of inflammation have been found to be associated with symptoms of depression. Thus, there is evidence to suggest that stress contributes to both physical and mental disease through the mediating effects of proinflammatory cytokines.

Positive eustress

Although the research says that stress has an immense effect on immune system such that it weakens it, the research findings also established that moderate or short-term stress has health benefits. When stress prolongs or becomes chronic it exerts harmful effects on health or else it is beneficial to health. Stress is also an important warning system in that it produces the fight-or-flight response. Whenever brain experiences some kind of stress, it starts producing hormones like cortisol and catacholamines. This results in a variety of reactions such as rise in blood pressure and heart rate,etc. In addition, senses suddenly gain a laser-like focus-for example jumping away from a moving car-and be safe.

```
                        stressor
                           |
                           v
                      hypothalamus
                     /            \
                    /              v
                   /       crf (conticotrophin
                  /            release factor)
                 /                  |
                 v                  v
          sympathetic       pituitary gland releases "acth"
        nervous system       (adrenocorticotropic hormone)
            |                        |
            v                        v
      adrenal mudulia        adrenal cortex secretes various
      secretes "stress        stress hormones (eg. cortisol)
      hormones" (eg.                 |
       epinephrine)                  v
            |              stress hormones (30 varieties)
            v              travel inblood stream to relavant
      nerve endings        organs eg. glands, heart, intestines
      activate various             |
      smooth muscles               v
      and glands eg. ------> flight or fight response
      pupils dilate
```

Researchers believe that some amount of stress is always useful as it helps in fortifying the immune system. In one of the studies it was found that individuals who experience moderate levels of stress before surgery were able to recover at a faster rate than individuals who had low or high levels. The other benefits of low levels of stress are it boosts brain power, it can make us stronger, more creative, enhances child development, motivates to succeed. Hence moderate levels of stress are regarded as good stress or eustress.

Stress can interfere with the production of proinflammatory cytokines and thus potentially affect wound healing. Studies were performed on spousal care givers of patients. These studies revealed that caregivers took 24% longer time when compared to very well match control subjects to heal a small dermal wound. It was also found that IL-1β mRNA levels in stimulated blood leukocytes were lower in the care givers as compared to controls. In another study which was performed with dental students, it was found that the wound healing process was 40% slower in the students when induced just before the examination when compared to the same medical students during vacation. And once again the levels of the IL-1β mRNA were found to be less in peripheral blood leukocytes. Similar studies were also conducted in mouse which showed that the stress slowed down the healing process by about 27% approximately. Thus all these studies reveal that stress can alter the neuroendocrine homeostasis which can affect the wound healing at early stages. (Glaser and Kiecolt-Glaser, 2005; Padgett et al., 1998).
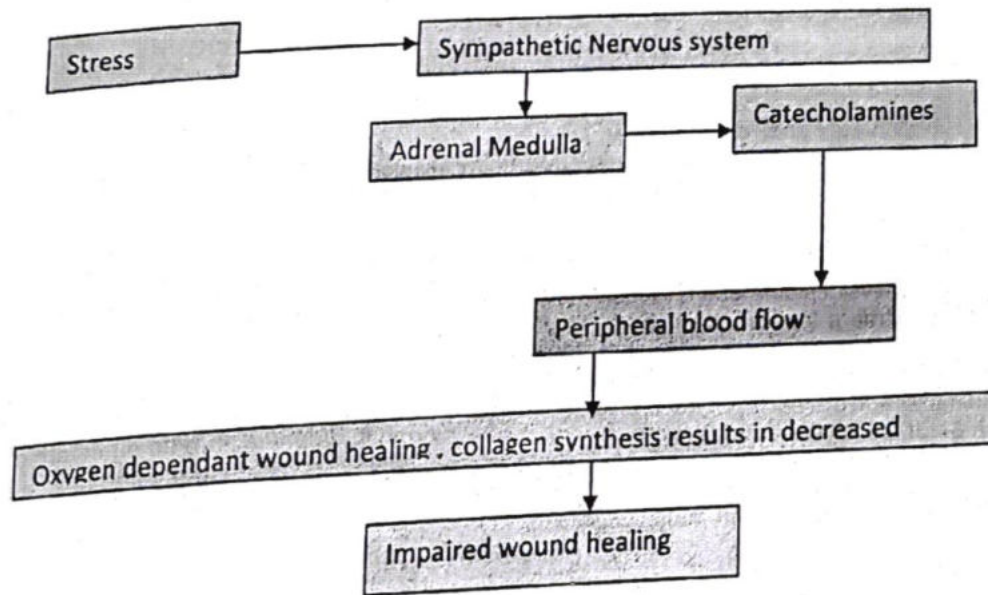
Stress and Inflammation

According to the results of various studies, there is good evidence that stress can induce immune dysregulation partly through the variations in the production of proinflammatory cytokines. These studies and other investigations showed that both psychological and physical stressors can up-regulate the synthesis of IL-6 and the levels of the IL-6 vary with the stress (depression and anxiety).In individuals with or without stress symptoms the levels of IL-6 were low whereas individuals with more depressive symptoms exhibited an increase in the serum IL-6 levels. Finally it is observed that individuals who are stressed exhibit a higher cytokine response. This data has predominant issues because inflammation is associated with a variety of diseases specifically in older people. For instance, IL-6 has been correlated to several diseases and con ditions including cardiovascular diseases, osteoporosis, arthritis, type 2 diabetes and also certain cancers (Glaser and Kiecolt-Glaser, 2005; Marx, 2004; Maes et al., 2001).Studies showing the up-regulation of IL-6 by different kinds of psychological stressors, including depression, provide evidence of a mechanism through which chronic stressors might accelerate the risk for developing any age-related diseases by "premature aging" of the immune response and cancer (Glaser and Kiecolt-Glaser, 2005; Maes et al., 2001; Kiecolt-Glaser et al., 2003).

Stress and Mental Health

In addition to its effects on physical health, immunity in wound healing and inflammation stress also adverse affect on mental health in susceptible individuals. During stress (e.g., the flu),increase in the proinflammatory cytokines feed back to the CNS and produce symptoms of fatigue, malaise, diminished appetite, and listlessness, which are symptoms usually associated with depression. Earlier it was thought that these symptoms of depression were associated with infectious pathogens, but more recently it has become evident that proinflammatory cytokines produced in response to stress are sufficient and necessary to generate sickness behaviour(Dantzer 2001, Larson & Dunn 2001). Sickness behavior has been suggested to be a highly organized strategy that mammals use to combat infection (Dantzer 2001). Symptoms of illness, as previously thought, are not inconsequential or even maladaptive. On the contrary, sickness behavior is

Conclusion

Thus stress may lead to both detrimental and beneficial effects. The beneficial effects include maintaining homeostasis of cells/species that helps In continuous survival. However in many cases, the harmful effects of stress may receive more attention or recognition because of their role in various pathological conditions. Several factors, such as hormones, neuroendocrine mediators, peptides, and neurotransmitters are involved in the response of body to stress. Many disorders originate from stress, especially when the stress is severe and chronic. The doctors and psychologists need to have a greater appreciation for the significant role that stress may play in various diseases and then treat the patient accordingly using both pharmacological (medications and/or nutraceuticals) and non-pharmacological (change in lifestyle, daily exercise, healthy nutrition, and stress reduction programs) therapeutic treatments. The most important role of the physician is to provide treatment for stress to all individuals differing in their response to stress, so a particular treatment strategy or procedure appropriate for one patient may not be suitable or optimal for the other patient. Thus the research focusing on psychological stress and neuroimmune dysregulation has provided data that aids our understanding of the complex physiological changes occuring in the body during stressful situations. The information in the review will provide new insights into clinical applications of the research being performed and the potential for new approaches for treating patients.

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Human-animal conflict with a focus on Asian elephants-veterinary care

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Abstract

Elephants are some of the most interesting, amazing and lovable creatures walk this planet. They are very giant, but very sweet, nurturing, and are known to have emotions similar to humans. Elephants are very intelligent species. We see various animals in the zoological parks like rhino, deer, elephants and many more. Now a days elephants have more worth comparing to other animals especially about Asia elephants. Elephants (Elephas *maximus*) play a major role children feel excitement watching elephants but watching itself is not enough one should have the responsibilities towards elephants managing factors are also required to maintain for the wellbeing of elephants. Elephants face many issues for the survival like climate, food, temperature and water management etc. The aim of this work was to establish if the integer of clinical occurrence skillful could be a useful security gauge in zoo elephants, and to regulate circumstances correlated with focal pathologies. They used an epidemiological proposal to investigate how inherent (genus, Gender, duration) and outward (living, Establishment) elements were correlated with both the total count of clinical occurrence, and each of the four most widespread pathology types (gastrointestinal issues, skin bruise, disability in walking, Foot lesions), over a 12-month duration period. In this context, elephantcamps and breeding centers may play a key rolein conserving these animals through breeding incaptivity reducing our dependency to get them from the wild. Elephants, together convict and ferocious are protected.

Keywords: inherent, pathology

Introduction

Elephants are Animalia kingdom and mammals of the family Elephantidae and the largest living dry land animals. In present day, a scientific catch up to learn well-being has led to significant pace in improving The safekeeping and administration of African (Loxodonta africana) and Asian (Elephas maximus) elephants beneath human safekeeping. Not only about developing the management should also think about the medical care towards the elephants. In specific, a recent 'Elephant Welfare Project' (hereafter EWP) set out to use an epidemiological come towards to look over the element that jolt zoo elephant Welfare in North America. That study, coordinated by a multi-institutional group of researchers and including 255 elephants at 68 consortium of Zoos and Aquariums (AZA) accredited Zoos, establish that herd social construction, attendant interplay, and endowment and provide food for the Diversity correlated with a variety of welfare outcomes. There are various hospitals for elephants for special care which was first open in Mathura in a jumbo attempt to preserve elephants, Wildlife SOS has launched India's first and fully furnished hospitals devoted to elephants in partnership with Uttar Pradesh forest section right now they are taking care of 20 elephants. It is non-profitable organization in this hospital they offer medical treatment like x-ray, dental treatment, laser treatment, thermal imaging, ultrasonography, hydrotherapy and isolation facilities.

Elephants are scattered or available throughout Sub-Saharan Africa, south Asia and Southeast Asia and are found in different habitats including forest deserts and swampland. They are of various sizes, with divergent cultures. Each elephant has different ear flaps, tail, and forehead shape and have pillar like legs and the locomotion of the elephant also differs. The wild life protection act is the act of parliament has started in the year 1972 down to few years animals were killed brutally animals are the glow and happiness for the nature. All the animals were haunted by tribal people and many more. The government has started his act to save and protect animals like tigers, elephants, deer's, leopards and many more. The main goal of this belief or theories is to make sure that their habitats will be maintained so that the future generations of both wildlife and human can enjoy it, also adds wildlife prevention aims to raise consciousness concerning the importance of wildlife & wilderness. One can gain more from animals which can benefit the human beings. Like many drugs which we get and use it for many purpose.

Elephant and its habitat

Elephants are basically herbivores. They eat a lot 44% digest out of which they eat. It takes 12- 18 hours every day consuming 5% of their body weight. Giant elephants eat 600 pounds of food. Most large herbivores are either 1. Grazers (eat grass) or 2. Browers (eat twigs and leaves) but elephants do together. They eat grass in the monsoon season and rest of the year they eat twigs, bark, roots, leaves, fruits and thorns. Baby elephants may nurse upto 4 years but start eating plants within few months leaving how to use a trunk takes lot of practice and patience. But soon she'll be eating grass like a pro. They may drink upto 50 gal(189 l) of water a day, and after quaff their fill, will swashing themselves with water and silt , wash their baby elephants , and sometimes just frolic, tossing and sprinkle water about while their young splash, sport , and roll and spin in the mud. Male and female elephants become sexually fully grown between 8 and 13 years of age. Male elephants will leave their herd on every side this time, as long as they're able to find their own food supplements and safeguard themselves, according to the Smithsonian national zoo. Females may not have their first calf until their midway teen years, while males may not father a calf until they are in their 30s when they are large and strong enough to complete with other males, in the opinion of to the national zoo. Elephants have the longest gestation period of all animals these gentle giant's pregnancies last for more than one and a half year. Usually, only a single calf is born following a 22-month pregnancy. A neonatal calf weights between 150 and 350lbs. (68 and 158kg) stands about 3 feet tall, calves also prone to be hairy with long back end and every short trunk. To maintain a healthy elephant for the basic needs the expenditure will be around 70,000 dollars. To maintain unhealthy elephant for the treatment and basic needs it needs 1 lakh dollar and transport costs around15, 000-50,000 dollars. Elephants, the largest land animals on the earth, are among the most exuberantly imaginative of creatures. Happiness, annoyed, grief, tenderness, loves; the finest emotions reside with these hulking masses. Through years of research, scientists have found elephants are potential of complex thoughts. Everyone has mood swings so elephants have when is it angry Elephants in musth often discharge thick tar-like secretions called TEMPORIN from temporal ducts on the sides of the head. The elephant's aggression may be partially caused by a reaction to the temporin, which naturally trickles down into the elephant's mouth. The special feature of the elephant tusk it never stops growing. They lack eye sight but they use the feature smell and detect water sources up to 12miles away. Elephants have wonderful memories as it hit our mind with the old saying" ELAPHANT DON'T FORGET MAY BE ROOTED IN TRUTH. In 1999, researchers discovered that an elephant appeared to have remembered another elephant have had meet 23 years ago. Elephants can also sense their grieve of lost family members. They also 'hug' trunks as a way of saying hello to each other and they even know to comfort one another they touch their trunks to the another' mouth regions making little sympathetic noises. Elephant can use mud as a sunscreen cream and elephants are born blind. The elephant's calves follow their mother's tail that is the cutest things about the elephant claves. In rare conditions the elephants can give birth to TWINS as well. Calves can drink 3 gallons of milk a day.

Digestive Mehanism

It begins with the mouth-The digestive process begins with the entry of food in the mouth suprisingly the digestive system of a elephant is short compared to other herbivores animals.They have small mouth compared to their body which cannot be open widely. In their digestive system the salivary glands are well-developed in their mouth along with the mucous glands adjacent in short esophagus. Jointly they help to buricate the rough vegetation that an elephant consumes in its diet.

The Stomach: The stomach is a simple bad like sturcture that is oriented amost vertically. Ironically, the most of the digestion dosen't transpire in the stomach, yet it acts as a stroage for the food eaten. It is then unshered in the remarkably large intestines of the elepahant. They extend up to 19 meters.

The Intestines: The intestines in which the most of the digestion of the vegative diet takes place. At the spike at which the tiny intestines meets the big one, bacteria aids in the fermentative digestion of the CELLULOSE(from the plant diet). This place is called Caecum and is specific wich in blood vessels. The Caecum is divided into numerous smaller comparetments and the products of digestion are absorbed through its thin walls.

Finally the process ends here because the elephant only digests ands utilize of 40-44% of its intake, the intestine is also key in the development of faeces and the efficient absorption of water. The size of the faeces is often used to control the age of the elephant as it retains the shape formed by the walls of the rectum, stipulate it's size.

Cellulose nanofibres won from elephant manure for sustainbly making paper When we see the dung of elephant we get a nasty feeling. But the same dung turns out being wonderful origin of cellulose for paper manafucuring In countires where trees are in very short supply recycyling dung into paper products could be

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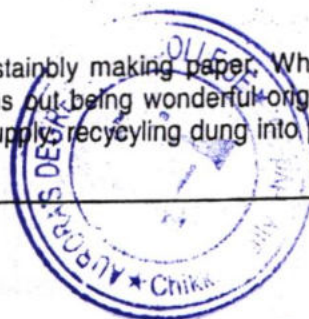
cheap & environmentally sound method to get rid of this prevaise agricultural waste. They will collect the dung in the tub recyle them and make papers celluose fillltter paper, handmmmade paper and parchment paper out of it. Elaphants produce tons of dungs everyday. The sciencetis's treat the dung with a sodium hydroxide solution. The partially removes lignin- which can be used later as a fertilizer or fuel- as well as other imputies, with proteins and unwanted cells. To complete elimination of lignin and to extract white pulp for manaacturing papers, the material has to be bleached with sodium hypochlorite. The purfied cellulose requires minute if any granulate to crush it donw into nanofibers in manafacutring for use in paper, in contrast to traditional methods.
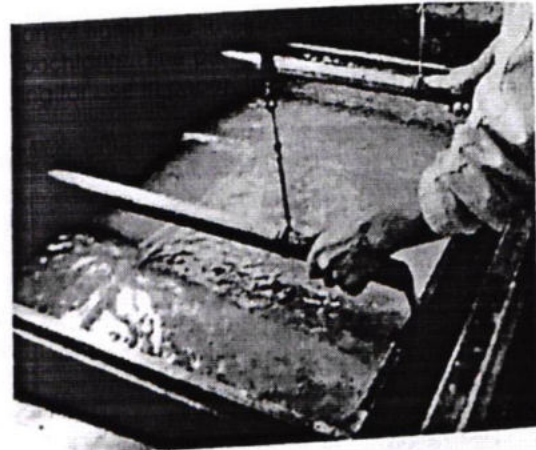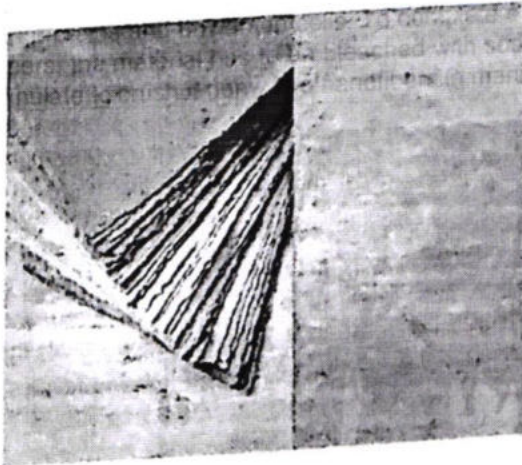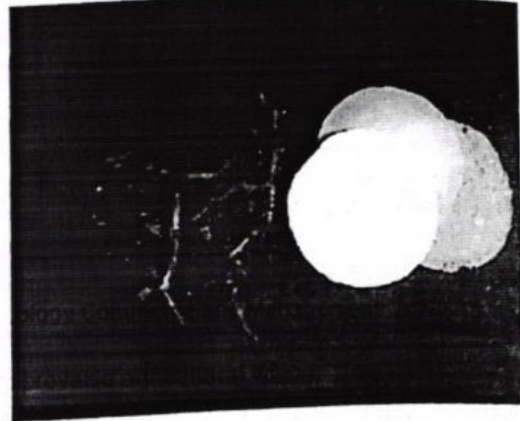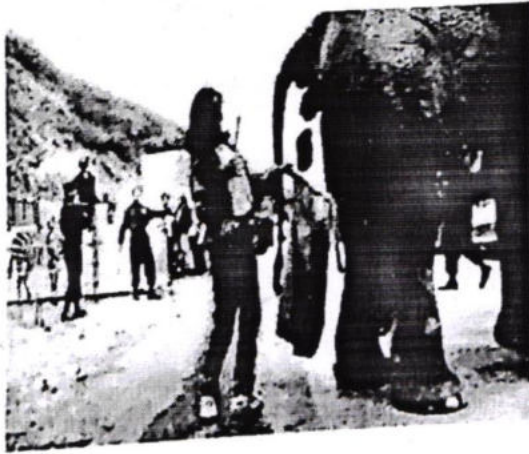
OtherAnimal& Drug Usage

Name of the drug	Animal	Drug Usage
Crestor	Cynomolgus monkeys, rats, rabbits etc.	Controls High cholesterol and increases the good cholesterol
Diovan or Valsartan	Marmosets, rats and rabbits	To cure High BP
Suboxone	Baboons, rats, mice and dogs	Pain relief
Cialis		To treat impotence or erectile dysfunction
Lantus Solostar	Guinea pigs, rats, beagle	To treat diabetes mellitus
Celebrex	Beagle dogs, rats and rabbits	Arthritis and ankylosing spondylitis
Abilify	Schizophrenia and bipolar bipolar disorder	Monkeys, rabbits dogs and rats

Elephant & its importance

Not only these animals elephants are killed to make many products not only the tusks are used almost all the parts of the elephants are used to make products the hair, skin, and dung is also used for the product making.Elephant's leather is exclusively used for handbags colorful paints and designs over it. We can see above products or articleswhich are made of elephant teeeth and hairs are also used to make brushes.
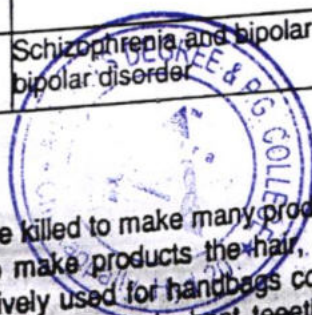
keychains, bangles and many more. Even the elephant dung is used to make pricey coffee at a Thailand tourist destination. Elephants produce a huge amount of dung everyday. 70kgs per animal, to be precise.
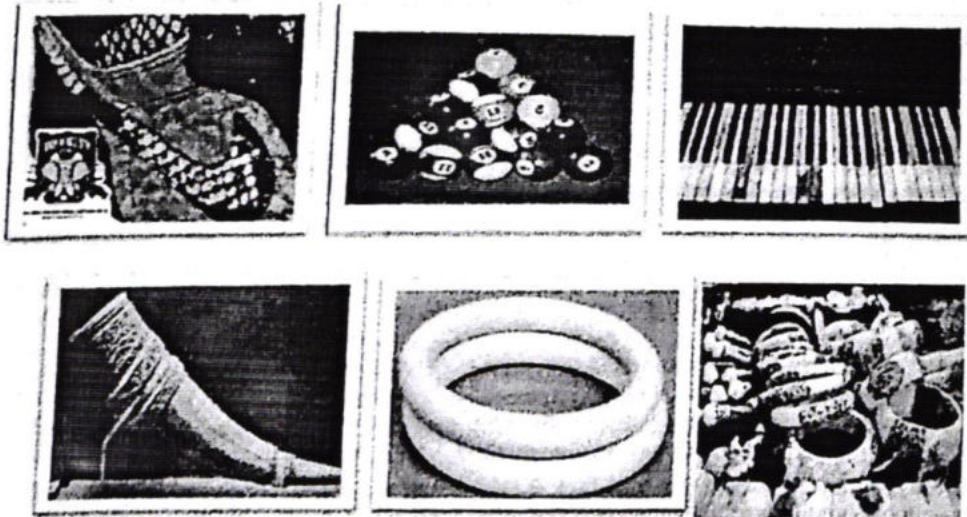
Dung is also used for Filling holes in the road, making paper, used as fertilizer, fuel, exclusively used as mosquito repellent, beer, hydration and also known to clear the sinuses and cure bleeding noses. For the human enjoyment we are killing gaint wonderful elephants at which kids also adore seeing them. We are not locating elephats in zoological parks now a days because we are kiling them for our benefits.

Veternary Care of Elepehants

We are observation many GIT infections and lesions or abrasions on elephants. These precautions include: Hand Washing. Infection control standard, contact, droplet and airborne defense. Safety measures for decontamination of persons and disinfection of equipment and the environment. Few watch-persons of elephants are not treating an elephant in correct manner. When an elephant have a injury they are just refusing it instead not treating it with that the injury is increasing more and having bacterial infections etc. Disorders such as abscesses/ blisters are caused by the prolonged chaffing of chains. Superficial wounds and eye problems due to chronic irritation are associated with work in the logging industry due to jarring conditions of longing wok and continued exposure to dusty environments. Veterinarians with the MVU could open blisters with a scalpel/skewer but this was done only if the mahout agreed to allow the elephant to rest and not work for several days after the procedure. The blisters wound was cleaned and flushed with 1% povidone iodine and antiseptic solution. The duration of course of antibiotics for treating blisters was dependent on size and age of the blisters.

Commonly used drugs in the MVU

Drugs	Dosage	Treatment Intervals
Betadine	Diluted 70%	Twice a day
Oxytetracycline	20mg/kg/IM	48hrs
Negasunt	Cover the wounds	Twice a day minimum
Penicillin-streptomycin	4-2IU/kg/IM	24hrs
Mebendazol	3mg/kgPO	6months to 1year
Dufamec	0.07mg/kg SC	6 months to 1 year
Opsar	2ml per eye	Twice a day
Archifen	0.5ml per eye	Twice a day

Apart from the above drugs used there are so many precautions must be taken.(This is exclusively from Nehru zoo park , Hyderabad and Karnataka forest) *Dr. Manoharam* from Coimbatore and doctor *Dr. Jayakumar* from Kerala have come to detection and treatment procedure. But they would not save the elephant is suffered from severe breathing problems and kidney failure. Veterinary facilities are also improved by the authority of zoological park administration. In the year 2016-2018 June, we lost one elephant named JAMUNA at Nehru zoological park. Elephant experts

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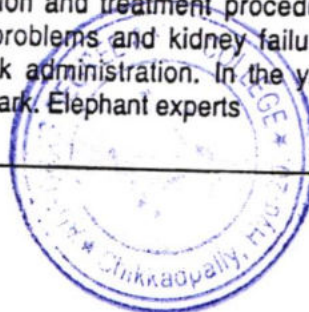
Baths: At least once a week, our elephants head to a special shower stall to het cleaned up. They often lie down or stretch out so their keepers can hose off & scrub their backs.

Oral Hygiene: They don't use big brushes for elephants as we use, but they do take care of elephant's teeth (we clean elephant's mouth, teeth and trim the tusks on daily basis)

Foot Care: It might not be a spa pedicure, but its close! Everyday our caretakers check the elephant's claw, epidermis, and pads to make sure they're in good shape.

Weigh-in: On daily basis they weigh the elephants to monitor their complete health and growth rates, and also to track pre-natal weight gain on the carrying elephants.

Routine Veterinary Checks: An ounce of prevention is worth, well, several tons of cures! TO keep track of the elephants' overall health, we collect and examine blood and urine samples. We also collect blood samples on a weekly basis to keep an eye on hormone levels which helps with breeding efforts.

Exercise: They might not to heavy exercises but the elephants get plenty of exercise. Outside, they have the opportunity to run around, swim, and even play In a waterfall. Indoors, they get the chance to exercise when they do things like play with 'toys' and take baths. Feeding methods also plays a key role in veterinary care. How much you feed. What all we feed? It has a protocol for foods to feed for the elephants. We can feed them with Fodder- Dried grass should be given in less quantities, green grass, coconut fronds, banana stalks, cucumbers, sugarcane, watermelons, all vegetables and fruits. Potassium Permanganate is the chemical solution which is used to clean the fruits and vegetables, to kill the germs and diseases in the water to clean the wounds of elephant. It is very low cost and easy to store. High Efficient Foods are also given to elephants like unhusked rice, fresh maize, and pellet food are expensive compared to other food products and it add lot of nutritional value for the elephants and also useful for elephants which overwork . Elephants have tonics with great interest as it will be delicious for them tonics like sticky tamarind, steamed stick rice, rock salt and herbal concoctions all these are used to increase the appetite in elephants. Anything Too Much Is Dangerous: This applicable to both human and animal nature.

S.No	High Intake of following Food	Disadvantage
1	Fodder	You should be very careful while buying the grass. Have a high experienced mahout inspect all deliveries of freshness and absence of dirt.
2	Coconut- Fronds	Before giving fronds it should be cut into slices or else it will lead to constipation of elephant.
3	Banana Tree Stalks	Feeding an elephant too many banana tree stalks can cause edema. Stalks should be cut into pieces about 15cm long to obstruct into intestines.
4	Pineapples	If you give to many pineapples, or give them to often, pineapples lead to diarrhea and sore mouth.
5	Cucumbers	Are good to feed but problems is with contaminants before feeding it should be soak in potassium permanganate for 15-20 minutes.
6	Watermelons	Are good to feed but problem is with impurities before feeding it should be soak in potassium permanganate for 15-20 minutes.
7	Unhusked Rice	Should not feed immediately after finishing the work elephants will rush to eat it might struck in throat
8	Fresh Maize	Crop is often contaminated by agriculture chemicals should be soak in Potassium permagnanent for 10-15 minutes and then feed the elephant.

9	Banana	more consumption of banana the (dung will be watery)
10	Husked Rice	Should not be given to elephants it leads to constipation and sometimes death.
11	Steamed Sticky Rice	It should be given which is half cooked.
12	Sticky Tamarind	Too much of sticky tamarind leads to diarrhea.
13	Rock Salt	Increases the thirst, slabber oozes out, tiresome looking eyes, staggering and suspicious walking.

In every day veterinary check they feed elephants with vitamin balls. These balls are made with 10 folic acid pills, 15 Vitamin-A, 10 Vitamin-B and 15 Vitamin-D pills they grind them make them as soft dough bowls mold them an feed them for the good biological function preventing bleeding from capillaries and wound healing. This is also applied in Hyderabad Nehru Zoological Park.

Companies Funding For Elephants

1. Muthoot group Sony India Pvt.Ltd.
2. TATA capital housing investment Ltd.
3. TATA capital Ltd WWF INDIA These companies are not-profitable dealing with endangered species and conservation
4. DAVID SHELDRICK WIFLIFE TRUST: supports elephant conservation which hand raised 150 elephant's calves.
5. Muthoot group has devoted to work with elephant's project in 6 states for a year and will spend a specific amount under CSK for this activity.
6. SAVE THE ELEPAHTNS is another organization which brings science and technology both helping elephants. The have raised a movement called SAVE THE ELAPHANTS and they also connected with stopping of elephant smuggling.

Conclusion

As per Hindu mythology Elephants were worshipped as the Lord Ganesha, as the forest been vanished day by day. So all the animals are preserved in zoological parks with limited space. Elephants have more importance a proper veterinary care should be implemented for both major and minor sickness. Everywhere we see all are taking care of elephants in different methods and modes. We need to conserve more and more elephants for future beauty. If we kill elephants, it shouldn't be about having them entertain you, riding in their back or touching them. The glow and beauty of elephants is the bond they share is rarely reflected anywhere in society. Experts are working hard to eradicate the ugliness and restore the elephants to their former beauties that they are. Mr. Deepak Bhattarai, chairman of the local hostel members that organizes the festival, told AFP the event aims to highlight elephants' 'relationship with humans' and to become more. In this way we also should conduct such events to educate the public where ever it is necessary across the globe it will be 'ELEPHANT FRIENDLY' every year.

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Critical Study on Human Animal Conflict

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Abstract

It is a widely known fact that India contributes to 17% of world's animal population and has indeed projected an affirmative perspective on a global scale. However, the latest trends in urbanization and industrialization in an attempt to expand the human civilization has put the lives of animals at stake. It is an undeniable actuality that animals equally contribute towards the sustenance of our ecosystem and is indeed a vital entity of nature. It is very unfortunate that animals have been victimized as a consequence of enhanced industrial escalation which has in turn provoked the animals to enter human boundaries. As a matter of fact, this has led to an increase in human animal conflicts. The current article attempts to disclose vital facts on human animal conflicts and their dire consequences which have indeed caused a severe discrepancy in animal population.The article also endeavor on probable measures to avoid animal human conflicts and emphasizes on various causes that has led to human animal conflicts leading to dire consequences resulting in the loss of valuable resources and habitats.

Key words : Human animal conflict, Mitigation, Ecological balance and Wild life diversity

Introduction

Man and animal conflict can be defined as their interaction in a negative perspective causing damage to both these species. These conflicts can lead to negative consequences resulting in the loss of human resources and animal habitat. Human animal conflict has been an issue of severe concern over the decades and it has resulted in dismal outcomes in both these races. The discrepancies as a consequence of human animal divergence have sternly influenced the survival rate of many species on a global scale. Upsurge in human population and changing times have increased human animal conflicts. As a matter of fact, humans also have been victimized due to these conflicts. Human animal conflicts are fastidious issues and are gaining pace from the perspective of their severity (Panda.org). These conflicts are decisive and are becoming critical threat to the survival of many endangered species like Lions, Tigers, Jaguars, Leopards, and Elephants.These differences due to human animal conflict has not only impacted the population of endangered species but has also negatively influenced the extent of biodiversity that is getting compromised. It has indeed broadened the environmental impact on the ecosystem gradient and biodiversity conservation (SARPO, WWF, 2005). It is a widely accepted fact that India is one of countries which is known for its richness and diversity from the perspective of animal life. But this has come under the scanner for the last 4 to 5 decades which has witnessed a drastic downfall in animal population. Despite of have stringent laws to avoid these conflicts, the implementation of these laws are questionable because bias among the human and animal rights and the priority of human rights over animal rights. Though these biological entities are occupying equal places in the universe, there is an ocean of gap from the context of securing their positions as humans are considered as a dominant species when compared to animals and the laws are yet to be stringently followed to ensure the safety of animals from humans (Madden, 2004).In addition to growing population of humans and animals, rapid depletion of forests, grasslands, savannas due to enhanced industrialization also can be cited as a major reason for increase in man animal conflicts. This unwanted human animal interaction has been a point of crises from the point of view of farmers because they lose their crops due to animal interference which could go up to the extent of claiming lives on either sides. Hence there is an immediate need for putting across certain measures to ensure human animal safety and reduce their interactions that could lead to dire consequences. Many strategies have been employed by the private and public sector to minimize the human animal conflicts in order to avoid negative consequences and to genuinely safe guard the gradient of the ecosystem and biodiversity. Despite of having laws and strategies to overcome the situation, the issue still remains the same as the purpose of conserving wildlife is still far from being achieved (Human-wildlife conflict, 2019). This has in turn increased the urge of setting up new standards and strategies to reduce the divergence between humans and animals which is necessary to conserve animal habitat and natural resources which is on the verge of extinction. Differences between humans and animals due to conflicts have indeed jeopardized the conservation of resources and habitats on a long run which is vital for maintaining natural diversity.
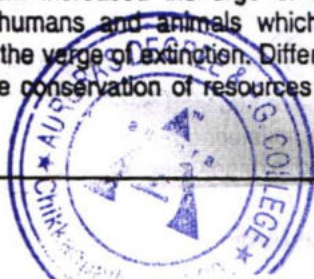
Some illustrations of human animal conflicts are as under

- Predation on livestock and domestic animals due to human population close to forest areas
- Crop lose due to wild animals interference in the agricultural fields
- Presence of roads through the forest areas which increases human animal encounters
- Bird nests in residential areas
- Lack of proper disposal of garbage increases the human animals encounter when these animals loiter in search of food in isolation
- Academic constructions constructed in deforested areas which increases human animal conflicts

The above cited are few of the many reasons that have increased the human animal conflicts leading to ill-fated consequences. In India, wild elephants kill more people than those killed by lions or tigers. In addition, leopards have become the point of focus on the last few years followed by other carnivorous.Over the years monkeys, langurs and macaques have adapted to urban habitats and are commonly found in residential areas. Several studies claim that these three species have somehow adapted to human habitats (Downtoearth.org, 2016). In fact, several studies have made claims to substantiate the human animal interactions in an affirmative manner which is considered as a defining experience for human existence. The major reasons responsible for human animal encounter is the increase in competition among these biological entities for resources and space. It is indeed an undeniable fact that growing human needs as a consequence of growing population has jeopardized the lives of animals because we have entered their territory to expand our civilization (Conover, 2002).

Human interactions with wild life are an essential facet which is vital for human existence. Despite of beneficial outcomes, the other side of the scenario cannot be denied which leads to dire consequences. It is a widely accepted fact that human beings are the most dominant species from the context of their ability to adapt to conditions and innovative skills and they have made use of these capabilities to compete for resources and habitat (Waters et al, 2016). As a matter of fact, these human animal conflicts have resulted in the extinction of some endangered species, leading to discrepancies in ecological balance which in turn hampers the normal biological diversity. These differences in ecological functions and structure have led to immense loss to humans as well (Woodroffe et al, 2005). Hence there is an immediate need to employ suitable remedies to lessen the extent of human animal conflicts.The differences as a consequence of negative interaction have had a colossal impact on the natural resources leading to their depletion. In spite of several measures to ensure affirmative circumstances, the human animal conflict has been an issue of severe concern over the last few decades. Wildlife and human conflicts are in fact a serious issue to be dealt with appropriate measures because it severely compromises the wildlife management and livelihood on a global scale. Growing population has been one of the vital factors to have jeopardized the lives of animals in the wild as the increase in population has in turn increased the demand for resource and habitat for human livelihood and occupation (Barua Mann, 2010). Destruction of forests for meeting growing human demands and occupation has indeed led to depletion of natural resources and has severely influenced the natural ecosystem leading to global climatic change. Global warming is a direct consequence of deforestation.

Consequences of conflict

Various facets like human health, safety, welfare, biodiversity and ecological parameters have been influenced due to human animal differences and several studies have demonstrated a direct or indirect impact on humans. Human and animal casualties have been an issue of concern due to frequent human animal encounters. Recurrent animal attacks on humans due to their frequent encounters and collision of animals with the automobiles have raised the death toll to towering numbers on both the sides. On the other hand, transmission of zoonotic diseases from animals to humans has become very common due to frequent human animals encounters. The extent of damage caused to live stocks, crops and endangered species due to human animal conflict cannot be denied and has been a vital issue of discussion for decades (Linnell et al, 2010). These interactions on a broad scale ranges from positive to negative based on the its severity and impact and can also be classed as rare to common depending on the kind of animal. Predatory attacks on humans are quite common and it is estimated that lions and tigers are responsible for causing around 300 deaths on an annual basis (Indo-Asian News, 2008). Tiger attacks have indeed claimed several lives over the years in India. The attacks sporadically occur in zoo leading to fatal outcomes. Lions are not far behind as estimates report that lions are responsible for causing 100 fatalities per year where tourists and poachers have become the victims of their attack. People are frequently prone to flying insects like wasps, bees, hornets in the United States which results in anaphylactic shock in individuals allergic to the insect's sting (cbsnews, 2020). Nevertheless, some parts of the world make use of apitherapy to derive useful treatment for conditions like arthritis and cancer. Several reports claim that dogs can equally be dangerous as any other wild animal. The amount of fatalities caused by dogs is more when compared to lions or tigers. It is estimated
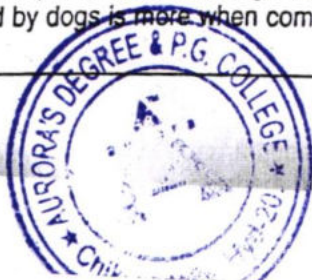
that dogs are responsible for 100,000attacks per year of which many people die due to bite injuries and diseases caused by dog bite.

Animal poaching

Poaching is a term with different contexts in different cultures but on a larger scale, it has been declared as illegal and is not acceptable because of its impact on the wildlife. As a consequence of illegal encroachment, the maintenance and conservation of animals in the wild has become an issue of serious concern. Animal poaching has further ruined the human animal relationship and been one of the main reasons for the decline in wildlife population and has to be dealt with stringent measures in order to conserve the endangered species which are on the verge of extinction. India which is widely regarded as the land of tiger is now hardly left with less than 3000 tiger in the wild due to illegal animal hunting and poaching. Poaching is indeed problematic and is not conceptual due to its negative impact on the natural ecosystem (M. Leach & J. Fairhead, 2000). The nature is a combined horde of all the biotic diversity responsible for ecological sustenance but the growing needs and demands among the people motivate them to engage in inappropriate and illegal practices which in turn risk the lives of humans and animals as well. The contrasting adverse impacts of nature are often ignored by man but on a larger scale, these outcomes will lead to dire consequences in humans from the context of resources, space and habitat. Poaching indeed is regarded as a criminal offense which involves various legal issues leading to 4 to 6 years of rigorous imprisonment (Berkes, 2004]. Several authors and scientific studies have often used the term illegal wild life hunting to describe poaching and such activities can be criminalized leading to punishable consequences (Duffyet al, 2016). Certain regions in the African countries have imposed several measures to legally stop the illegal hunting of wildlife to ensure the safety of animals and for their efficient conservation to maintain the endangered species.These legal measures also ensure the conservation of natural resources which been on the verge of depletion due to human animal differences.

The following diagrammatic depiction represents the downfall of one of the apex predator tiger. The tiger population over the decades has drastically decreased due to human encroachment.
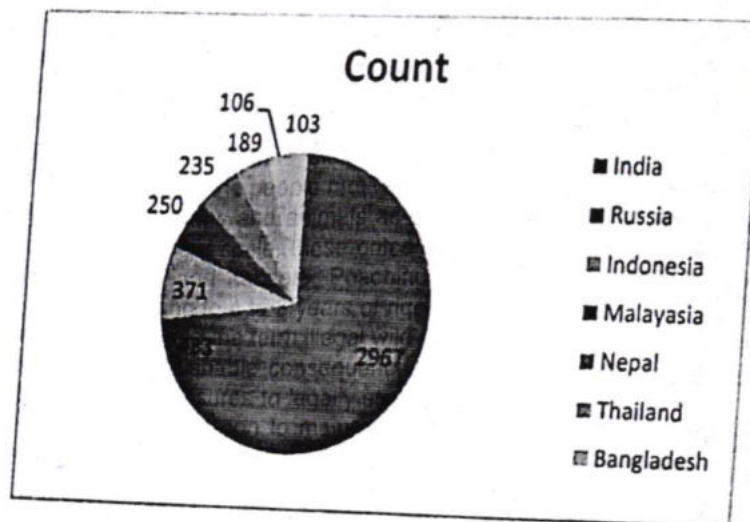
Figure 1: Pie Chart depicting tiger in few countries [Times of India, 2000]

The above pie chart attempts to provide an overview on tiger population in various countries and has been declining over decades due to illegal animal poaching and prohibited encroachment. Each part of the graph depicts the respective numbers which designates tiger population in that country. Surveys and statistical reports reveal a staggering amount of 1977 tigers to have been killed from 2000 to 2018 (104 per year) for their body parts across 32 countries. Reports have also suggested that about 382 tigers were seized alive. These reports were substantiated by TRAFFIC International in Cambridge, UK which is a chief NGO on a global scale that works for wildlife biodiversity and sustainable development. India which is known to house over 50% of global tiger population accounting to over 70% has registered a high amount of tiger death and seizure cases over a period of a couple of decades between 2000-2019. India which houses 2967 tigers. accounts to over 70% of tiger population in comparison to global estimated population of about 3951 but the disturbing fact is the number of poaching and illegal encroachment cases that get registered. It is estimated that 625 tigers are hunted which accounts to 27% with 463 captured cases. Several reports have claimed the role of 13 Asian range countries responsible for over 95% of tiger deaths and India is topping the list. It has been estimated that on an average 60 to 70 illegal seizures were recorded annually in India with a total

Scanned with OKEN Scanner

number of 124 seizures worldwide per year (Times of India, 2000). It is a widely accepted fact that human encroachment in prohibited areas and reserves has resulted in dire consequences.

The following graphical representation depicts the extent of tiger death and illegal seizures from 2000-2019

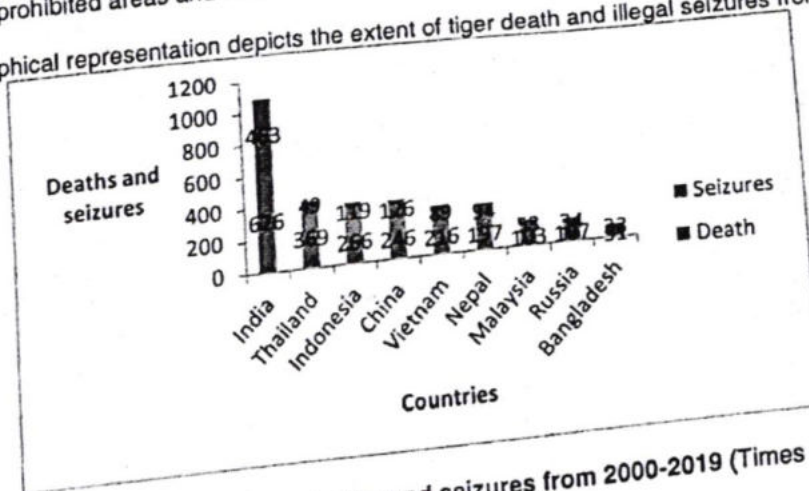Figure 2: Bar representation of tiger deaths and seizures from 2000-2019 (Times of India, 2000)

Illegal hunting of tigers has been an issue of concern and the animal is killed for its skin and body parts. Reports claim the 40% of tiger killing is for the sake of its skin. Tigers have also been hunted for its body parts in addition to skin. The animal is hunted for the procession of its teeth, nails and other body parts.

Tiger extracts in medicine

In some parts of the world, the animal is killed for its prominence in medicine for curing certain medical manifestation. Tiger extracts are commonly used in China for medicinal purpose and has been a part of traditional Chinese medicine. The extracts obtained from tiger body parts is a common ingredient in ancient Chinese medicine which every part of the animal from nose to tail. These extracts have been taken from the eyes, whiskers, flesh, brain, blood and have been used in treating kidney and liver ailments. Medical conditions like epilepsy, baldness, toothaches, joint pain, boils, ulcers, rat bite have been effectively treated through tiger extracts (Davidshepherd.org news, 2014). There are some superstitious beliefs that tiger extracts and syrups made of tiger parts are used for driving away evil force and procession. Though there was a formal ban on the trade of tiger bones in 1993, the following year has witnessed a drastic reduction in the usage of tiger products but the network and trade still thrives in some markets. Several animal laws and legal procedures have attempted to resolve the issue but animal hunting is still going on in some places.

Some of the medicinal prominences of tiger parts are as follows
- Bile extracted from tiger liver is used for treating convulsions in young children
- Tiger blood is used by some as they believe that it increases the will power
- Tiger bones are used as a possible treatment for arthritis, rheumatism and back related ailments
- Brain extracts of tiger are used for treating laziness and pimples
- Clinical conditions like malaria, epilepsy and nervousness have been effectively treated by tiger eye ball extracts
- Tail and whiskers are used for treating skin diseases and tooth ache
- Apart of some of these medical prominences, there are certain superstitious beliefs as people believe that feet and tiger skin can ward off the evil spirits.

Factors influencing human animal conflicts

Several factors including ecological and social facets influence the human animal conflicts leading to a cascade of unwanted consequences that compromises nature and impedes the normal process of wildlife conservation. Some of the vital driving factors that had led to increase in conflicts include rapid human population and affiliated agricultural activities which has provoked humans to convert animal habitats in to areas of occupation to meet the needs of growing human population. In addition, activities like land accumulation, resource extraction for technologies and transportation has increased the need for encroaching animal enclosures. Human wildlife differences cannot be considered as random and additional aspects including biological, ecological and behavioral factors has elevated the probability of human animal conflicts (Soulsbury& White, 2015). However, animal behaviorists and authors believe that pattern of animal human
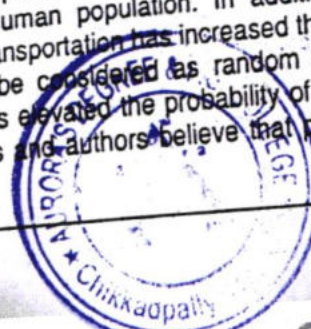
discrepancies can be difficult to make out because of intricacies in ecological, animal and human behavior and other factors affiliated to cropping, animal husbandry and resource mining.

Worldwide inclination to comprehend human animal conflict

Human population and affiliated activities to support human lives have indeed altered the planet. Rapid urbanization and industrialization have resulted in illegal encroachment in to animal territories which has been one of the vital factors that has lessened the human animal periphery leading to frequent unwanted encounters causing irreversible damage to natural resources. Several studies have validated the fact that urbanization has increased the population in urban areas in comparison to rural sectors (McKinney, 2006 & Waters et al, 2016). Several studies have claimed that human animal conflicts are less at regional level where as other revelations illustrates the an excess of human animal encounters due to the presence of less human population and prey availability in abundance. Agriculture has been an important facet that has challenged the existing wildlife ecosystem and it is estimated that by 2050 around 300 to 400 million hectares of wildlife land will be converted in to cultivable lands. Though agriculture has been a source of occupation and income, other side that hampers the natural ecosystem cannot be denied (Schmitz et al, 2014 & Ohrenset al, 2016). Worldwide escalation in agriculture and farming practices including livestock rearing has had a drastic impact on global natural ecosystem. It has been estimated that livestock rearing contributes to over 30% of global economy and it is regarded as one of the vital sub sectors of agriculture. As a matter of fact, these practices have provoked humans to go in search of new territories which include forest areas and wildlife reserves leading to frequent human animal conflicts (Thornton, 2010). Destruction of animal habitat due to expansion in farming activities has been cited as one of the main reasons frequent encounters. Rapid industrialization has fueled up the transportation networks in order to meet the demands of growing human population. As a result in increase in this trend of hasty transportation, transport related collisions have become very common which has led to frequent human animal conflicts and innumerable animal deaths. Several studies have claimed to an extent of 0.5 million and 1 to 1.5 million collisions in Europe and United States which has accounted to 200 deaths annually (Bissonetteet al, 2008 & Langbein et al, 2011). Global institutions, constitutional measures, animal laws and other organizations have worked hard to minimize human animal conflicts as a consequence of expanded farming activities, livestock rearing, animal husbandry and frequent transportation.

Biological and ecological facets

The extent and frequency of livestock predation often varies among individual animals and biological and ecological factor have been affiliated to frequent human animal encounters. Some animals are not known for predatory behavior and are not involved in attacking livestock where as certain animals are occasionally involved in predatory activities. Animal activists and behaviorists have related the life stage of the animal with its predatory activities. Older individuals are easy targets to predators and Western parts of United States have witnessed frequent cougar attacks on humans (Lambertet al, 2006 &Kertsonet al, 2013). Younger animals have been frequently associated with human encounters due to intermittent exposure to human network. Sex is a vital factor that accounts to varying degrees of damage and has been a main cause of crop raiding. Male elephants have been commonly known for crop raiding behavior leading to fatal human encounters. In addition, ecological factors have also impacted to human animal interactions. Distribution of natural resources like food and water can be a reason for increase in human animal encounters when some of these animals probe for food and water (Naughton-Treves, 1998 & Packeret al, 2005).

Critical facts

- Human animal conflicts had contributed towards the decline in wildlife diversity and have indeed challenged the attempts to conserve the natural resources
- The discrepancies as a consequence of human encroachment have been a vital reason for the extinction of several endangered species including terrestrial carnivores
- Driving factors increasing human animal conflicts include migration of humans to different sectors in search of occupation, upsurge in human population
- Urbanization and agriculture have been two of the key facets which have led to the depletion of wildlife due to over exploitation
- Over exploitation of natural resources due to increased human invasion has indeed become an issue of severe concern
- Increase in demand for raw materials due to growing human population, rapid industrialization has in turn increased human animal proximity

- Rearing of livestock has become a common occupation in addition to farming and this in turn has increased the scope and possibility of wild animal attacks
- Human trespassing and illegal encroachment has lessened the human animal distance and has led to human and animal deaths
- As a matter of fact, agricultural fields within the vicinity of forest or conversion of forests in to agricultural lands has increased the scope wild animal attacks on farming animals and humans
- The extent of human animal conflicts can be predicted based on the frequency of interactions which are accidental during trespassing or intentional during illegal invasion of natural habitats
- Differences among practices including lifestyle, values, social, cultural, political facets can add on to upsurge in human animal discrepancies
- Over the decades, animals have been killed for their fur and body parts because of their industrial prominence
- Every attempt has been made by Government and non-government organizations to ensure the coexistence of humans and animals in human dominated landscapes

Potential setbacks

It is a widely accepted fact that human animal conflicts have had a drastic impact on nature and its valuable resources and has jeopardized the lives of humans and animals. The natural ecosystem and its sustenance have been at stake due to frequent human animal encounters. It has not only influenced the natural resources but has also compromised the evolutionary, genetic and molecular analysis through research due to extinction of endangered species because of human interference and illegal encroachment. Human animal conflict can have a larger impact on a global scale from the context of challenges and threats to these components of the ecosystem. Comprehensive understanding factors like ecological, cultural, political, social is necessary to ensure an affirmative relation between humans and animals

Predicted challenges and threats in days to come

- Basic understanding on the evolutionary relationship between humans and animals in order to comprehend their coexistence
- Genetic, trophic and environmental illustrations for conservative analysis on natural and wildlife reserves and resources
- Models for comparative and predictive studies to understand human animal discrepancies of various complexities
- Regional and global protocols and standard databases for data collection, analysis and interpretation
- Sophisticated technologies like electronic devices and drones to frequently monitor human animal conflicts
- Severe shortage of natural resources which could lead to depletion of reserve due to over exploitation
- Understanding of economic, ecological, social, cultural and technological factors to promote human animal coexistence
- Recovery of wildlife reserves and wild life population due to increase in human population and illegal trespassing
- Human animal conflict on a global scale and its affirmative shift on a global view

Conclusion

Every living organism on this planet has its own significance and is there for a purpose without which the totality from the context of diversity may not be attained. All the animals should be allowed to enjoy equal rights as much as humans do and no one has the right to deprive others from their basic rights. Animals are as vital as humans because they contribute to nature's diversity and also assist in maintaining ecological balance. Forests and wildlife sanctuaries serve as main store houses of vital resources for sustaining nature and its entities. However, over the last few decades there has been severe lag from the point of nature's richness because of drastic reduction in forest lands. Though several studies claim the role of urbanization and industrialization as a cause for depletion in forest areas, the main reason is the greed (not need) which has provoked humans to trespass in animal territories which in turn has resulted in human animal discrepancies. Though the losses on both the sides cannot be denied, animals are at the receiving end because these frequent human animal conflicts has led to the extinction of some valuable endangered species and has also resulted in the over exploitation of natural resources. Despite of animal laws and constitutional measures, the scenario is yet to gain pace in an affirmative context. Hence there is a need to understand the situation because loss of animals breaches the normal ecological system and destruction of forests for setting up industries will wipe out the natural resources.

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Adenosine Deaminase as a Marker of Autoimmune Disease in Diabetes Mellitus

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Abstract

Adenosine deaminase is related with T-lymphocyte activity 6, its adjusted blood levels may help in anticipating immunological brokenness in diabetic people and may be one of the significant biomarkers in foreseeing diabetes mellitus. Diabetes mellitus is a clinical condition described by hyperglycemia, because of outright or relative lack of insulin, influencing the whole digestion inside a person. Objective: To correlate the serum ADA levels with HbA1c, fasting and postprandial blood glucose levels in patients with diabetes mellitus. 2MI of blood was gathered for the estimation of serum ADA. The plasma ADA levels of plasma were assessed utilizing the strategy given by Galanti and Giusti. The standard included is that adenosine deaminase of purine salvage pathway catalyzes the hydrolytic cleavage of adenosine to inosine and ammonia. The ammonia formed in the response was evaluated utilizing soluble hypochlorite. The information acquired on the diabetic and control subjects for ADA were portrayed. Adenosine deaminase is a polymorphic impetus that catalyzes the irreversible substance change of nucleoside to inosine. Chemical is considered as genuine marker of the cell interceded resistance. ADA is a decent marker for assessing CMI remaining in diabetic individuals for each immune system issue and grown-up beginning diabete.

Keywords: Adenosine deaminase, Diabetes mellitus and Autoimmune disease.

Introduction

Diabetes mellitus
Diabetes mellitus is a clinical syndrome characterized by hyper glycemia, due to absolute or relative deficiency of insulin, affecting the entire metabolism within an individual. The disease is characterized by metabolic abnormalities such as Long term complication involving eyes, kidney, nerves and blood vessels, Permanent and irreversible functional and structural changes within the cells of the body, which are frequently liable for, long standing derangement. Death may also result from

Classification

The illness is also classified into primary and secondary varieties whereby primary implies that no associated illness is present whereas within the secondary type another specifiable condition causes or permits a diabetic syndrome to develop.

Primary
- Insulin dependent diabetes mellitus (IDDM, Type I).
- Non-Insulin dependent diabetes mellitus (NIDDM, Type II).
- Non Obese NIDDM
- Obese NIDDM
- Maturity onset diabetes of young (MODY)

Secondary
- Pancreatic disease
- Hormonal abnormalities
- Drug or chemical induced
- Insulin receptor abnormalities
- Genetic syndromes
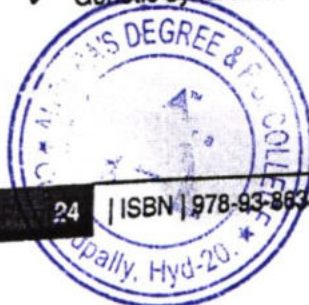
Prevalence

Diabetes is one of the most common endocrine disorders, having a worldwide distribution. However the prevalence of Type I and Type II diabetes varies extensively in different parts of the world due to difference in both genetic and environmental factors. The prevalence of the disease is about 1%, and about one fourth of the cases have Type I (IDDM), whereas the remaining three fourth are Type II (NIDDM).

Pathogenesis of type I diabetes mellitus

Diabetes may be an illness with complex multisystem manifestation that results from a loss of a vital category of cells. A majority of the B cells in the pancreas are destroyed by the time insulin-dependent diabetes mellitus appears. The damaging method is almost certainly autoimmune in nature. An outline of the infective sequence is given in the table.

STEP	EVENT	AGENT OR RESPONSE
1	Genetic susceptibility	HLA-DR3, DR4
2	Environmental event	Virus
3	Insulitis	Infiltration of activated T-lymphocytes
4	Activation of autoimmunity	Self, non-self transition
5	Immune attack on B-cells	Islets cell antibodies, cell mediated immunity
6	Diabetes mellitus	90% B-cells destroyed (alpha cell unopposed)

Pathogenesis of type II diabetes mellitus

Various evidence suggests that NIDDM transmission on autosomal dominant trait. No HLA relationship has been known and autoimmune response mechanisms are not believed to be operative. Genetic influence is powerful ie,. Concordance rate for diabetes in monozygotic twins with type 2 disease approaches 100%.

Patients with NIDDM have two physiological defects, abnormal insulin secretion and Resistance to insulin action within the target tissues related to reduced variety of insulin receptors.

Diabetes mellitus and immune system

Patients with diabetes mellitus show ample evidence of immune response to their self-antigen embrace T-cell and B-cell, cytoplasmic antigens as well as to insulin.

Diabetes and Autoantibodies

The immune directed destruction of B-cell most likely involves both humoral and cell mediated mechanism. Initially two types of antibodies have been identified: Cytoplasmic and surface.

Islet cell surface antibodies

These have the capability to fix compliment and lyse B-cell. Surface antibodies seem to impair insulin release even before the B-cell is physically damaged. The circulating islet cell antibodies have been reported in uncomplicated Type I as well as in a subgroup of patients with Type II.

Diabetes and CMI

It has been observed that at some purpose throughout the event of diabetes cytotoxic T-lymphocytes and antibody dependent killer T-cell participate and complete the destruction process. By the time overt diabetes appears, most insulin producing cells would have been disappeared.

There is increasing evidence that diabetes in humans is an autoimmune disease. The concepts of autoimmunity appear to involve genetic, immunological and viral factors interacting through complicated mechanisms.

The objective of the study was to evaluate the adenosine deaminase enzyme levels in serum of patients with diabetes mellitus. The study has been especially undertaken with an interest to find the role of the enzyme levels with elevated blood glucose levels and also to confirm for a probable immune-enzyme marker in Diabetes mellitus (NIDDM).
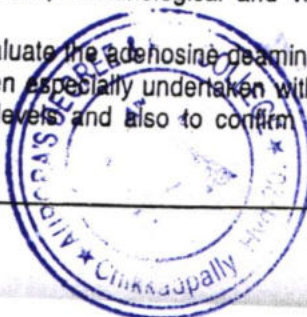
Adenosine deaminase as a marker of cell mediated immunity

Adenosine deaminase (E.C.3.5.4.4) catalyses the irreversible hydrolytic cleavage of adenosine to inosine and ammonia and is involved in metabolism of purines via the salvage pathway. It is widely distributed in human tissues and shows highest activity in lymphoid tissues, particularly those containing the highest proportions of T cells 2. Among blood cells ADA activity is found in erythrocytes and granulocytes 11. The activity is related to proliferation and differentiation of T lymphocyte and is inversely proportional to the degree of T-cell difference 11. Its deficiency mainly affects T-cell activation and CMI. Activation of lymphocytes produces an increase in intracellular ADA levels. The plasma ADA activity has been found to be elevated during antigenic and mutagenic response of lymphocytes and considered as a marker of CMI response 1. Raised ADA levels have been reported in a number of conditions like typhoid, infectious mononucleosis, tuberculosis, lymphoma and rheumatoid arthritis, where CMI is stimulated. In contrast, low levels of ADA activity have been reported inactive hepatitis and chronic renal failure.

Materials and Methods

Selection of subjects

Two adult patients of either sex suffering from diabetes mellitus (Type II) for a minimum of 3 years were selected. Their ages ranged from 35-50 years. 2 control subjects were included who did not have diabetes and were not on medication or had any other illness. About 2ml of blood was collected for estimation of serum ADA. The blood was drawn by venipuncture and subjected for centrifugation at 3000 rpm for a period of 10 min for separation of serum. The serum thus separated was analyzed on the same day or within 48 h after storage at 4 C for "Estimation of ADA activity by the Galanti and Giusti".

Estimation of ADA activity by the Galanti and Giusti

Plasma ADA levels

The plasma ADA levels were estimated using the method given by Giusti et.al. The principle involved is that adenosine deaminase of purine salvage pathway catalyses the hydrolytic cleavage of adenosine to inosine and ammonia. The ammonia formed in the reaction is estimated using alkaline hypochloride. The contents of the tubes were mixed and incubated for 30 min at 37 ^{o}C in water bath. Measure extinction at 635nm.

Calculation

Volume activity = {(E sample - E sample blank) % (E standard – E reagent blank)} X 50 micro liter.

Result: Table 1

| S.No.	Category	No. Of Subjects Studied	Adenosine Deaminase
1	Diabetes mellitus	1	35.51
		2	40.21
2	Control subjects	1	17.50
		2	20.01

Normal values of blood sugar: 70-110mg/dl.
Normal values of ADA in adults: 15-25 units/liter.
The data obtained on the diabetic subjects and control subjects for ADA are depicted in Table 1. The ADA value for diabetes mellitus samples 1 and 2 are high (35.51 and 40.21 respectively) and the ADA values for control subjects are normal range 17.50 and 20.01 respectively).

Discussion

There were considerably elevated levels of ADA in diabetic subjects indicating alterations in functions of immune-regulatory role of T-lymphocytes. This could be due to production of autoantibodies to both islet cells and its product insulin as reported by earlier workers. Elevated ADA has been reported in a number of diseases like typhoid, tuberculosis and lymphoma and rheumatoid arthritis. Activation of T-lymphocytes and islet cell antibodies were found to be increased in IDDM before the actual onset of disease. Similar situation could be operated in NIDDM indicating an auto immune status in both these conditions. So raised ADA levels could be a good immune-enzyme marker for assessing cell mediated immune status of IDDM and NIDDM

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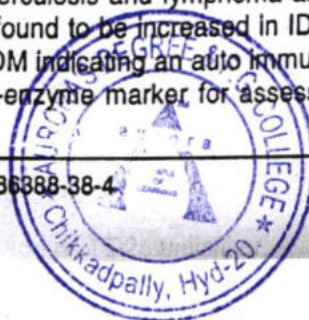
individuals. In diabetic subjects when ADA levels were correlated with FBS levels this was not statistically significant i.e., irrespective of blood glucose the ADA levels were high in all cases indicating no role of glucose with respect to ADA. This is also evident from two of the diabetes subjects studied who had high ADA values despite controlled glucose levels. In conclusion it can be said that ADA serves as a good marker of assessing CMI status in diabetic individuals for both IDDM and NIDDM.

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Nanotechnology-Based Drug Delivery System

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Abstract

Drug delivery via conventional methods involves many challenges with the presence of large-sized particles. In conventional drug delivery, concerns such as poor solubility, in vivo instability, low absorption in the body, issues with target-specific delivery can lead to toxic and probable adverse effects of drugs. To overcome these issues, site-specific and target-oriented delivery methods involving the computational study of molecular drug interactions using nanotechnology has been implemented. Nanotechnology offers targeted drug delivery with maximum site of action and bioavailability in treating chronic human diseases. It employs nanoscale level nanomedical particles as delivery vehicles which consists of different biodegradable materials which can be polymers, lipids or metals by encapsulating drugs or attaching therapeutic drugs and deliver them to target tissue more precisely with a controlled release. Effectivity of this process depends upon the interactions of nanomaterials with cell surface receptors, drug stability and cell signalling mechanism in the biological environment. Desired drugs can be tagged to a nanotube which targets the site of action and interaction of nanotubes with cell receptors having surface affinity to drug helps in drug release. Drug delivery carriers involve micelles, vesicles, liquid crystals, nanocapsules and nanospheres. Nanocarriers when infused with drugs form functionalised nanocarriers which upon administration deliver the drug at targeted site. This targeted drug delivery system reduces the unwanted side effects and combines with the natural functionalities of the target cell. The flexibility of nanoparticles helps in designing novel drug formulations for precision medicine in future nanomedicine.

Keywords: Drug delivery, Nanotechnology, site-specific drug delivery, Drug delivery carriers, cell surface receptors.

Introduction

An effectual approach for achieving better drug delivery would be to develop nanosystems based on the understanding of their interactions with the biological environs, target cell-surface receptors, target cell population, modification in cell receptors that occur with a succession of disease, place of drug action, molecular mechanisms, drug retentiveness, multiple drug administration, and pathology of the disease. Nanotechnology is shown to surpass the barrier of biological sciences and physical sciences by adapting Nano-structures and nanophases at various fields of science. Especially in nanomedicine and Nano based drug delivery systems, where such particles play a major role. Several nanotechnological strategies, such as polymeric nanoparticles, solid lipid nanoparticles, liquid crystal systems, precursors systems for liquid crystals, liposomes, and micro emulsions, have allowed substances with different properties to be used in the same formulation, and may even change a substance's properties and behaviour in a biological environment. These technological discoveries have improved drug delivery. The recent drug delivery systems have the ability not only to increase the specificity of active components but also to reinitiate other components. Moreover, their efficiency to improve new substances by increasing selectivity and efficacy, protecting against photo-degradation, decreasing side effects, and maintaining control of the release of active constituents, before they are introduced commercially or used therapeutically, makes this process more attractive.

Nanoparticles can be defined as highly dispersed solid supramolecular structures with a micrometre size ranging from 10 to 1,000 μm. The drugs can be dissolved, encapsulated, entrapped or attached to a nanoparticle matrix, which acts as a reserve for particulate systems and therefore plays an important role as a drug delivery system for clinical applications. As nanoparticles contain materials designed at the molecular level, they are usually very small-sized nanospheres. Hence, they can disperse much more freely in the human body as compared to bigger materials. The very first generation of nanoparticle-based therapy included lipid systems like liposomes and micelles, which are now food and drug administration approved. The action of drug delivery systems can be contributed to their very small size, decreased drug toxicity, controlled time release of the drug and altered drug pharmacokinetics and its biological distribution. There are different methods involved in the amalgamation of drug molecules

in nanoparticles that can particularly deliver the drug to the pathological area. These nanoparticles are structured in a way that they target the diseased region of the particular organ without interacting with the non-affected part. Nanoparticles can cross the cell membrane easily so that it is targeted to the diseased tissue, which in turn decreases the rate of drug doses that have a more similar effect, lessening the side effect of the drug. Nanoparticles remain in the blood circulatory system for a prolonged time and allow the release of encapsulated drugs as per the specified dose. Hence, they cause fewer plasma fluctuations with decreased side effects. Although a very large part of nanotechnology has been dedicated to oncology and diagnosis and given the ever-increasing number of the patient population, nanomedicine could constitute a valuable resource for many other diseases, and the new approaches that are developed can help to advance research work. Over the last few years, different types of nanoparticles have been developed based on various components, including carbon, nanocrystals, lipids, polymers, silica oxides, metal oxides, dendrimers, and quantum dots, together with an increasing variety of newly developed materials. These nanomaterials have the capability to provide a high amount of biocompatibility during the conjugation with biomolecules for specificity so as to translate into nanomedicines and clinical practice. Nanomaterials have the potential to provide a supportive physiologic behaviour and blood half-life with decreased off-target effects, effective bioavailability from the human organism, and reduced toxicity to healthy tissues in human body.

Nanomaterials can be well-described as a material with sizes ranging between 1-100 nm, which influences the limitations of nanomedicine starting from drug delivery, biosensors, microfluidics, and microarray tests including tissue engineering. The green chemistry way of designing nanoparticles formulated with drugs is widely accepted as it reduces the hazardous components in the biosynthetic process. Hence, using green nanoparticles for drug delivery can lessen the side-effects of the medications. Drug development at the nanoscale level has been examined extensively and is the most ahead technology in the area of nanoparticle application because of its potential advantages such as the possibility to modify properties like solubility, diffusivity, drug release profiles, immunogenicity and bioavailability. This can possibly lead to the advancement and development of favourable administration ways, lower toxicity, improved bio distribution, reduced side effects, and elongated drug life cycle. There are two methods through which nanomaterials deliver drugs: passive and self-delivery. In the passive drug delivery, drugs are subsumed in the inner hollow of the structure mainly via the hydrophobic effect. When the nanostructure materials are targeted to the required site, the intended amount of the drug is liberated because of the low concentration of the drugs which is encapsulated in a hydrophobic environment. In the latter i.e., self-delivery method, the drugs that are intended for release are directly amalgamated with the carrier nanostructure material for effortless delivery. In this method, the timing of drug release is very crucial as the drug will not reach the target site and it gets separated from the carrier very quickly, and conversely, its bioactivity and efficiency will be reduced if it is released from its nanocarrier system at the right time. Drug targeting is another most important aspect that utilizes nanomaterials or nanoformulations as the drug delivery systems and, is broadly classified into active and passive. In active targeting approach, moieties such as antibodies and peptides are coupled with each other for drug delivery system to anchor them to the receptor structures expressed at the target site. In passive targeting approach, the already prepared drug carrier complex moves through the bloodstream and is directed to the target site by affinity or binding influenced by properties like temperature, pH, shape and molecular site. The major targets in the human body are the receptors on cell membranes, lipid components and antigens or proteins on the cell surfaces. Currently, most nanotechnology-based drug delivery systems are targeted towards the cancer disease and its cure.

Nanoparticles are made from both natural and synthetic polymers which have received more attention because they could be tailored for targeted delivery of drugs, increased bioavailability and provide a minimum release of medication from a single dose; through adaptation of this system, it can prevent endogenous enzymes from disintegrating the drug. Secondly, the development of a new drug delivery system is providing another advantage for pharmaceutical uses to branch out. Innovative drug delivery drives pharmaceutical research to develop new formulations of existing drugs. While these new formulations will be beneficial to the diseased person, it will also create a powerful driving force for the development of even more effective delivery methods. The distribution, targeting and toxicity ability of nanoparticles in the body depends completely on shape and size. As particles size decreases, surface area to volume ratio increases. This would implicit that more of the drug is closer to the surface of the particle compared to a larger molecule. Being near the surface would lead to faster drug release at the targeted site. It has been observed that nanoparticles of 200 nm or larger tend to activate the lymphatic system and are removed from circulation quickly. Thus, so far, it is clear that the maximum size for a nanoparticle is approximately 100 nm. At this size, the particle could pass through the blood-brain barrier (BBB), deliver the required amount of drug due to high surface area to volume ratio and by avoiding immediate clearance by the lymphatic system. Hydrogel based nanoparticles are hydrophobic polysaccharides which involve encapsulation and delivery of a drug, or vaccine antigen and therapeutic protein. A novel system using cholesterol pullulan (extracellular polysaccharide excreted by the fungus Aureobasidium pullulans) shows great acceptance. In this regard, four cholesterol molecules gather to

form a self-aggregating hydrophobic core with pullulan on the outer side. The resulting cholesterol nanoparticles brace up the entrapped proteins by forming this hybrid complex structure. These particles induce the immune system and are readily taken up by dendritic cells. Alternatively, larger hydrogel nanoparticles can encapsulate and release monoclonal antibodies

Emulsions are isotropic as well as thermodynamically stable systems composed of oil, water along with surfactant. They contain two phases which consist of two immiscible liquids that are bound together and stabilized with the help of a surfactant with or without the presence of a co-surfactant. They may contain droplets in the range suspensions of 5-100 nm. Microemulsions have been introduced as drug delivery systems to improve the absorption of drug across the biological membranes. Some advantages of micro-emulsions include increased solubility and stability of drugs. Although fewer disadvantages are also associated including phase inversion, premature leakage/release of the incorporated drug, lack of pharmaceutically acceptable toxicity in many effective surfactants and often require the advancement of complex systems that might be a time-consuming process.

Liposomes are small spherical vesicles with one or more aqueous compartments completely covered by molecules that have hydrophilic and hydrophobic properties. They could be single or in multiple bilayers. Those liposomes containing one bilayer membrane are termed as small unilamellar vesicles and are also known as large unilamellar vesicles based on their sizes. If more than one bilayer is present then the liposomes are called multilamellar vesicles. Liposomes are generally used as model cells or as carriers for various bioactive agents including cosmetics, drugs, vaccines, and nutraceuticals. Drugs associated with liposomes have markedly changed pharmacokinetic properties compared to other free drugs in solution. Liposomes are also very much effective in reducing systemic toxicity and avoiding early degradation of the encapsulated drug after administration. Nanocrystals are pure solid drug particles below 1000 nm range. These are 100% drugs without any carrier molecule attached to them and are generally stabilized by using polymeric stabilizers or surfactants. A nanocrystal suspension in a marginal liquid medium is normally elevated by the addition of a surfactant agent known as nano-suspension. In this case, the dispersing medium can be aqueous or non-aqueous. Nanocrystals possess specific properties that permit them to overcome difficulties like increase saturation, increased dissolution velocity and increased solubility or glueyness to surface/cell membranes. Smart nanostructured materials can deliver drugs to the target sites with reduced drug dosage frequency and in a spatial or temporally controlled manner to decrease the side effects experienced with traditional drug delivery therapies. In particular, they allow solving the critical issues encountered with conventional pharmaceutical treatments such as the nonspecific distribution, uncontrollable release of drugs, rapid clearance, uncontrollable release of drugs, and low bioavailability. The overall effect is a sensitive reduction in toxicity as well as adverse reactions. However, despite the remarkable developments of recent techniques, most of all the nanocarriers' action is associated with a number of unwanted adverse effects that diminish their efficient use in nanomedicine. This enlightens some critical issues involved in the design and engineering of nanocarrier systems for biotechnological applications, arising from the complex environment and from the multiform interactions established within the specific biological media. There are many reasons for which nanoscale size drug delivery systems are very much attractive to formulation scientists. The most important reason is that number of surface atoms or molecules to the total number of atoms or molecules increases in drug delivery systems increasing the surface area. This helps to adsorb, bind, and carry them with other compounds such as drug, probes and proteins. The drug particles itself can be engineered in order to form nanoscale size materials. The nanosize device systems size smaller than eukaryotic or prokaryotic cells, which eventually can much more be in a reachable amount is generally inaccessible areas such as cancer cells, inflamed tissues etc. due to their increased permeability and retention effect (EPR) and can impair lymphatic drainage thus that can be utilized for administration of genes, proteins through the oral route of administration procedure. These can be utilized in order to target the reticuloendothelial cells, thereby allowing passive targeting of drug to macrophages of liver and spleen and thus allowing a natural system for treating intracellular infections. Nanomaterials used for this purpose should be safe, soluble and biocompatible as well as bioavailable. They should not block the blood vessel and should be less invasive and the toxicity associated with these nanomaterials for drug delivery should be very low so that they can be used to target the specific affected tissue in a safe amount of concentration. They need drug protection from enzymatic and hydrolytic degradation in the gastrointestinal tract and help in crossing the "first-pass" metabolism in the liver. Nanoparticles generally remain in the circulation for a longer time especially those coated with hydrophilic polymers and are hence suitable for enhancing the efficiency of drugs with short half-lives and can be used to monitor drug as controlled-release formulation as well as for delivering DNA. The dissolution rate of the drug is increased, the onset of therapeutic action is enhanced, and the dose is reduced. The untimely loss of drug through immediate clearance and metabolism can also be reduced. They also have the ability to increase retention due to bio-adhesion.
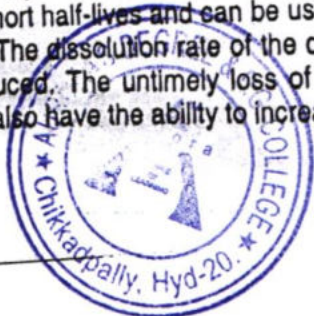
Nanotechnology can be used as part of tissue engineering mechanism to help reproduce or repair the damaged tissue by using suitable nanomaterial-based scaffolds and growth factors. Tissue engineering, if successful may overcome conventional treatment methodologies like organ transplants or artificial implants. Nanoparticles such as molybdenum disulphide, graphene, carbon nanotubes, and tungsten disulphide are being used as reinforcing agents to structure mechanically strong biodegradable polymeric nanocomposites for bone tissue engineering approach. The insertion of the nanoparticles in the polymer matrix in lower amount leads to great improvements in the compressive mechanical properties of polymeric nanocomposites. Probably, these nanocomposites may be used as a mechanically strong, novel, lightweight composite as bone implants. Until now many approved and investigated nanomedicines have not been able to completely fulfil the promise of selective targeting to diseased tissues or cells. Although nanotechnology-based contributions are advantageous for different kinds of medicinal areas, it is important to showcase some of the disadvantages. Researchers have mentioned few negative factors including increased cost, the problem with scaling up the processes, and the easy respiration of nanoparticles, which can result in dangerous lung diseases and may lead to other diseases that cause changes in homeostasis or can even cause death.

The field is undoubtedly progressing at an unbelievable speed and there is no doubt that many new technologies will be introduced that will provide better disease diagnostics and advanced treatment for the benefit of patients and society in the future years to come. Even so, there are also certain challenges that this field faces at a basic level. Common to perhaps all technology developments within this field is not completely understood because of the complex interaction between the artificial materials we are developing and the biological environment they are placed in. This lack of understanding is sometimes at protein, cellular and whole organism level. It is clear that nanoscale to surface chemistry, macroscale morphological properties, and material tenderness are parameters that all affect the biological presence of these technologies that are being able to develop but our ability to understand and map these effects needs to be improvised further over the next decades.

Conclusion

Nano based drug delivery systems have a much higher potential in order to overcome the barriers for affected cell targeting in any diseased condition. Nanotechnology-based approaches may overcome the problem of drug resistance in target cells and may even cross the barriers of drug movement in the human brain. Nanotechnology also involves challenges of drug specificity with molecular targets and its efficiency in the site of action in order to avoid adverse effects on healthy tissues. Nanoparticle-based medicine should be thoroughly observed and examined in reference to the other sensitive cells present at the site of action and the dosage of the drug should be recalibrated in order to increase its efficiency. Nanotechnology possesses both efficient results and adverse effects depending on the drug molecular studies and its further research.

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A Study on Prospection of Online Marketing during Covid-19

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Abstract

Online marketing is the process of dealing in goods and services from merchants who sell on the Internet. This concept has emerged when E-commerce is into the lead a decade ago, but now every perception is to go online instead of offline. Since the emergence of the World Wide Web became so flexible of online generated a kind of mind set in knowing their personal transactions on own palmtops i.e. electronic gadgets, without any delay, is making a lot of comfort zone, dependency , proper understanding between the buyer and seller etc. Perception to go online has increased from common man to a rich person. Most of these interests have diverted to build a source of online marketing business houses to explore and enrich on a largescale. Products surfing through Internet in various modes with different companies and feasible prices are attracting customers. It is becoming a techsavy with high operations. Shoppers can visit web stores from wherever they are and shop as on their interest without any interference of likes and dislikes. Online marketing has become so feasible towards customers and popular in rendering their services while delivering or returning the products, such hospitality also has an effective factor to lead over online business houses. Online marketing is becoming so trendy, has made me to study about this concept. Leisurely changing the mind set and interest of customer perception towards online marketing and also trying to discriminate offline and online. Customers were getting attracted may be due to lack of time or availability of electronic gadgets or proof on number of transactions made with different dealers or online markets etc. Presently if we observe interest of customers is to stay home and stay safe with all the necessaries. That can be satisfied only through online other than foody. This is so happening without any deviations. World-wide customers are buying their needy, electronics and accessories. The most alarming barrier for customers in online shopping for customers is physical feel of the product.

Key Words: Prospection, No Crowd, No Pollution, Gender bias, Click the mouse, Get the product, Stay home and Stay safe.

Introduction

E-Commerce is the base for any kind online proceedings or operations going on in the world. Online marketing is derived from the concept of Digital India. Online Prospection means nothing but knowing the psychology of a customer prospection about marketing of quality goods, reasonable prices, availability, shopping, level of satisfaction will come under the status of online business. It is an act of anticipating things in general, to the present generation and evaluation of mental representations of possible futures. May be thing go online being at a place at the same time making a ladder standoff is very much necessary. The father of online concept has made effective approach in a simple and optimistic way to approach an individual, organisation, firms and all the business units. If we observe there is no question physical transactions except starchy tubers, even for basic needs in buying staples or other necessaries online payment is preferred. Though it is bias in quality people prefer to have a proof in buying and selling of goods. Nowadays even electricity bill, water bill etc. is paid through G-Pay or Phone Pay or Book my Show or Snap Deal or Myntra or Flipkart or PTM or TEZ like this many apps are in to the market to generate an easy-bay for in or outgoing customers instead of going to E-Seva or Mee-Seva. The level of upgrading the technology has made a lot of impact on the societal world. Wherever they are, however they are the mankind is towards online only. It is effective in exploring online marketing to such level were, the person is available any kind of requisites from diapers to electronic gadgets. The only source to reach online marketing is he /she should have an internet. E-Commerce has created such a big scope of existence which cannot be overcome by any other system cannot replace it. It is motivating and encouraging even to an illiterate person, to use the technology without any hesitation and surely making transactions on a large scale. This system is influencing media in so flexible way to make proper innovative advertisements and other things.

In the present scenario online marketing has become popular among people, were no one is ready to take risk by visiting stores and business centres for buying any product but customers have become techno savvy and feel very comfortable in getting their interested products. Earlier to post covid online was not so effective in

meeting the source of customers in time etc. but now they available 24/7 in delivering the products in time as well any damage immediate return to replace the item or return pay out for the beneficiaries. The frequency of online business houses are incorporated and leading on a large scale and functioning smoothly throughout the world without any deviations and making profits.

Since the emergence of the World Wide Web, merchants have sought to sell their products to people who surf the Internet. Shoppers can visit web stores from the comfort of their homes and shop as they sit in front of the computer. It is very trendy to go online shopping because when a product has delivered out your expectation the happiness is like a surprise gift for a person.

The main aim of this research is to study the perception of the customers towards online marketing and also discriminate this perception gender wise also. Basically if we observe the one who order online 80% is women only, somewhere 20% found in case of male that also young guys who are preferring to buy mobiles, t-shirts, earphones etc. the reason may be anything. The customers were perceived that online shopping is better option than manual shopping and most of the customers were satisfied with their online shopping transactions in a present situation. Most alarming barrier for online shopping was customers have to give their credit card number and they can't feel the products physically. Thus made me to study and review exactly what is going in the market and analyse the perceptions of public towards online shopping.

Customers even agree with the statement that online shopping is bit expensive than manual shopping, its takes time to deliver the products and they are facing problems while making online purchases. But their opinion as on today may there some drawbacks in accepting online marketing; still they are out pandemic situations. That is making them away of health hazards. It has become very easy in shopping many items without any negotiations and bargaining because the prices on products are already fixed and at the time of festive seasons there are some discounts available so that the customer can get attracted to do more business through online. It helps people in saving time. It doesn't affect any age factor because any person can easily access and shop the products easily at any time and any place. The quality and design of the product may not be so easily identified but the grace time spent on shopping is saved by doing some multiple works also, which has made a feasibility to become popular among all age groups. There is an exponential growth in this kind of market. A number of new online stores are opening and competition is really high to sustain in the market. But the concept of E-commerce has made a lot flexibility to know the reasons behind online which is also bringing lot of exposure in building trust and convenient to the customer and in channelizing more opportunities to their buyers. Online marketing plays a vital role in this era of digitization where every second of our day is important when it comes to spending time wisely online shopping helps us by choosing and buying what we need without going out or leave work to purchase something.

Online shopping attracts people because it has many advantages as we observed till now. Especially today maximum number of people are working they became very busy, no time, tired out of work, not interested to shop again etc. there are many reasons behind the satisfaction of a person. But finally to satisfy him or family or children something should be done and that can be done only through online. So online shopping becomes the most convenient factor and best way to a formal and informal person also. Many people choose shopping online also because they can't stand for a long or to avoid crowded areas, pollution and noisy environment. For shopping online, they just need to be aware of why and what are they shopping, that small clarification is necessary rest all is finished easily. The technical awareness is required while making payments is also an important factor. To be frank now everyone even kids are aware more than elderly people. Online shopping is not a hard and anguished job anymore because they can stay at home stay safe in adopting such availability & willing to continue easy transactions at the end of the day.

Research objectives:

> To know prospection status towards online marketing.
> To study the customer perception on online marketing.

Need of the study

> i) Identify any in efficiencies in the existing procurement process
> ii) Determine if the inefficiencies are based in prices or process
> iii) Setting objectives as to what is hoped to achieve
> iv) Allocate resources and
> v) Set timelines and set target return on investment.

Scope of the study

➤ Online or Digital marketing is the key to hold an in-demand profession.
➤ Recognizing the significance of digital marketing, brands are getting super active to focus on digital marketing and hence the digital marketing skills are in a serious demand widening its scope in the market space.
➤ Higher pay and multiple career choices are the silent advantages of a marketing career.

Review of Literature

Armstrong and Kotler (2000) a person's shopping choices are influenced by four major psychological factors: motivation, perception, learning and beliefs and attitude. This means that, through motivation and perception, attitudes are formed and consumers make decisions. Attitudes serve as the bridge between consumers background characteristics and the consumption that satisfies their needs.

Goldsmith and Bridges (2000) found that consumers who felt that it was easy to buy over the web were more likely to buy, implying that confidence leads to greater purchase likelihood. A positive relationship between Internet experience/confidence and amount of shopping is thus found in his study.

Rehman (2000) a factor concerning consumers' willingness to buy online is response time. Response time is understood to be the time between user input and system output. The system response time is not only influenced by its hardware, such as the CPU and transmission rates, but also by good design which aims at reducing the necessary amount of data transmission to a minimum. On the subjective level, long shop response times leads to frustration and boredom and may result in the shopper leaving the site. Research shows repeatedly that users complain about long waiting times.

David (2000) in his research report made an attempt to project the world wide sale of goods and services and the amount of goods traded through online. It was found that by 2004 about 8.6 percent of worldwide sales of goods and service are traded on the internet and the amount of goods traded would be worth $6.8 trillion. The study concluded that online sales will not be uniform across the world but will differ from country to country and region to region.

Volk and Ferderick Allen (2001) made an internet survey of 201 people using the internet worldwide. The Internet has evolved from a communications tool for a select group of scientists to a commercial juggernaut that is predicted to change the way people buy and sell things across a number of industries. The study focused on the consumer behaviour. The Consumer Decision Process can be categorized into five sub processes such as motivation and need recognition, information search, alternatives evaluation, purchase decision and purchase and purchase outcomes. Internet user attitudes and intention to use the internet for each of the behaviors were studied within the theoretical constructs of the theory of reasoned action. It was found that the attitudinal component of the theory of reasoned action was consistently predictive of the users' intention to participate in all nine of the consumer behaviors during the year 2000 holiday shopping season.

A survey (2001) was conducted by the Charted Institute of Purchasing and Supply on the e-procurement needs of the consumers. They revealed that 35 percent of the European manufacturers expect that internet purchase of goods and service will grow in the forthcoming period. They have identified five steps for the improvement of the internet business to be done by the manufacturer.

Shweta Puneet (2006) in her article made an attempt to analyze about how business value enhancement can be done through technology in the retail sector. It was observed that the business is more competitive because the expectations of the customers are going higher and hence the need to find out the new methods to drive the business in the innovative way is also increasing. A fully integrated merchandising supply chain network enables the retailer to overcome longstanding operating problems and to provide the customers with the better experience in shopping. Once the customer builds the trust that gets what they want, they will come back to the same retail store.

Dinesh, Amit, and Raghav Rao (2008) in their study compared online store rating with other e-store loyalty factors. It was found that the number of years on the web has the least impact on repurchase intention. This has significant implications for managers of online stores because it suggests that stores would attract more customers by having positive customer reviews. The amount of time the store has been in business does not seem to affect the repurchase intention of consumers. "Word of mouth" remains the most powerful customer acquisition tool and impact on the trust that the customers have.

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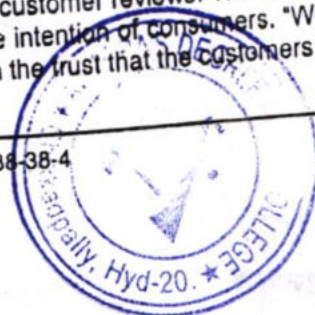
Amar Cheema and PurushottamPapatla (2009) made an attempt to study the relative importance of online information versus offline information for internet purchase. The study found that relative importance of online information is higher for utilitarian products such as computer hardware and software than for hedonic products such as books, music and movies, the relative importance of online information decreases with increasing consumer internet experience and consumers trust of online search engine information decreases with increasing internet experience.

Erico Marcelino, Web Designer

"Coming from a visual communications background, I find it extremely interesting how something as simple as the choice of typeface or font can significantly affect the thought process of a reader. This article touches on a study where readers were given a passage from a book followed by two yes-or-no questions asking if they agree with the passage and its credibility. The research actually had a hidden agenda – unbeknownst to the readers, the book passage was presented in six different typefaces ranging from the elegant Baskerville typeface to Comic Sans. Needless to say the Comic Sans readers were less inclined to agree with the passage whereas the the Baskerville readers were more likely to agree. This attention to typography is just as important in online marketing whether it'd be in ads, on websites or on landing pages.

Ollie de Vries, CRO Strategist

"This article outlines the best way to go about not only getting your team and key stakeholders keen to proceed with a website/campaign optimization plan, but the best approach to leading the conversation and driving enthusiasm. There's everything from how to set expectations through to the best way to plan and develop the briefs."

Methodology

Research methodology
The process used to collect information and data for the purpose of making business decisions. It includes publication research, interviews, surveys and other research techniques. Research methodology includes both present and historical information. It is a way to systematically and logically solve a problem.

1. Secondary data (Internet, Previous projects).
2. Primary data refers to the original data that has been collected firsthand through some sort of interaction with individuals. In this project, the method used for collecting data is the questionnaire method. It was prepared in the form of google forms which was then circulated.

The sample size is 50
The sampling method followed is convenient sampling. It means that In this sampling method the respondents are selected solely based on their proximity and accessibility to the researcher. It is also known as accidental sampling or opportunity sampling. It is a type of non- probability sampling method.

Limitations of the study
➤ The study has been conducted based on the data acquired from the common people of Hyderabad only, the finding may not be applicable to other locations.
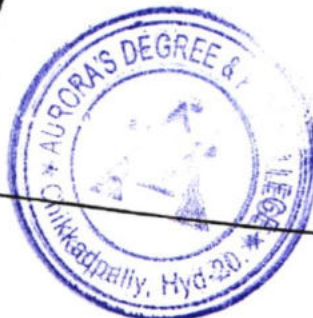➤ Sample size is 50.

Data Analysis And Interpretation
Gender

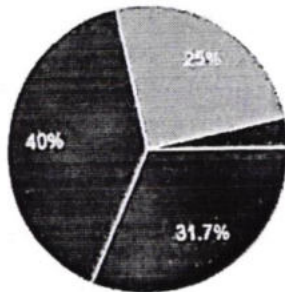60 responses
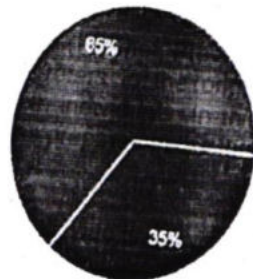
- male
- female
- prefer not to say

1.

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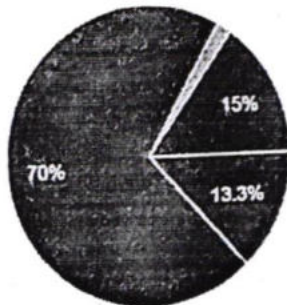From the above analysis, we have received 60 responses. In that male are 35% and females and 65%.

Age
60 responses

2.
If we observe the age comparison chart who are using online are 18-30 years 31.7%, 31-40 years 40%, 41-50 years 25%. The highest figure out is age group 31-40 are using more than others.
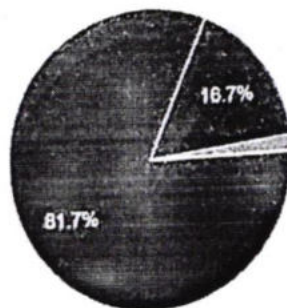
Occupation
60 responses

3.
we observe the above chart, the ones who are using online extremely are Professionals i.e 70%, students 13.3%, others 15%.

Are you aware of online marketing services, which one you prefer mostly.
60 responses

4.

As per the respondents, 81.7% of them are preferred to use Amazon, 16.7% is Flip kart, to some extent myntra, no response on book my show.

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How often you have been using using online marketing
60 responses

- 1-2yrs
- 3-5yrs
- 5yrs
- Above

41.7%   11.7%   38.3%
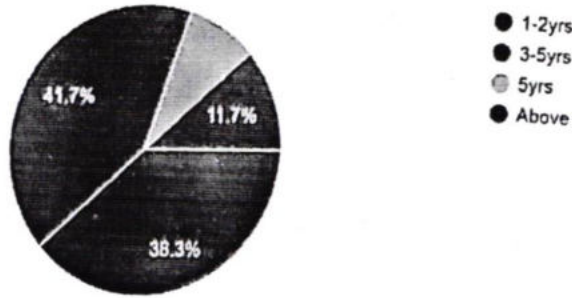
5. The above analysis, respondents who are using online since 1-2 years is 38.3%, 3-5 years is 41.7%, 5 years s is to some extent, and 11.7% are above 5years.

6.

Which of the following online services you use often
60 responses

- Ticketing
- Shopping
- Banking
- Advertising

20%   73.3%
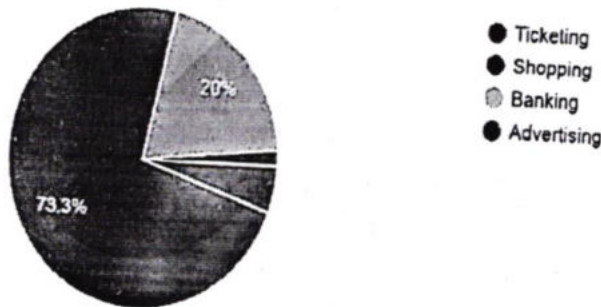
The online services used mostly for shopping i.e. 73.3%, for banking 20%, Ticketing is to some extent, less response on advertising.

Which online service would you prefer and convenient to you in making small payments
60 responses

- G-Pay
- Phone Pay
- TEZ
- PTM

18.3%   20%   61.7%
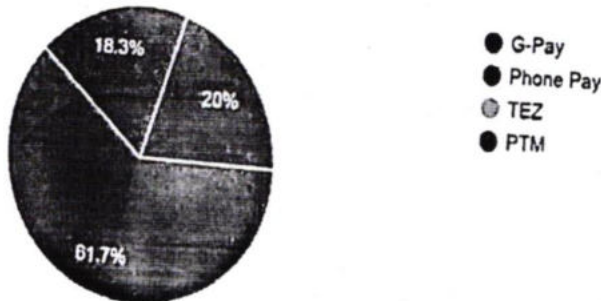
7. From the above analysis 61.7% are flexible using G-Pay; Phone pay 18.3%, 20% goes with PTM. G-Pay app is more preferable.

Did u face any problem by using online services

60 responses

- No
- Yes
- Maybe
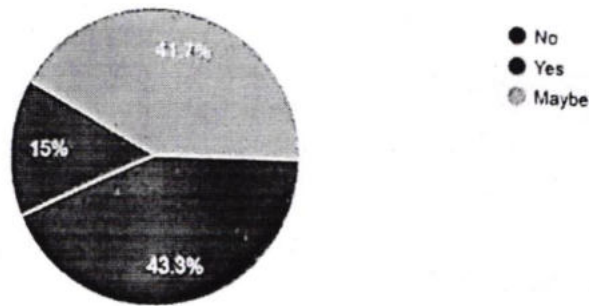
8.
Above analysis says, 43.3% of the respondents are comfortable using online, 417% are optional, 15% say no issues faced. People feel safe while making online transactions and proof.

What kind of problem you have faced while using online marketing services

60 responses

Lack of knowledge	9 (15%)
Internet Connectivity	23 (38.3%)
Online Payment	22 (36.7%)
Others	25 (41.7%)
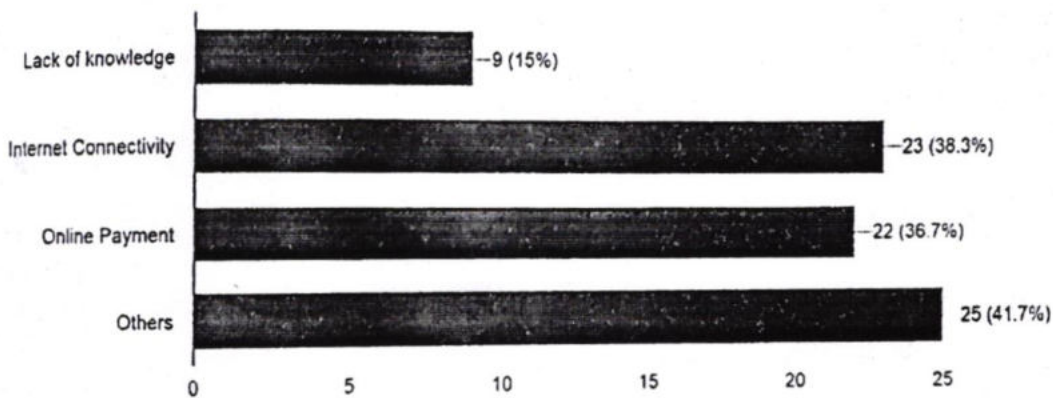
9.
Respondents are not convenient in using online due to lack of knowledge or some technical problems. Above analysis 15% are facing a problem out of lack knowledge, 38.3% is internet connectivity problem, and 36.7% is with regard to online payment, 41.7% others.

10.

Do You think it is the best service to overcome covid

60 responses

- Yes
- No
- Maybe

Above analysis says, 65% are giving positive response, 28.3% optional. Maximum they feel as best service to overcome covid.
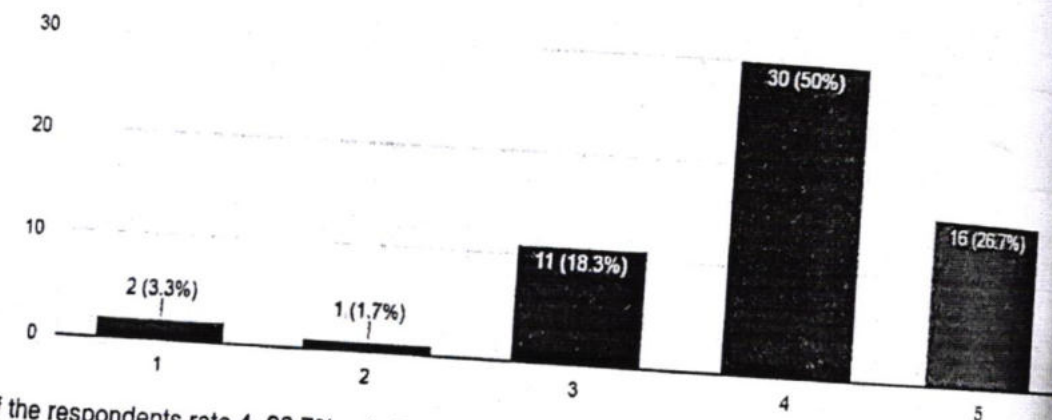
Do you think online service is a value added service
60 responses

- Yes
- No
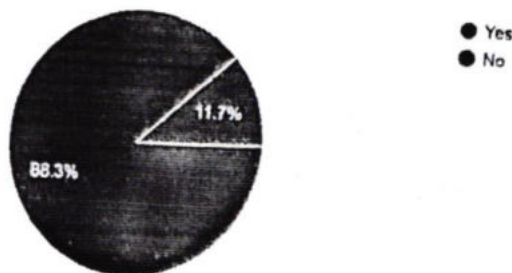
11.

Above analysis, 88.3% of respondents say it's a value added service, only 11.7% say no. my study is success because customers opinion online is a value added service.
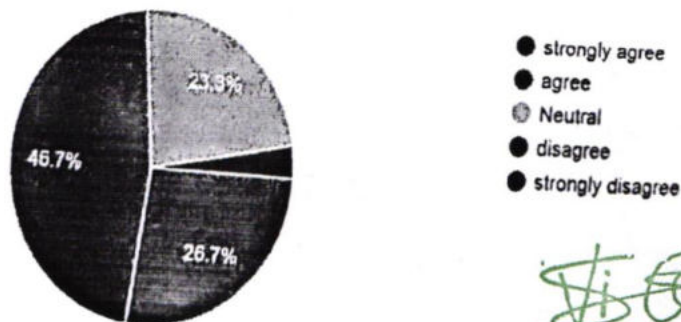
How do you rate the level of satisfaction using online services
60 responses

12.
* 50% of the respondents rate 4, 26.7% rate 5, 18.3% rate 3, 3.3% rate 1, 1.7 rate 2.

Do you feel online services are user friendly
60 responses

- strongly agree
- agree
- Neutral
- disagree
- strongly disagree

13.

*46.7% respondents are agree with online, 26.7% strongly agree, 23.3% are neutral, 3 % strongly disagree, finally no one is disagreeing with online.

Findings

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My study on online marketing gives a positive response. Because, now a day's Maximum number of people prefer to use online out of busy schedule, easy to access, easy to make any kind of transactions like e-banking, online payments through different apps, without any time restrictions. As everyone is aware of E-Commerce is the father of all online services. Earlier people use to face some technical issues out lack of awareness, once they switched on to online; they feel more comfortable in using with more frequency. In the present situation it is showing a lot of impact on the world wide to meet different types of transactions from various grounds may be it is software or a normal company prefer to use it on safer side. Mostly from common man to professional like employees, households, elders, youngsters and all.

It is creating awareness for every individual, which doesn't matters the place or position, where in online is like time saving, no pollution, no crowd etc. without any deviations in the present situation. This study even tells as, it is the best value added service to overcome covid. This is also a right time to enlarge the business transactions, because of its exclusive nature. Sometimes there is a problem while transacting due to technical issues or lack of knowledge.

Finally, the rating of online is standing in a best position on a scale of 4.5.

1) The most significant finding of the study is, majority of consumers are prefer online because of current situation which is leading high in economically to all the Web stores.
2) The highest Leading-Web is Amazon with quality goods, flip kart; snap deal, myntra web stores to some extent, G-Pay, TEZ, Phone Pay and PTM is also preferred by many customers for small payments not exceeding 50k.
3) The study shows that, majority of the customers feel easy to shop online or time pass or out of leisure.
4) Customers in beginning times of e-commerce unable to meet the expectations as per the orders made, delay in delivery, damages in products all these had some negative feedback such kind of negativity is smooshed away and created a transparency in minds of customers.
5) To compress the dynamic offshore activities it has strengthen good lead in condensing the negativity.
6) Appearance of webstores now it is so attractive irrespective of age factor.
7) It has developed a belief in changing situation.
8) Online is motivating the people to think logically and work technically.

Conclusion

The Research here states that the Respondents been using the E-commerce in various modes depending on the situation like online marketing, online shopping, digital marketing, digitalisation, M-commerce etc. in any means people are satisfied and shopping continuously. Hence I conclude that E-commerce industry has been developing vastly taking different kinds of operations with different apps, to meet the need. E-commerce is an Industry which has been emerging since 12 years and would expand more and more delivering huge customer value and service. E-commerce on overall has brought a revolutionary change in the consumer's perception regarding purchase of goods online.

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The machine of the year Artificial Intelligence (AI) insight to Customer expansion in E-commerce

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Abstract

Artificial Intelligence (AI) means the concept and advancement of computer systems which enables to perform work normally with human intelligence such as optical perception, speech acceptance, decision-making and conversion among languages. Online shopping is the synonym of E-Commerce. Artificial Intelligence (AI) has the vigorous ability to obtain and analyze huge data and provide choices of action. E-Commerce at present taking up this technology to find based on their search history; purchase order, user account etc. This analyzed data is used for re-targeting the sales which leads to customer expansion. The research aims to study the impact of Artificial Intelligence (AI) that leads to customer expansion in E-commerce. Customer expansion has become the goal of every industry. This can be achieved with the help of Artificial Intelligence (AI); because when a customer wants to purchase a product the recommendations of the product which is of different brands and price range could be displayed within fraction of seconds. The Artificial Intelligence (AI) plays a major role in E-commerce to interact between the industry and customer made easy round the clock. The main objective of the research is to find how online shopping is re-targeting the customers with the help of Artificial Intelligence (AI). This research is based on both primary and secondary data. The research analyses what role Artificial Intelligence (AI) played in E-Commerce for customer expansion with reference to mode of shopping.

Key words: Artificial Intelligence (AI) , E-Commerce, Customer Expansion, Statistical Tools

Introduction

Artificial Intelligence (AI) means the concept and advancement of computer systems which enables to perform work normally with human intelligence such as optical perception, speech acceptance, decision-making and conversion among languages. Online shopping is the synonym of E-Commerce. At present we live in a world where customers buy almost anything through online shopping and it can be delivered within few hours or days. This online shopping is attainable by application of Artificial Intelligence (AI) in E-Commerce. The term Artificial Intelligence (AI) refers to a collection of programs that can simulate human intelligence which is processed by machines especially electronic devices. E-Commerce is not just an online shopping; it includes all the applications of AI to make online shopping simple for both customer and seller. One of the important feature of E-Commerce is it has direct relation between the seller and buyer. For Customer expansion, E-commerce is using AI to know their expectations and recommend products as per their preference. Artificial Intelligence (AI) is transforming the way in which E-Commerce is able to provide the best service to their buyers. Right from providing information about price, brand, recommendations and personalized shopping experience through virtual assistants. Artificial Intelligence is providing online shopping experience for both the buyers and sellers. This AI is the only tool which can track the customer purchase history and retarget them for shop more. Application of AI in E-Commerce can predict the future purchase patterns of the consumer and target them for increase of sales. Customer expansion can only increase the sales in E-Commerce. As in traditional shopping the retailer has relationship with the customer and predict according to his preference. But in E-Commerce it is not that easy because there is no personal interaction. Here for Customer expansion the E-Commerce seller must know which product the buyer is searching for and then must target him with recommendations. This is possible with Artificial Intelligence. To make online shopping simpler and accessible Artificial Intelligence is helpful.

Objectives

1. To study the role of Artificial Intelligence (AI) in re-targeting their customers with reference to mode of shopping.
2. To study how E-Commerce utilizing Artificial Intelligence (AI) in making online shopping simple.

Research Methodology

Research analysis is done with appropriate tables and graphs using M.S Excel.

Sources of Data

The data is collected from both Primary and Secondary sources. Convenience sampling technique is used to collect primary data with structured questionnaire. Secondary data is collected from different journals, websites and published resources.

Review of literature

Ecommerce industry is being utilized by online sellers for providing personalized services to online buyers for customer expansion. According to survey, worldwide retail eCommerce sales grew to $ 2842 Bn last year from $ 1336 Bn in 2014. The same report shows expectation that this figure is going to cross $ 4878 Bn in 2021.

Limitations

The sample size selected for the research is 120 in the area of Hyderabad.

Background of the study

Traditional Commerce to E-Commerce

E-commerce is an alternative of Traditional Commerce due to there is an exchange of goods. The substantial distinction between E-Commerce and Traditional Commerce is accessibility. With traditional commerce, customer has to make some time and travel for shopping. This shopping is possible only during business hours. But in E-Commerce store, the customer is allowed to shop round the clock. For customer it is possible to do online shopping where ever they are with no barriers of time or place.

E-Commerce before Artificial Intelligence (AI)

Traditionally, retail businesses were convinced by just creating an E-Commerce website for their business. Then consumer preference shifted to online shopping over going to stores due to convenience. But in E-Commerce, customers building loyalty towards online shopping is always a challenge. Therefore, E-Commerce retailers were trying something exclusive to attract new customers by providing offers, free delivery etc.

E-Commerce after applying Artificial Intelligence

Artificial Intelligence (AI) is to be a tool for leading stickiness in E-Commerce. It could recover E-Commerce from the present-day interruption by drifting the innovative quality to convey data approved experience. Today, E-Commerce is applying Artificial Intelligence to increase online shopping standards, customer experience, and earnings and fast processing. Customers are provided with a personal choice as per their preference and made easy to choose products based on their previous browsing patterns. AI has become a game changer in the field of E-Commerce.

made online shopping simple with Artificial Intelligence. Artificial Intelligence used powerful tools to find customer requirements, predicting their interest and recommending as per their choice.

Data Analysis:

1. Table showing respondents profile (Sample size 120)
a) Table showing size of respondent's (%) in terms of mode of shopping- Gender-wise

Mode of Shopping/Gender	a) Gender			
	Male	Female	Prefer not to say	Total
Online Shopping	13(10.83%)	13(10.83%)	0(0%)	26(21.67%)
Offline Shopping	13(10.83%)	27(22.50%)	0(0%)	40(33.33%)
Both	26(21.67%)	27(22.50%)	1(0.83%)	54(45.00%)
Total	52(43.33%)	67(55.83%)	1(0.83%)	120(100.00%)

Interpretations:

➢ From the above graph we can interpret that most of the respondents prefer to do both online and offline shopping which is 45%
➢ Female would mostly prefer to do offline shopping compared to men.
➢ Overall from the analysis we can interpret that most of the respondents prefer for online shopping.

2. Table showing Application of Artificial Intelligence in Online shopping

a) **Designing Customer Significant Visual Search:** When a customer wants to shop online must browse websites. AI played a major role in designing websites as per customer requirement. AI uses visual search which matches the product which customer browsed. This made customers use websites more often.

a) How many websites are you presently using for shopping in E-Commerce?				
Mode/Websites used	1-2	2-4	4 and Above	Total
Online Shopping	7	14	5	26
Offline Shopping	30	9	1	40
Both	27	23	4	54
Total	64	46	10	120

Interpretations:

➢ We can interpret that most of the respondents presently using at least 1-2 websites for online shopping.
➢ Out of total 120 respondents 64 respondents are using 1-2 websites and 46 respondents using 2-4 websites.

b) **Product Recommendation:** One of the powerful tools of AI used in online shopping is product recommendation. With the help of AI E-Commerce is able to recommend their customer as per their personal preference. AI is able to recommend the product with the help of big data like purchase history and online.

b) Does your recommendation in E-Commerce site help you out in purchasing?				
Mode of shopping/ Recommendation	Total	Yes	No	Maybe
Online Shopping	26	20	1	5
Offline Shopping	40	20	7	13
Both	54	32	4	18
Total	120	72	12	36

Interpretations

➢ Out of total 120 respondents 72 respondents accept that recommendation by E-Commerce in online shopping is helpful.
➢ We can know that application of AI tool in E-Commerce for customer expansion.

c) **Chat bots:** Chat bots is a tool of AI which handles all the queries in E-Commerce. The reason behind E-Commerce utilizing this chat bots is because they communicate with the customer 24*7 through text or call. These bots offers all the desirable solutions and answers for the queries raised by customers in online shopping.

Satisfaction of respondents on the queries handled

Legend: Online Shopping, Offline Shopping, Both, Total
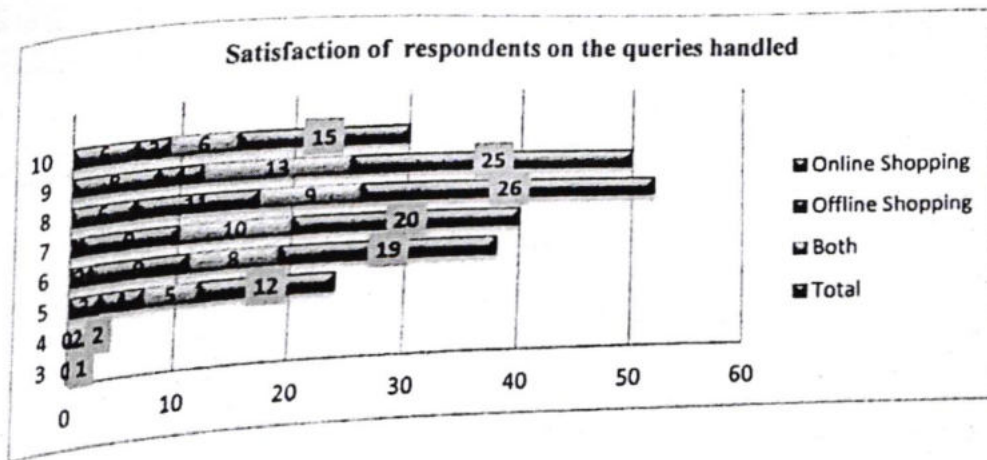
Interpretations:

> We can analyze from the above graph that customer satisfaction is more in queries handled irrespective of their mode of shopping.
> The average rating the respondents quoted for their satisfaction level is 8-9 with sum of 51.

d) Customer Reviews: Every customer prefers to check the reviews of the other customers who have purchased. But, now a day's fake reviews is the biggest problem in online shopping. To encounter fake reviews in online shopping E-Commerce used AI.

d) Do you prefer to check the reviews of the customers who have purchased?				
Mode/Websites used	Yes	No	Maybe	Total
Online Shopping	23	2	1	26
Offline Shopping	37	2	1	40
Both	48	0	6	54
Total	108	4	8	120

Interpretations

> Out of 120 respondents 108 respondents view the customer reviews before they purchase a product in online shopping.
> We can conclude that AI has filtered the fake reviews and made customer trust on the genuine reviews.

e) Retargeting Customers: Price is one of the important factor in online shopping. When there is an offer, deals and discounts in online shopping the customers tends to shop immediately. This is how E-Commerce is retargeting their customers for customer expansion using AI.

e) How often you feel deals, offers & discounts re-target the customer?						
Mode of shopping/Customer re-target	Always	Often	Sometimes	Rarely	Never	Total
Online Shopping	6	15	5	0	0	26
Offline Shopping	11	8	16	4	1	40
Both	8	25	18	3	0	54
Total	25	48	39	7	1	120

Interpretations

> Out of 120 respondents sum of always and often is 73 respondents who get targeted at the time of sales with offers, deals and discounts.
> AI has re-targeted its customers in online shopping which leads to customer expansion.
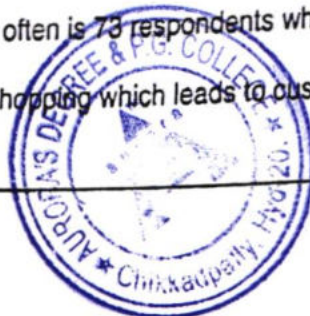
Findings

- Out of 120 respondents most of the respondents prefer to do both online and offline shopping which is 45%
- Female would mostly prefer to do offline shopping compared to men.
- Most of the respondents presently using at least 1-2 websites for online shopping.
- From the sample size of 120 respondents, 72 respondents accept that recommendation by E-Commerce in online shopping is helpful.
- The average rating the respondents quoted for their satisfaction level in queries handled is 8-9 with sum of 51.
- Out of 120 respondents 108 respondents view the customer reviews before they purchase a product in online shopping.
- By analyzing the data of 120 respondents, sum of always and often is 73 respondents who get targeted at the time of sales with offers, deals and discounts.

Conclusion

At present we live in a world where customers buy almost anything through online shopping and it can be delivered within few hours or days. From respondents we can know that online shopping is attainable by application of Artificial Intelligence in E-Commerce. Artificial Intelligence has made E-Commerce easier for both buyer and seller in online shopping. E-Commerce industry after applying AI is able to notice an increase in their sales which leads to customer expansion in online shopping. We can conclude with the help of respondent's response that applying Artificial Intelligence in online shopping leads to increase in shopping standards, customer experience, and earnings.

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Robust ways of Artificial Intelligence in E-commerce

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Abstract

Artificial Intelligence is a computer science technology that emphasizes the creation of intelligent machines that react like humans. It is a machine learning technique used to solve many current world problems. The use of Artificial Intelligence is more common with the fast development of technology, and its growth has more impact on the work and lifestyle of human beings. It has the strong ability to acquire and analyze the data and provide necessary information for decision-making strategies that can attract the customer towards the product. E-Commerce is now adopting this technology to identify the preferences of customers based on browsing, purchase history, and account information. This data collected then form the basis for customized recommendation and suggestions for each customer as per their choice. Many e-commerce businesses have started implementing different ways of AI to better understand their customers and provide enhanced customer experience and satisfaction. AI enables the companies to predict, automate, and enhance the e-commerce industry through sales and marketing and helps them to generate revenue. Online retailers also using Artificial Intelligence for providing chatbot services, analyzing customer comments for providing personalized services to online shoppers in the e-commerce industry. This paper describes the evolution and robustways of artificial intelligence in E-commerce and its drawbacks. It also explains the future of AI in the e-commerce industry.

Keywords: E-Commerce, Artificial Intelligence, predicting

Introduction

E-Commerce also referred to as electronic commerce or internet commerce. It is a process of buying and selling goods and services through means of the internet. Present world E-Commerce is battling for creating and developing various strategies that can attract customers towards products. Artificial Intelligence is a strategy that uses a computer software program that provides them with the ability to think as human beings. AI is offering smart solutions to many business firms in this current competitive world. The AI is also benefiting the e-commerce industry in a greater way. AI technology is revolutionizing the e-commerce industry and helping it to reach greater heights. There are many potential applications of AI in e-commerce for improving and automating customer services which help to enhance sales and revenue to the businesses. And also, to forecasting customer's future needs. Many business organizations already witnessed the success of AI in e-commerce in the center of their competitive advantage. Various scientists from psychology, economics, mathematics, science, and technology in the 1940s and 50s itself got an idea to create an artificial brain that was founded in the year 1956 as an Artificial Intelligence. Alan Turing, a great mathematician first proposed the 'Turing test' to test machine intelligence in 1950. Later in the year 1956 US-American computer scientist, John McCarthy first coined the term "Artificial Intelligence" in the Dartmouth conference and is regarded as the father of AI. In 1966 Eliza the first chatbot is created which allows communicating with Eliza by typing in the input box. In 2002 iRobot launches Roomba, an autonomous vacuum cleaner robot that avoids obstacles without human input. AlphaGo a computer program was developed in 2017 to play board game Go, which was developed by Deep Mind Technologies. In 2018 most of the universities have courses in Artificial Intelligence in different streams.

Literature review

Dr. S.N. Gawali's study on "Artificial Intelligence" (January 2019), depicts that E-Commerce business firms keep on enhancing their AI instruments to more readily coordinate the market requirements. That study believed that Ai in online business will affect transactions, client maintenance, fulfillment, proficiency, and some more. It also explained that AI-based e-commerce business will likewise produce IT employments to create and keep up the frameworks and programming that will run those AI calculations.

Shyna Kakkar & Vishal Monga's article on "A Study on Artificial Intelligence in e-commerce" explained the two types of AI they are weak AI and Strong AI and also explained the important aspects of AI that e-commerce businesses can use. That paper highlighted the role of artificial intelligence in e-commerce and its application in different areas of e-commerce.

Mr. Lande R.D. paper on "Artificial Intelligence in E-Commerce" (January 2019), explained various tools of AI helping e-commerce businesses to get their customers. That study concluded that AI will have a significant effect on the way e-commerce businesses attract and retain customers. But the convergence of AI and e-commerce may impact people lacking in-demand skills set face unemployment in the coming future.

Tapan Kumar & Dr. Monica Trakru's study on "The colossal impact of Artificial Intelligence in e-commerce: statistics and facts" (May 2019), depicts the statistical facts relevant to this domain. That study conducted case studies on Amazon, D.com, Alibaba. The study suggested that E-Commerce firms continue to improve their AI tools to better match market demand. The study suggested the companies to merge their competencies in AI to create more sophisticated solutions.

Shaffy Girdher's article on "Role of Artificial Intelligence in Transforming E-Commerce Sector" (June 2019) revealed about how Artificial Intelligence influencing the usage of E-Commerce. That study also explained about the present status and trends of E-Commerce. That study suggested that e-commerce firms consistently improve their AI tools to better match market demand.

Need for the Study

AI technology is prominent because it enables people's capabilities like understanding, learning, communication, perception, planning to be undertaken by software effectively and efficiently. The application of AI-powered software will be particularly significant in the e-commerce industry to increase sales for growth and development of business. Nowadays to sustain in the competitive world it is necessary to adopt the latest technology, and that is AI at present. AI is performing a prominent role in the effective performance of the e-commerce industry for that it is necessary to study the robust ways of AI in e-commerce for a better understanding of the concept.

Scope of the Study

Artificial Intelligence is used in all the sectors, but the present paper is highlighting only the role and application of AI in e-commerce and its future prospects.

Objectives of the Study

1. To study the concept of AI and e-commerce.
2. To know the evolution of e-commerce.
3. To understand the importance and drawbacks of AI in e-commerce.
4. To overview the future of AI in e-commerce.

Research Methodology

The secondary data has been collected from various websites, books, journals, and articles on Artificial Intelligence.

Discussio

Application of Artificial Intelligence in e-commerce

1. Voice Assistants: A voice assistant may be a digital assistant. It uses voice recognition and Natural Language Processing (NLP) to supply service through a specific application. Voice assistants make use of voice recognition technology to reduce end user's dependence on hardware like mouse and keyboard. It allows the customer to use voice commands to search and buy the products online. Amazon's Alexa, Apple's Siri, Samsung's Bixby, Google Assistant, and Microsoft's Cortana are some examples of the voice assistants.

2. Customer-Centric Visual Search: Visual search is a technique used for online searches that uses real-world images, screenshots, internet images, or photographs as the stimuli for online searches. Modern visual search technology uses AI to understand the content and context of these images and return a list of related results. AT uses visual search capabilities that tend to match the product. Making us possible to shop for the things we are looking for, and love. Amazon, Google, and Pinterest are important visual search engines today.

3. Targeting The Potential Buyers and Enhancing Sales: AI is using the technology to understand the customer's needs, and expectations based on their behavior. AI collects the data and that records help the businesses to determine what is the demand of their buyer and it tries to meet that demand which helps them to enhance the sales.

4. Chatbots: The most common technologies that are used in chatbots are Machine Learning and Natural Processing to understand and meet the needs of the customers. AI chatbot can learn about customer's preferences to encourage more purchases and provide personalized service 24*7. Chatbots with AI answers complex queries, understands unique query, give personalize response, learns from past conversations, and improve future conversations. The future chatbots will be equipped with emotion AI and advanced sentiment analytics to understand the conversations in a more humane way.

5. Personalization: E-commerce personalization is the ability to deliver personally customized content on e-commerce sites by product recommendations, specific offers based on previous purchases, browsing history, demographics, and other data. Personalization is important to businesses not only to engage shoppers but also to increase repeat purchases. Marketers who are using personalization see an average increase of 20% in sales and 80% of shoppers are more likely to buy from the businesses who offer personalized services.

6. Recommendations to Customers: AI can effectively and efficiently tend to gather all the data that has been searched for. The algorithms take the information, history, data, and other information and offer a necessary reference or relevant and helpful product recommendations to the user. These recommendations make the efforts of buyers simple and easy.

7. Automation: As e-commerce is one of the leading and developing industries for its expansion and growth use of automation is necessary. AI helps to target potential customers at the right moment and present them with the content with a human touch that appeals to their preferences.AI technology for this purpose provide discounts, sale, new price, offers to the customers. With such rich customer information at your fingertips comes an opportunity to identify target groups based on their behavior and establish relevant communication at every step of the customer journey.

8. Sales Forecasting: Estimating future sales is the one of important tasks of businesses. With AI software smart solutions, now businesses can forecast their sales. Their machine language analyzes past opportunities, successes, win rates and other criteria to create a recommended forecast and help the sales team to take action

9. Filtering Fake Reviews: One of the biggest problems of online retailers and e-commerce businesses is fake reviews. Most of the trust online reviews as much as they trust a personal recommendation. But throughout the time, people realized that even competitors may give fake reviews. Therefore, to face this situation most of the e-commerce brands use AI to eradicate this problem of fake reviews and help the customers with authentic comments on the products or brands.

10. Intelligent Searches: AI search engines helps the customers to find out what exactly the customer is searching for based on the browsing patterns.AI powered search engines pull the information from the large data and deeply analyze the conversation held with the customer by using the search term entered by the customer.

11. Retargeting Potential Customers: Sometimes, the customers while spending time on online shopping they spend a notable amount of time on a particular product and suddenly they exit. That data can be stored and utilized for the next visit of the customer. This is the process of retargeting potential customers based on their shopping patterns.

12. Enhance Cybersecurity: Keeping the customer data secure and safe at their site is the biggest threat to businesses. With the integration of AI security solutions, e-commerce platforms can keep the cybercriminal at the bay of the store and keep their data safely in the database.

13. Dynamic Pricing: AI-enabled dynamic pricing is a new technique to hit the e-commerce industry. It is a pricing strategy used by businesses that change the price of the products based on supply and demand. Businesses use customer data, competitive pricing data, and sales transaction data to predict when to discount, what to discount, and dynamically calculate the minimum amount of discount needed to ensure a transaction. Amazon is the current leader in applying this technique which uses tools like Seller Active, Price2Spy, and FeedVisor.

Drawbacks of AI In E-Commerce:

1. Too Expensive: Installation and setting up of AI-based machines, computers, etc. are very expensive to e-commerce business organizations in the initial investment stage and its cost depends on the manufacturer. Another important factor is related to technology, if the company wants to adopt minimal technology the price

tag different or if it wants to adopt sophisticated technology it costs very high which small organizations cannot afford.

2. Bad Data: AI analyzes a large volume of data collected and helps customer recommendations and retargeting customers. Suppose due to the fake customer reviews or any other reason if the data collected itself is wrong then it cannot predict the volume of sales, customer recommendations and retargeting because there is a direct contact between the quality of data and the capability of AI.

3. Lack of Creativity: Artificial Intelligence is lagging in the creative aspect. It does not have the creativity to build something from scratch on that level. It will still require the support of an actual person. It is beyond any doubt that AI perform more efficiently as compared to a human being, but it can't still compete with the human brain.

4. Privacy Policy: There is no privacy with AI technology. If any customer searched for personalized products in online by using a smartphone or laptop based on that customer search history AI recommends the same kind of personalized products to others even if other person uses the same smartphone or laptop.

5. Deals and Offers: There is no systematic strategy on which grounds businesses use dynamic pricing techniques. Whatever the deals, offers, discounts are announced by companies using AI are whether based on supply, demand clearance stock, or due to obsolescence.

6. Risk of Unemployment: With the rapid growth in the field of AI, the question or doubt that arises in the intuitive mind is that - will AI replace humans? Many people predicted that Automation will displace many employees from jobs. Nowadays most of the businesses are replacing less qualified employees with machines which can do the same work with more effectively and efficiently which leads to chances of unemployment.

Future of AI in E-Commerce

Artificial Intelligence is playing a prominent role in the present competitive world. AI is used by all sectors, especially in the e-commerce sector. Data, Technology, Process, and People are considered as the four pillars of AI's future. AI's future in e-commerce is the brightest in three areas that are in Personalization, Search, and Chatbots.

Retail e-commerce sales worldwide from 2014 to 2021 (in billion U.S. dollars)
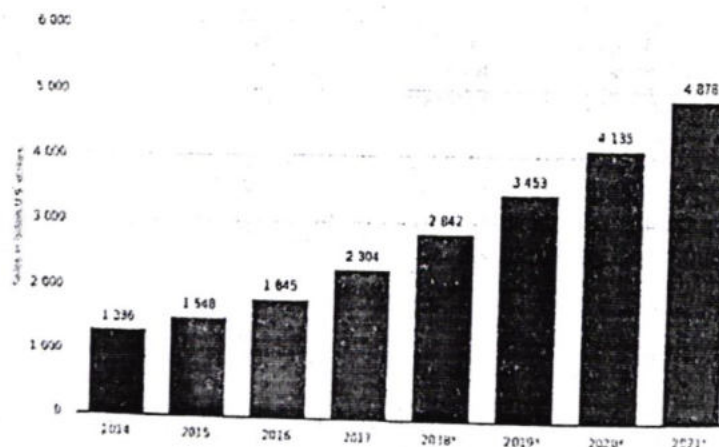
The above bar graph showing how AI is having its impact on e-commerce sales world wide during 2014-2021. That depicts a steady increase in sales with the use of AI in e-commerce. As per the Gartner's prediction by 2020, over 80% of all customer interactions will be handled by AI only. Many companies like Alibaba, JD.com, Rakuten, eBay, and Amazon are using AI for chatbots, product recommendations, fake reviews, managing big data analyzation, etc. As per the Ubisent report on AI in e-commerce in the future 1 out of 5 consumers is willing to purchase products by using chatbots and these consumers are opened to spend up to £314.74. 40 % of consumers use chatbots to look for offers and deals in online. Google invested £400 million acquiring

Deep Mind, Artificial Intelligence Company. Data mining, NLP, and ML are the key elements of AI which helps e-commerce businesses to improve results. With AI technology machines are learning how to assist consumers and how to perform manual tasks. It allows businesses to focus more on a strategic level of business.

- The AI market will grow to a $190 billion industry by 2025(source: Market and Markets research firm)
- Global spending on cognitive and AI system will reach $57.6 billion in 2021(source: Markets research firm IDC)
- 75% of commercial enterprises apps will use AI by 2021(source: Markets research firm IDC)
- China will reap the most economic benefit from AI by 2030, followed by North America(source: Markets research firm IDC)

Conclusion

AI is helping e-commerce businesses to attract and retain customers. With AI tools and technology e-commerce is revolutionizing its business efficiently and made remarkable achievements. With the continuous development and rapid success of research technology of machine learning process, Natural Language Processing, deep learning platform, voice analysis technology, robot automatic processing system and other AI will develop steadily and will continue to promote the development and reform of e-commerce in the future. AI is more and more widely applying its technology in e-commerce with upgraded and sophisticated techniques in recent years. It is having a great impact on the retention of existing customers, customer loyalty, and satisfaction in e-commerce transactions. With the great support of AI, e-commerce will build better customer relationship management in future endeavors.

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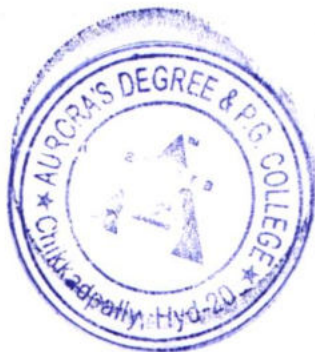
Role of Non-Government Organizations in Fostering Entrepreneurship – A Case Study of Jagriti Sewa Sansthan

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Abstract

The non-government organization is an organization strives exclusively for the welfare of the society in any said objective and operates primarily to further the common good general welfare of the community. There are many organization's which are working on different grounds to create an impact in the society an objective of development with any expectations of monetary value. Entrepreneurship is much more than the competition and risk taking of starting a new business venture. Enterprises create jobs and wealth. The dynamism of the entrepreneurship they brought to the economy made very easy to face the challenges of globalization and structural changes. Fostering entrepreneurship means channeling entrepreneurial drive into a dynamic process which takes advantage of all the opportunities the economy can provide. The present study focuses on Jagriti Sewa Sansthan in creating Entrepreneur Led Development. The study includes both primary and secondary data. JSS brought a positive impact in development of enterprises all over India and the world through international participants.

Key Words: Non-Government Organization – Fostering Entrepreneurship – Mentorship – Sustainable Enterprises

Introduction

The NGO is an organizations strives exclusively for the welfare of the society in their said objective and operate primarily to further the common good general welfare of the community. There are many organization's which are working on different grounds to create an impact in the society an objective of development with any expectations of monetary value. They work mostly on the donations of the people or the funds accumulated under corporate social responsibility scheme (CSR), and these are also formed by employees who earnings are devoted to charitable, educational and recreational purposes. Entrepreneurship is a complex term that's often defined simply as running your own business. But there's a difference between a "business owner" and an "entrepreneur," and although one can be both. "Entrepreneurship is much broader than the creation of a new business venture," said Bruce Bachenheimer, a clinical professor of management and executive director of the Entrepreneurship Lab at Pace University. "At its core, it is a mindset – a way of thinking and acting. It is about imagining new ways to solve problems and create value." The present study focuses on the role of the NGO which encourages entrepreneurship in tier 2 and tier 3 cities of India through a case study. The present case study is about a NGO named "JAGRITI SEWA SANSTHAN" which uses novel techniques and methods for inculcating entrepreneurial qualities among the world youth at large. The author in the present paper has made an attempt to explain the above techniques and methods.

Objectives of the study

1. To elucidate the role of Non-Government Organization (NGO) in fostering entrepreneurship
2. To create an awareness among youth about the training being provided by NGO to cultivate entrepreneurial abilities among them

Methodology

Primary Data
Primary data has been collected using personal observations, interactions with role models, yatripreneurs, board members(JSS), during JagritiYatra attended during 23rd December 2017 to 8th January 2018 as a facilitator.

Secondary Data

Secondary data has been collected through yatri guides, websites.

Role of NGO's In fostering entrepreneurship – Since independence entrepreneurship development is emerged as a national movement to solve the dual problems of unemployment and poverty. The government introduced several programs like PMRY, TRYSEM to create entrepreneurial environment but the government agencies could not work effectively. This necessitated the NGO's to come forward from their traditional services like health, sanitation, education, family protection, environmental protection etc. to join the noble mission of entrepreneurship. Since then several NGO's like National Alliance of Young Entrepreneurs (NAYE), World Assembly of Small and Medium Entrepreneurs (WASME), Xavier Institute of Social Studies (XISS), SEWA of Ahmedabad, 'Y' Self-Employment of Calcutta, AWAKE (Association of Women Entrepreneurs of Karnataka), and Rural Development and Self-Employment Training Institute (RUDSETIs) based in Karnataka. Likewise, the above ngo's Jagriti Sewa Sansthan also initiated an innovative way to develop entrepreneurial culture among youth. The Jagriti Sewa Sansthan is a grass root level NGO who conducts field activities by establishing direct contact with the grass-root needy people. They organize simulation exercises, business plan competitions, counseling and consultancy services and also provide financial and marketing assistance.

Jagriti Sewa Sansthan : Jagriti is a non-profit organization that has been a torchbearer of Enterprise Led Development (Udyam Janit Vikas) in Middle India for a decade. It is creating a national enterprise ecosystem to support the entrepreneurs in tier 2 and tier3 districts in India. Jagriti want to re-imagine the development of a typical district, by inspiring India's youth who are able to devote their lives to enterprise development in middle India districts. We will connect these districts to a national network of national builders. This middle up approach to development will ensure that solution are local and relevant and have the citizen who shapes them driving this.

Case Study of Jagriti Sewa Sansthan – The era of enterprises that we live in, revolves around altruism as it one of the foundation stone, where we focus on collaborative growth. Now a days, it the team that decides the success of an enterprise rather than an individual, and it clearly visible with the success that jagriti yatra has been achieving year after year.

India has only 15 years over which it demographic ratios will improve and start to fall. This next decade offers a young country, with a vibrant enterprise culture (a recent world report ranked India globally), a last chance to use its demography to good effect. Post 2032 our working age population to total population will lead at 0.64 and then fall. After that point it will be much more difficult to bring about economic and social growth. We need to act now, as with automation, per rupee investment in industrial sector jobs are reducing, agriculture is throwing out more jobs, while over 10 million new people are entering or working age population every year. Most of this demographic and job stress is in the North and East. Most of it is in small towns and villages. Nation building was seen as the remit of a few intellectuals, a few politicians, a few bureaucrats or a few civil society workers. The view of Jagriti Yatra is different. The very definition of democracy and a republic is to have every citizen take part in its building process. This particularly applicable for a country like India where a vast majority of our citizens are young and are in search of purpose. This now even more important given the urgency of nation building we are confronted and with given the demographic equation described above. Jagriti believes that the Indian demography is a diamond in the rough with infinite potential. And we need to awaken this potential in millions of Indians in the middle of the demographic diamond. These 750 million Indians, inhabiting the Tire 2 and 3 districts of India – we term as Middle India – have passion and talent, but lack exposure and support that can lead to a discovery of purpose. Our aim is to reposition enterprise not as the calling of the few but the vocation of the many – those 58% Indians living in Tier 2 and Tier 3 towns. Jagriti aims t inspire a new generation of that recognizes that the only way they can discover purpose and find meaning is by self –employment. With the Mission of "Building India through Enterprise", Jagriti has created a unique model of bringing a national enterprise ecosystem to the service of entrepreneurs is tier 2 & tier 3 districts of India, facilitated by an on-ground army of youth, called Udyam Corps, and local physical infrastructure.

The development model is based on three pillars of Jagriti- Jagriti Yatra (JY), Jagriti Enterprise Network (JEN), and Jagriti Enterprise Centre (JEC).

JagritiYatra

JagritiYatra is a national program that has created a platform of 4200+ alumni and continues to grow every year. Jagriti Enterprise Network (JEN) and Jagriti Enterprise Centre (JEC) are creating a district-development
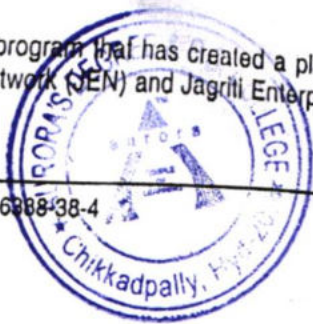
model that brings the expansive network of Jagriti Yatra (JY) to the benefits of entrepreneurs of Middle India. Their mission is to nurture 1 Lakh entrepreneurs by 2022, the 75the Anniversary of Indian Independence. The JagritiYatra is the longest 15 day long, national train journey in the world dedicated wholly to motivating young people to become entrepreneurs. It takes 8000 kilometers across the length and breadth of India, to understand and build the India of smaller towns and villages through enterprise. **12 destinations, 15 days, 15 role-models, 500 yatris, 8000 kms** is the unique feature of the yatra. It helps yatris in exploring India and its hinterland is an exciting physical joinery on a special journey on a special train, jointly with 500 others is a key principle of the journey. And these 15 dyas are a good time to pose those questions ,pre deeply and attempt to answer them in the company of 500 other like-minded individuals.

Jagriti Enterprise Network (JEN)

Through Jagrti Enterprise Network, Jagriti is building a collaborative ecosystem of entrepreneurs, funders, academics and large corporates and connects them to the entrepreneurs of middle India. The ecosystem is fed by an expanding network of likeminded individuals and institutions create by the JagritiYatra. JEN makes this enterprise ecosystem accessible in small towns and villages through its network of facilitators at the district level. JENptoves the following key services to the entrepreneur

- -Enterprise knowledge
- Access to funds
- Market linkages

These three services will increase the chance of success and catalyze enterprise led development at the district level. With 5 facilitators (known as Udyam Corps) in every block of the district, local support infrastructure and connected vans (Udyam vans), JEN takes the spirit of enterprise to the last mile. JEN is currently active in Deoria district in Purvanchal, as a Pilot.

Jagrti Enterprise Centre (JEC)

JEC is a physical brick-and –mortar center that will catalyze the growth of Purvanchal as it becomes the center for Incubation of SMEs, a forward looking urban planning, a place to bring communities together and a window to middle India for rest of the Country. A piece of land around the iconic Banyan tree, the architecture for a Centre in an inspiring spiral form, conceived by TruptiDoshi, a yatri, who is a renowned award winning architect and sustainability engineer.

The brief description of Yatra

Despite the buzz around start-ups, the fact remains that India is way behind the home ground of start-ups, the United States, where many students not only start but profitable exit companies while they are still in business school. ·The yatra is but a small effort to connect and expose young people like you to a world of possibilities in areas that you probably have not seen or heard and did not expect to see or hear. The yatra urges you to discover enterprise at an age when you can start-up, flounder and start-up again. JagriYatra is as much a journey of outer exploration as it is an inner journey of finding the purpose of existence. These 15 days are all about inspiring, adventure, sharing, growth, learning, bonding, dreams, challenges and passion.. The Yatra is not only about getting inspired by the role models, it is also about learning from other Yatris, group interactions, panel discussions, Biz Gyan Tree and many other events during the course of this journey. Yatra is like a crash course on enterprise education and it has a tremendous lot to offer. The essence of the Yatra is beyond these 15 days - it gives insights that shape future of yatris, it fuels you with inspiring to last a life me and it has the power to completely change yatri's life path. The real joy of 'building India through enterprise' - going back to the roots and solving the development challenges through enterprise solutions - then kicks in, and they should savor every moment of it! The Yatra organizing team has put in a lot of effort to make it one of the most memorable experiences for yatris. The volunteers, lovingly called as Engine Room Club, have toiled day and night to 'bring the train to the plaorm'. With the challenges of organizing such a complex journey, there may be some impromptu changes and my suggestion is to be open and supported in order to make the most of this program. The yatris embrace and enjoy the ambiguity as they would do when they embark on their entrepreneurial journey! The community of more than 4000 alumni, created over the last 10 years, is one the most vibrant networks of India. And what delights them is that many of them are showing courage to go back to their own Tier 2 & 3 districts to solve problems through enterprise.

Focus on 7 verticals and 5 Horizontals

In following its vision of Building India through Enterprise, Jagriti has arrived at seven verticals and four horizontals that are focus areas. These areas have been chosen as we believe over the coming decade a number of enterprises can be created in these areas and these enterprises will in turn take these sectors

forward. Within this agenda, Jagtiti looks to adapt and replicate successful enterprise models, so tat these can be scaled up across Middle India.

7 Verticals :

- Agriculture & Agro Business
- Healthcare
- Energy
- Education
- Water Sanitation
- Manufacturing
- Arts, Culture and Sports

5 Horizontals:

- Information Communication& Technology
- Public Private Partnership
- Financial/ Funding
- Business Services
- Skilling for Business

Red Threads

The essence of the Yatra has been distilled in three anchoring red threads.

1. **Innovation (creation + replication)** is about doing things differently, spotting a unique opportunity, ceasing it nadtakingit to fruition. On the yatra they make it a point to learn from the home grown innovations of Middle India which are positively impacting communities.
2. **Collaboration** is about working in a team, optimizing individual strengths to achieve a larger goal together. Particularly in India where financial capital is often missing, it is bringing the positive human capital that comes with team collaboration, something we as Indians need to improve an learn to maximize collective strengths for a larger goal.
3. **Transformation** deals with going out of one's context, learning new and then returning with the conviction to make change happen.

JagtitiYatra- Year Long Program- While the JagritiYatra is our flagship initiative, the JagritiYatra continues over the year with four other events spread over the duration of the calendar year.

1. JagritiYatra (as discussed above)
2. Biz Gyan Tree
3. Sustainable Enterprise Award
4. Annual Conclave
5. Alumni meet

Bizgyan tree: An activity started on the train, ends as an enterprise training program in a village setting through rural residency. Executed in the months of Feb and March, the program is designed to give some yatris a good hands-on experience in developing enterprise solution for for rural India. The exercise connects the Yatris with mentors to refine their enterprise plans. During Biz Gyan Tree, JY provide a workshop environment where the Yatris, in a rural setting, can interact with the local people and under the guidance of local experts, understand their social and economic need. Based on the interactions, the participants create the initial stages of a plan which is further and subsequently developed through a longer residency in rural village.

Sustainable Enterprise Award (SEA) : SEA is an opportunity for aspiring entrepreneurs, across 219 selected tier 2 & 3 district of India, having enterprises in the fields of water, agriculture and recycling, SEA Is trying to hunt grass-root talent who will surely do remarkable changes to create more jobs in small towns of India, to help[strengthen Country's economy.

Jagriti Annual Conclave: a two day program with various sessions and activities designed around the theme of 'Enterprise-Led-Development' where Jagriti alumni, local communities, experts on different sectors and entrepreneurs meet and converse. The aim is to reflect on the developments of the year, in a small district of the country, which happens to be the origination point for Jagriti.

Experiential Learning: The journey is designed to take the yatris into the hinterland of India. They believe only when they experience India on the move, In the company of other inspiring co-travelers will the experience remains as a lifelong journey. In this exploration there are four key axes that will define their interactions and their learning through

a. Role Model
b. Yatri Interactions
c. Panel Discussions

d. Biz Gyan Tree

a. Role Model : Yatris will interact with 15 role model intuitions and individuals spread across the 15 day journey. These role models and the visits to their institutions will seek to understand how they have built their social or economic enterprises. These role models are expert in one or more of the 7 verticals JY focuses on. The key to this learning, which is the major axis of the Yatrs is to the able to relate not only to the original idea that gave shape to their enterprise, but their courage, as they gave birth to their institution and kept going against enormous odds.

b. Yatri Interactions: Learning from each other, formally and Informally will be an important axis of the journey. In the initial week JY creates processes where yatris are able to share with each other their experiences and aspirations through life line exercise. Given the potential for enterprise is a common denominator, this learning amongst your peer group is always the rich seam of the Yatra, and over time has emerged perhaps as the most important learning element in the Yatra.

c. Panel Discussions : Four panel discussions are organized at key stops of the jouney – Madhuria, Vizag, Nalanda and Ahmedabad. The topics for PDs are around the 7 verticals and aspects of entrepreneurship, social or business. These are aimed at interactions with well-known personalities, which project larger national messages through mass media across the country. The insights of these panelists and yatri active participation in the Q&A's that follow will provide you with key insights.

d. BizGyan Tree: (As mentioned above)
Women in Yatra: The JagritiYatra keen to inspire a whole generation of young women who will bring about enterprise-led-development in our nation. In tune with this, Jagriti aim for equal participation of women on the Yatra not just as Yaris but also through the selected Role Models. On the train there have been young women from every strata of society and every region of India, while perhaps slightly less vocal than their male counterparts, their appetite for intellectual debate and learning was second to none. The year 2017-18 yatra comprises of 50% participants are women.

YatriProfie:
500 participants and Facilitators have been selected out of thousands of applications, the participants and facilitators have come from all parts of the world .
The participants and facilitators on the yatra represent the diversity of India and from other countries too : the age profile of the participants is 20-27 and facilitators, with a potential or an existing flair for enterprise. A good balance of urban and small town mix and small contingent of international participants and facilitators who bring a global perspective.

Yatri Grouping and Structure: of the 7 verticals JY focuses on , every candidate chooses his/her Area of interest. To help create more focused discussions on train, the yatris are grouped based on vertical. The facilitator too would have a similar area of interest. International yatris add global perspective.

Cohort: This is the smallest unit consisting of 6 participants and 1 facilitator. The Facilitator is the guide and mentor of each cophort and is also the first point of call in any emergency. Every facilitator goes through day long training before the Yatra to get them inducted in the key operational aspects of the journey as well as to train them in key facilitation skills.

Impact of Yatra
JagritiYatra has now established itself as a national youth program that inspires and empowers young people for Building India through Enterprise. Over the last 9 years, Yatris have stayed in tough with JSS, sharing how they have benefitted from the Yatra experience. They have shared how they started seeing things differently, changed their careers, set out to become entrepreneurs and more. The date collected after connecting to over 4200+ yatris from their alumni well represents the impact overall. The impact is broadly categorized a Tangible, intangible and Impact beyond the Yatra.
The points which are appreciated are:

- 99% of th
- e Yatris recommend the Yatra
- 1000+ enterprises set up and many more In pipeline
- 120 enterprises scaled up
- 49% yatris are entrepreneurs or students potentially engaged In action building activities
- Numerous small yatras all over the country have been formed
- 51% yatris involved in National building activities
- Matthieu, Yatri of 2012 has replicated the Yatra in France Ticket for Change

- Patrci Dowd, AYatri 2010 has replicated JagritiYatra in the US Millenial Train

JY believes the yatris are the best ambassadors to spread awareness and identify the right mix of talent for JagritiYatra. If they had a life changing yatra experience, then they share the joy and opportunity with others! They select interested yatris as **Jade (Jagriti Ambassodor For District Entrepreneurs)** to reach Middle India to build Jagriti communities on grounds, and provide resources for participants and seek knowledge about the program

To directly solicit high achievers from NGOs and small business to explore their horizons widely before going back to their village/town to deliver far reaching impact.

Conclusion

JSS is one of its kind of social welfare organization which is creating a remarkable change through Enterprise Led Development in India and across the World. It contributed nearly more than 1000 enterprises through its inspirational acts. JagrtiYatra has established a well penetrated network into the far reaches of our country and among 200 Yatisspead across the world that carry the same insights and learnings from this unique experiences. Every organization develops certain core values that guide its members through the long and dark nights of its evolution. The ambition of 'building India through enterprise' is the dream come true of JSS.

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The Impact of Chinese Products on Indian Market

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Abstract

From the past decade's we can see that the increasing number of companies entering the international online trade market as the globalization opens the door for the E-Business world. We can also see that there is a huge demand of products on the market as an upshot of this; the Chinese suppliers are retaliating to the competition with high qualitative products and higher prices. China is considered as a pathway to become as one of the biggest economies throughout the world. The raising amount of increasing competition throughout the world also made them to take the decision on the products which was overly complex in taking decision and especially for organizational structure purchases on few more factors needs to be considered. It is no more important for companies to understand their internal customers, and the consumer's base a lot of the purchasing decisions are affected by the products country of origin. The move to the international market is not just experience as positive on the home market something that can be experienced. This paper focus on the research questions of china products and its impact towards Indian markets in each area how Chinese product are affecting our Indian markets and if we boycott china market how our economy will exist. In this paper I would also like to extend the various china products, apps which we are using in our daily routine and its impact in our country.

Keywords: Chinese products, Marketing, Globalization and Impact on Indian Markets

Introduction

The impact of Chinese goods majorly effecting the market of India like a virus. As the goods are cheaper than the Indian goods as the quality of Chinese goods are poor compare to Indian goods. Anything from needle to Toys, Electronic gadgets, Diwali crackers you will find Chinese version of the same in India at cheaper price. The price of Chinese goods is 10-70% lower than that of Indian goods. Chinese products in huge quantity are put into Indian market and mostly affecting the Indian goods.

Pros and Cons of Chinese products

Positive aspects
- Relatively cheaper than the regular/known brand
- Advanced features
- Affordability, common man can easily purchase
- Widely available
- Higher profit margins for dealers

Negative aspects
- Unsafe products
- Non long-lasting
- Resulted in closure of many businesses
- Out flow of capital
- Increased in import & Decrease in export

Indian Products Vs Chinese Economy

India
- Since 1976 to 2013: Average annual growth rate is 7.0%
- Employment opportunity is low
- Most advance service sectors
- Delhi with a GDP of 77 percent
- A net exporter of services

China
- Average annual growth rate is 10.8%
- Employment opportunity high
- GDP share of 61%
- A net importer of services

Why Bann of China Products

Before I could start boycotting china product let me check where and how we are using these products in our daily routine, in this research I have checked usage of our daily routine of Chinese products:

- Firstly, I would start with BIG BASKET, it is India's one of the biggest online grocery market which is holding the share of almost 40% market share and its company and stakeholders highest stake 30% of ownership owned by Chinese company Alibaba'.
- Next, I took the research on OLA cab, Indian cabs in research overall I found 50% are OLA in this Chinese companies in cent holding china Eurasian economic cooperation fund instead three more Chinese companies are holding major stakes of this cab.
- Then, OPPO, VIVO, REAL ME, XIOMI in India 70% mobile phones more than 3 or 4 brands are of Chinese company viewed only as per 2019 sales records.
- Further, ZOMATO is a main food delivery, in that 52% remaining and 43% is being holder by SWIGGY now from these two app I found that ZOMATO which is Chinese company of Alibaba is holding almost 25% ownership in this in swiggy Chinese companies Incent holdings hill house capital and SAIF partners are holding major stakes.
- PAYTM is one of the Indian largest online payment company in this company 40% ownership share is of Chinese Alibaba's group.
- FLIPKART I found its total market share Indian online delivery market almost 55% and in flipcart Chinese companies Steadview capital and Tencent are holding major stakes.
- MAKE MY TRIP app, I realised in INDIA 40% travelling and book ticket half ownership which means 50% ownership is of china's travel companies ctrip's
- OYO in 2019 report 68% market segment is of Indian hotel segment but again surprisingly in OYO China 2017 lodging company DIDI CHUXING has invested in this.
- BYJU'S is India's largest education company, in this company Tencent holding has its major investment apart from this more popular company that TIKTOK Chinese video sharing app in overall world its in top 5 all thanks to Indians because in 2019 TIKTOK is worlds downloaded app out of which 45% downloads was from India TIKTOK ,YOUTUBE and FACEBOOK are direct competitor in 2020 every quarter from India more than 100 crores revenue they were expecting.
- DREAM 11 India's popular online sports game promoted by biggest cricketers of India but its majority ownership Chinese company Tencent and stead view's capital
- PUBG in its overall segment India's famous mobile game out of which daily 500 crore Indian plays and the ownership of this game is again Chinese company Tencent games only.
- HIKE MESSENGER is India's local WATSAPP competitor again Chinese Tencent has its major stake.
- POLICY BAZAR is India's online popular insurance portal out of which 10% ownership is of Chinese company belongs Tencent holders.
- QUIKR.COM Chinese company Stead view capital are holding major stake.

Overall, if we see major start-up of India's companies are of Chinese companies has major control and ownership. To be precise India's top 30 start-up company out of it 18 are funded by china .Apart from this other industrial sectors like griculture,Energy,Entertainment,Health,Metal,Realestate,Technology,Tourism and Transport Chinese companies more than $ 100 have their investments. Now, if we say about imports Indian pharmaceutical industry 80% raw material is been imported from china, more 60% medical devices are been imported from China ,India's solar equipment almost 80% are been imported from china, In India toys 85% imported are from china, some other sectors like electrical machinery, nuclear machinery, organic chemicals, plastic & article s, fertilizers, articles of iron or steel, medical equipment auto components, iron & steel other chemical products majorly imported from Chinese ,so as we can see china is in glad of India and to completely boycott china is of enormous task which Indian corporates public sector undertakings central and state government and general public has to sincerely work upon for years.

The Big Fight
Market Share

16%
1.50%
1.8%
2.1%
2.2%
2.5%
5%
5.6%
31%
32%

- ▣ Flipkart (standalone)
- ▣ Amazon India
- ▣ Paytm Mall
- ▣ Myntra
- ▣ Snapdeal
- ▣ Jabong
- ▢ Shopclues
- ▣ Pepperfry
- ▣ BigBasket
- ▢ Others

Bloomberg | Quint

Source: Forrester
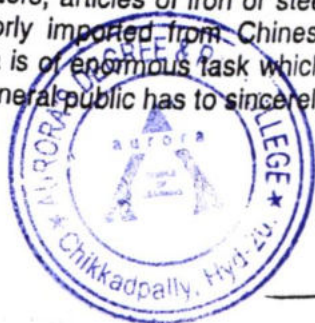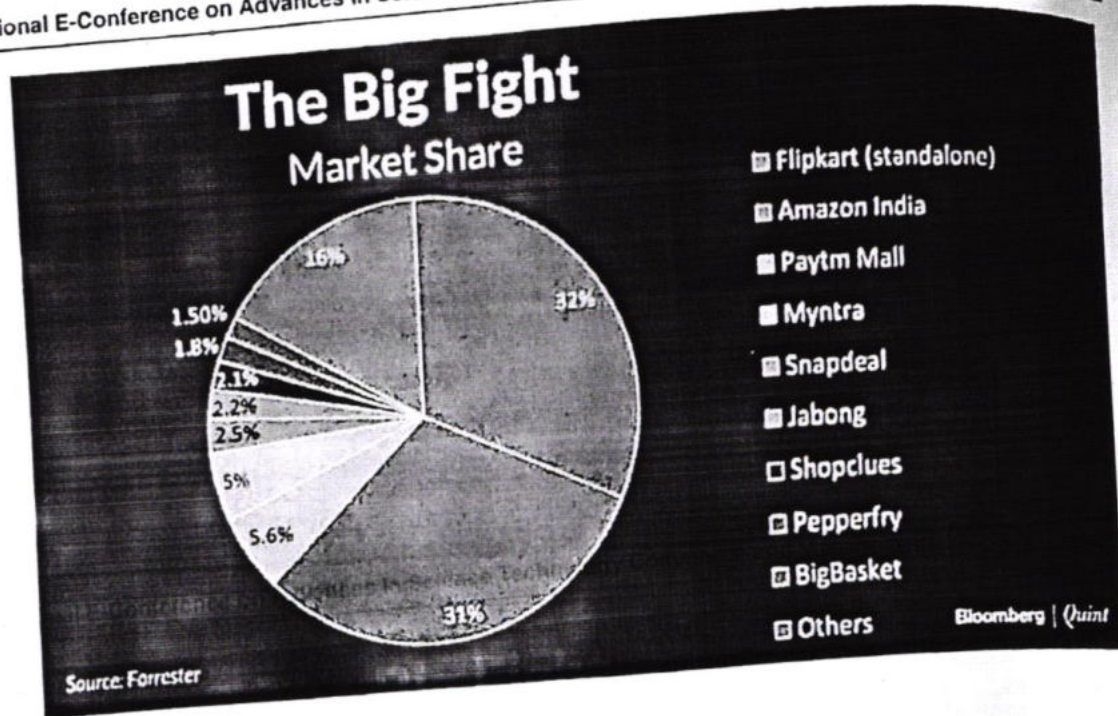
How To Reduce The Impact Of Chinese Products

India must investigate its administration to reduce the import of a Chinese goods. Our economy is agriculture based and slowly service sector is also getting into it. But the most important contributor to our economy is agriculture. This is happening because natural resources are reducing which is leading to a significant reduction in agriculture. Government should encourage local small business enterprises to reduce the foreign goods in the market. To safeguard the domestic manufacturers from the Chinese goods there is a dire need to change the policies and add duties. Apart from this India seriously needs to work on its infrastructure and efficient use of energy and other natural

Suggestions

1. It is better to use the quality products and not the cheap priced and lower qualitative products.
2. Always better to promote domestic industry and goods manufactured domestically.
3. Take step ahead on technical education and impending trends of the industry.
4. Trust in Innovation.
5. Try start-ups in our own country rather taking shares/depending on any other country.
6. If we are highly depend on other countries goods in near future they start ruling.

Conclusion

Finally, I would like to thank and conclude my paper by stating that Chinese products may have some positive impact on people of India. But at the same time today we have all the comforts in our new world amid a new pandemic. But we complain because we need to wear masks. We complain because we must stay confined to our homes where we have food, electricity running water Wi-Fi and even Netflix. None of that existed back in the day. But humanity survives those circumstances and never lost their joy living. A small change in our perspective can generate miracles. We should be thankful that we are alive. We should do everything we need to do to protect and help each other this message should reach everyone help it and spread it.

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Online Crimes in Times of Covid-19 with Specific to Cyber Security

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Abstract

Covid-19 has a major consequences on most of the countries. And even it has affected on our life & work also .Due to this coronavirus affect the government has imposed lockdown in India. And hence private & government employees has started work from home and they started depending on the internet. The purpose of this paper is to study the online crimes connected with cyber security. The International Criminal Police Organization (Interpol)recently released a report on crimes to its 194 member countries. And even it act as an information center related to covid-19. Carbon Black(2020) cyber security company has provided the information related to ransom ware attacks increased 148% in march 2020.Among all the sectors their aim to spot finance sector in which cyber-attacks increased to 38%. Similarly financial services information sharing & analysis center recognized 1500 huge risk domain in which they especially targeted actors by cyber security attacks. According to estimation of Google(2020) they are 18 million daily malware (or) phishing mails it is data based on April2020. Section-2 focus on financial crimes that has occurred at the times of covid-19. Sec-3 focus to withstand financial institution cyber resilience. This paper especially highlights how to possibly reduce cyber security attacks.

Key words: Covid-19,cyber security, ransomware attacks, cyber-attacks.

Introduction

The beginning of the year 2020 brought too many changes in our daily life because of the outbreak of Coronavirus. The outbreak was started from the Hunan sea food market in Wuhan city of china and most of the people get affected in this market they mostly sell bats, frogs, snakes, birds. In the beginning they thought this virus will affect only animals. Until SARS broke out in 2002 guang dong china. This paper provides snap shot how this impact of the virus is having effect on cybersecurity and also daily life of people. Coronovirus positive cases in India has been increasing day by day despite of maintaining social distance and taking all the precautionary measures. So the Government has declared a nationwide lockdown. The main theme of the paper is to disclose how the impact of covid-19 had on influence on cybersecurity. Over 1,720,000 confirmed cases and 1,04,000 dead cases reported on April 11 2020 (WHO, 2020).During this pandemic times so many cybersecurity attacks taking place against general public and the cyber security specialist has to do something in order to protect the people. The first case has been confirmed on 17th November2019 in the Hubei. As of 16th July 2020,13.6 million cases have been reported in 188 countries & territories resulting more than 5,86,000 people faced death And more than 7.62 million people have been recovered. The world health organization(WHO) declared the covid-19 as outbreak of public health emergency of international concern(PHIEC) respiratory illness of covid-19 pandemic is simply known as coronavirus and the provisional name,2019 novel coronavirus(2019-ncov) and it is also called as human coronavirus 2019.The WHO declared the PUBLIC HEALTH EMERGENCY OF INTERNATIONAL concern on 30th January 2020. Some of the measures taken In order to control covid-19 pandemic such as lockdown, curfews & quarantines.

Background

The term 'Corona' generally represents crown(or) ring of light, it refers to the shape of the virus so it is named as coronavirus. The WHO classified coronavirus is a type of virus that can cause severe illness named(SARS-COV) Severe Acute Respiratory Syndrome and Middle East Respiratory Syndrome(MERS-COV) but the actual disease is named as (COVID-19) Coronavirus disease. In the past few years there is other pandemics   such as Ebola. The last case of Ebola recorded on 17th Feb2020. Even there are worse pandemic such as Bubonic Plague, small pox and Spanish flu in which most of the people faced death. Badly the outbreak of Ebola also had cybersecurity threats. Now we have been facing the same consequences what the outbreak we had previously with the Ebola pandemics. But the Ebola is mostly isolated only to West Africa region and it doesn't spread like covid-19and there is no mention that the people should attentiveness. And even in the covid-19 outbreak this cybersecurity threats is taking place very rapidly. Due to cybersecurity threat Ebola had led to losses over 53 billion USD in west Africa. If we are comparing SARS,MERS according

to the current statistics MERS having high fatality rate and SARS having 10% fatality rate, MERS 35% & COVID-19 2.2%. compared to MERS & SARS the infection rate is quick in covid-19.

Cyber Security

In order to prevent the spread of coronavirus the social distancing is very essential .By keeping this in the mind government, business, organizations across the country has taken a decision to allow staff to work from home instead of going to the office regularly. Wide spread of coronavirus has made the entire people to depend on the internet & web applications to perform the job very easy from various locations. In most countries such as Italy & Spain government has declared full lockdown & forcing people to work from home. This made the people to depend on technology & which is being exploited by cybercriminals (or) hackers.

1. Society has raised dependency on digital support
2. As the people are spending most of the time on online services
3. As the people who are not having the knowledge regarding how to use technology suddenly adopt to technology to perform the job.

All these factors are generally responsible for the cyber-attacks. For the purpose of cyber-attacks criminals are using social engineering techniques such as phishing, role playing, shoulder surfing, dumpster diving, Trojan horse, surfing online content. In the three weeks leading up to 12th may , the company recorded 1,92,000 coronavirus related cyber-attacks every week and it was increased to 30% over previous weeks. In the month of April –May there are 20,000 new coronavirus related domain in the internet,17% Malicious(or) Suspicious and even 500% increase in covid-spam mails in the first quarter. Mainly cyber-attacks generally taken place by online scams, phishing & disruptive malware and it include dreaded ransomware.

Cybercrime and coronavirus-Every one 'work from home' situation has been started because of this pandemic the people in fear of covid-19 and hence the hackers of malware are taking advantage of this situation. There is one such app google play store was 'corona live1.1'it provide the information related to cases of coronavirus .people are viewing this app and on the other side malicious app was invading the personal information such as getting access to devices, photos, camera, videos and their locations. They can collect the information in multiple ways such as blackmail the owner of the videos and pictures. Some apps are available on fake websites one such app coronavirus app.site by seeing this we can demonstrate how the cyber-crimes are increasing Android play store it identified all such fake apps and removed all such apps from the play store and set rules and put all such apps in 'sensitive category'.

Technique used by hackers to access confidential information such as:

Phishing

It is a method of thieve confidential information by sending fraud messages to the public . cyber criminals are sending phishing messages most of times. But especially during covid-19pandemic situation cyber criminals are taking opportunity & acting on behalf of organizations (or) government agencies to track personal information such as name, credit card number, date of birth, user name, password. Phishing techniques also include sending malicious links (or) attachments. This messages can be sent from e-mail ,social media, phone calls, Instant messages(or) sms and these look authentic & convincing. It is kind of trick so that the people can share personal information from password to bank details. Identifying these messages whether it is a fake (or) accurate is very difficult. But the messages post by cyber criminals appear so genuine. If you think the message whatever you received is not legal, some tips you can use in order to verify the messages.

How to identify phishing mail scams

- No government(or) business organization will send emails from the address that end with @gmail.com, & even google
- If the emails send from google it will end with the @googlecom
- If we are receiving any mail from organization better to type the organization name in the search engine.
- Even though cyber criminals are using plenty of tricks to deceive people.

Objectives

- Providing security to desktop, laptop computers, tablets and smart phones against threats.
- Providing security to the servers and securing them effectively.

Challenges

- Lack of knowledge.
- Unsecured network devices being accessed.
- Public are using their own unstructured routers, modem, poorly configured network devices.

In this panic covid-19 pandemic a lot of security concern Is needed as the hackers and the malicious internet users are exploiting vulnerabilities connected with organization ,business(or) government agencies. we can protect our data of our organization by using Virtual Private Network(VPN) through this people can able to access their company files and at the same time they can upload the files to the company servers. And especially in Virtual Private Network(VPN)- online privacy and anonymity is provided .It is designed in such a way that public internet can be changed into private internet by using certain communication channel. Security in VPN lies on the creation of communication turnel and protecting the data by encryption. Even though by using VPN there is a chance of weakning the security as most of the people working from the home are using unsecured Wi-Fi networks and the privacy of the information of the organization are exposed to hackers.

Desktop is a remote access method and it is associated with authentic risk where an unauthorized user can access the organizations information. And there is a chance of auditing, logging also. Privileged Access Management(PAM) is a tool that help to secure, monitor & control access to organizations information. A well implemented Privileged Access Management (PAM) can provide security in the following ways.

- Provides monitoring to the activities of the user
- Provides security & control

By implementation of PAM in the organization we can able to reduce the threats in the organization by unauthorized users & at the same time we can also reduce the online crime related to phishing, malware, Trojan horse etc..,

Organization, business, educational institution should provide training for the individual regarding usage of internet, knowledge on deceptive approaches used by the cyber criminals. Before working on it should have some knowledge how to use the technology. By doing such they will get alert about the proper use of internet. Now a days if we are observing there are so many fake applications ,fake e-mail ids ,fake news that have been sharing information about covid-19.By giving training to the individuals we can able to reduce the cybercrimes.

Conclusion

Despite the above measures given in order to protect the data still there are some protection is needed from cyber criminals. Updating networking tools at the same time we should install & configure Network Based Intrusion Detection Systems(NIDS).Proper methods in order combat against cybercrime in the covid-19 pandemic era .Educating and training should be provided to the people who are working from the home so that we can be able to reduce threat. At the same time by providing the training they can able to identify fake e-mails, and they will have knowledge not to reveal sensitive information to unauthorized users. All the organizations, business and government agencies should work together in order to combat against cybercrime in this covid-19 pandemic era. All these measures outlined in this paper help to reduce cybersecurity threat.

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Factors Influencing the Buying Behaviour of Consumer towards Private Labels in Hyderabad

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Abstract

The concept of Retailing evolved because of the changes in the FDI policies. Indian retail market is the 5th largest in the world and the unorganised retail has 75% share. The retail market in India is dominated by National Brands but with the introduction of the private labels in the retail market there is a part of the market that has turned towards then private labels. The big retailer with brand name had the intension of cutting down their cost and hence they started manufacturing or purchasing the goods from the local manufacturers and selling them. The consumers are having the choice of purchasing private label products instead of National brand products.Private labels are the products manufactured and packed by local manufacturers and are kept for sale by a retailer who has a good reputation in the market. The study focuses on analysing the factors that influence the consumer in making a decision to purchase private label products The consumer's generally associate the National brand to good quality and because of the private labels consumers are having more options , Consumers are becoming more aware of private labels and are becoming more favourable. For certain products consumers prefer to buy a private label product over national brand. Along with the literature review the study is done by using survey method using a questionnaire with a sample size of 100 consumers. The paper offers insights on the factors influencing the consumer purchasing behaviour.

Key words: Consumer, Private labels, National Brands, Buying behaviour, Brands, Retailing .

INTRODUCTION

The term retailing is derived from the French word retailer meaning to cut a piece off or to break bulk Retailer is a person who is directly in touch with the ultimate buyers. Retailing is a process of buying the goods from the manufacturer and selling of goods and services. It involves selling goods and services at a competitive and affordable price. Private labels in India have seen a sharp rise with offline as well as online retailers. Private labels are brands which are not owned by the manufacturer or the producer but by a retailer. The retailer gets their goods made by a contract manufacturer under their own labels, similar to brands. Private labels are also known as store brand, own label, retailer brand etc.Currently theIndian retail market is the fifth largest in the world .There is three fold growth in size from Rs,87,100crores to Rs 171,800 crores in modern retail. Retail is emerging in India because of the changes in foreign direct investment policies, technological advancements and the changing socio-economic scenario. Generally retailers can start their own privatelavels in mainly consumer goods because it has low risk and these goods have the tendency of being taken up by the customers easily. To gain the confidence of the consumers the retailers would rate the products low which is one of the strategy followed by the retailer when compared to the National brands.When the retailer is purchasing the goods from the manufacturer they are able to eliminate the distribution cost and thus the manufacturer can maintain quality. Because of this reason the retailers are trying to enter into more products of their brand so that they can earn more profits.Many countries like US, UK Germany, Belgium have adopted private labels. U.S Retail Industry has the biggest share. When compared with other countries India is new to this concept

In India only few big retailer and e-Commerce paints have adopted it. Many players like Amazon, Flipkart, Grofers, Big Basket etc have already introduced private labels in different categories. Big Basket has around 35-40 % of their profit from private labels. Amazon is expecting good profits from private labels in future. This kind of growth will change the indian retail industry.It is going to be a win win situation to both the consumers and the retailers. The traditional retaiers are going to face lot of challenges because of this change . This growth will change the face of the Indian retail industry.

Why retailer should enter private labels

Strength

- The retailer can provide huge list of products from which they can purchase.
- Retailers can be directly in touch with the consumers and they can understand their psychology well.
- The cost can be reduced because of low no marketing cost and low Distribution cost.
- Lesser price
- Customers choice is increased
- Retailers have the knowledge of the market and the customers.
- The bargaining power of the retailer has improved.
- When compared to the national brands the multibrand outlets are wide spread to a large area and are well known to all the customers.
- The retailer who is producing Private labels understands what the customers want; they understand the market demand thus filling the gap that the national brands have created.
- The success of the PLs depends upon the retailers as to how well they are able to convince the customers regarding the quality, price etc.

Opportunities

Increasing fashion awareness because of media , people are able to spend more this lead to the growth of corporate retail and private labels. Due to changing consumer behaviour, they are ready to experiment with fashion and thus they look for updated trends in apparels. Private labels give them opportunity to experiment with their fashion without spending much compared to retail brands. This transformation has provided an opportunity to the private label retailers to cater to these consumers. Earlier malls were established in urban areas but because of the technology they have shifted to the rural areas also this gave good opportunity for the retailers to earn more profits and the consumers are having wider choice. Now Private labels have become a good substitute or alternative for branded products in the sense of best quality or reasonable price, quantity, accessibility or style.

Challenges

1. As the customers are used to national brands and their quality it is difficult for them to prefer private labels
2. Changing preferences and demand of the consumers
3. There is increased in the growth of private labels production by many retailers because of which there is lot of competition amongst them.

The road ahead

Private labels have been in market for quite a time because of the possibility of providing the similar quality at a lesser price Hence retailers have the possibility of attracting the customers to purchase PLs by following different selling strategies like placing PLs along with the NBs. As the retailer is directly in contact with the customers they are aware about their taste , preference, purchasing pattern, ability etc though it is a task for them to convince the customers buty still with the changes that are happening with regards the taste, risk taking ability or consumers wanting to try for something new has given an opportunity for the retailers to grow with private labels.

Growth Drivers Pushing Retailers To Private Label Space

a. Providing more variety products.
b. Earning profits
c. Making use of the brand name.

Scope of the study

The study is extended   to the consumers within Hyderabad.

Research methodology

The study has been done by understanding the previous studies done by the other researchers reviewing the literature reviews and issuing a questionnaire to the consumers
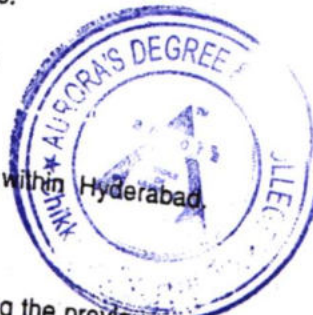
Objectives of the study

- To analyse theprerception of consumers towards private Labels.
- To Understand the Levels of awareness about Private Labels in Hyderabad.

Sample size

The sample size for the study are the consumer's from Hyderabad who purchase the goods from super markets etc and the size of the sample is 50

Tools for data collection

A striuctured questionnaire was sent to the respondents through email and the data was classified so that the analysis can be done. And the analysis was done keeping in mind the objectives set. The analysis was done by using a simple statistal tool mean.

Literature review

Richardson, Jain, and Dick (1996) present what is probably the most extensive such framework offered to date. They argue that consumers' propensity to purchase PLBs depends on (a) certain demographic factors, such as income, family size, age and education, (b) certain individual difference variables, such as the degree of reliance by the consumer on extrinsic cues (those more reliant on such cues preferring national brands) and the consumers' tolerance of ambiguity (intolerants preferring safer national buys), and (c) certain consumer perceptions of the particular category (degree of perceived quality variation, level of perceived risk, and perceived value for money), as well as the degree of consumer knowledge about the category (greater knowledge increasing PLB choice). Note that though several of these perceptual factors ought to vary across categories (such as the degree of perceived quality variation, level of perceived risk, perceived value for money, and degree of consumer knowledge), Richardson, Jain and Dick did not study category-level variations in these factors. In their more recent study, Sethuraman and Cole (1997) did model category-level variations in many of these factors. They also examined the effect on "willingness to pay a price premium for a national brand" of (a) several category-level variables, including the quality perception of PLBs, average price, purchase frequency, and the degree to which the category gives "consumption pleasure," (b) individual demographics such as income, age, family size, gender and education, and (c) individual difference perceptual variables such as the belief of a price-quality relationship, perceived deal frequency, and familiarity with PLBs. However, as noted above, their list of category-level variables did not include crucial perceptions of the degree of category perceived risk. In this study, the consumer-level variables include category-specific perceptions of the consequences of making a wrong brand choice, the degree of variation in quality across brands, the "search" versus "experience" nature of product features, and consumer price-consciousness in that category. Price Consciousness, defined as the "degree to which the consumer focuses exclusively on paying low prices"

ANALYSIS

Age
60 responses
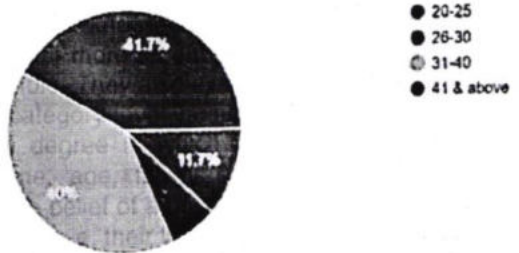
- 20-25
- 26-30
- 31-40
- 41 & above

41.7 % of the respondents   belong to the age above 41 , and 40 % belong to the age between 31 to 40. With this it can be interpreted that above 80% of the respondents who submitted their response belong to above 30 years of age.

From the above study it is found that the people who make the decision to purchase the goods belong to the age of above 30 years.

Gender
60 responses
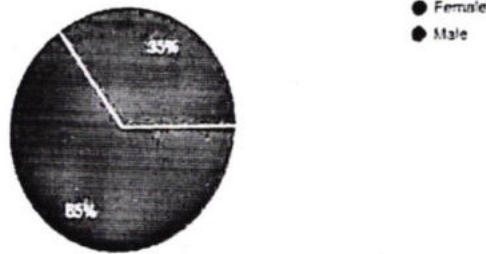
From the above it can be analysed that out of the total respondents 65% of the respondents are female and 55 % of the respondends are male. Hence it can be interpreted that there is not much difference between the male and female , and both are almost equally involved in visiting the stores to purchase the goods and services From the study it is found that more no of female are involved in purchase of goods when compared with male

Monthly income
60 responses
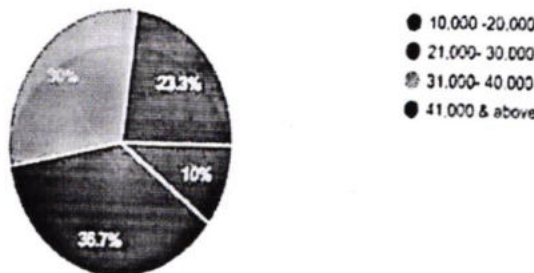
It can be analysed that the 36% of the respondents visit the stores to purchase the goods and services are from the income group who earn more than 40,000 rupees per month, and 30% of the people belong to the income group of above 31,000 and 40,000, 23% respondents betwee 21,000 and 30,000 and only 10% of the respondents between 10,000 & 20,000. It is found that the 66.7% of the people who visit the stores are those with the income above 30,000 and 23.3% have an earning between 30,000 and 20,000 and 10 % between 20,000 & 10, 000. Hence we can say that most of the people who visit the store have higher income.

Are you aware of PLB
60 responses
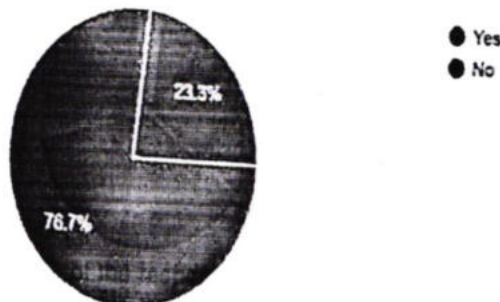
From the data it can be analysed that 76.7 % of the respondents are aware of PLBs and 23.3% are not aware of this concept. It is found that 76.7 % of the population say that they are aware of PLBs.

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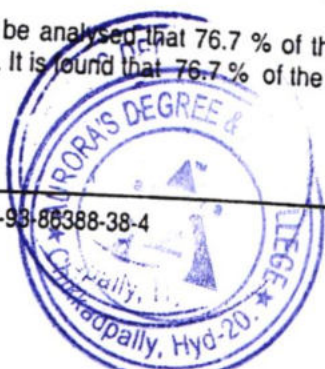
Are you brand conscious

60 responses

- Yes
- No

30%

70%
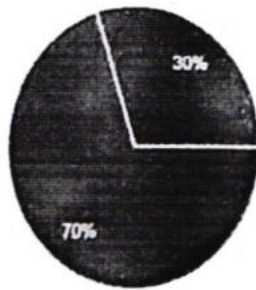
Fom the data collected it shows that 70 % of the respondents are brand conscious. And 30% are not brand conscious. From the study it is found that 70% of the people are brand conscious.

Which brand do you prefer

60 responses
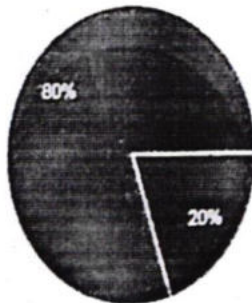
- Private Label brands
- National Brands

80%

20%

From the data it can be analysed that 80% of the respondents prefer national brands and 20% say that they prefer Private labels

You decide to buy the products based on

60 responses

Price	—13 (21.7%)
Quality	—29 (48.3%)
Brand Name	—10 (16.7%)
Products Features	--10 (16.7%)
Discounts	—7 (11.7%)
All of the above	—28 (46.7%)
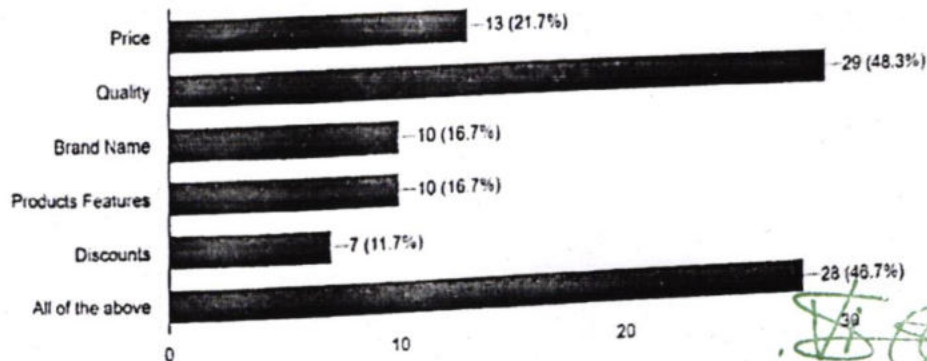
From the study it can be analysed that 48.3% of the respondents make a decision to buy the products based on quality, 21.7% respondents decision to buy the products is influenced by price,16.7% of the respondents decision is influenced by Brand name and products features. And discount factor is only 11.7%. 46.7% of the respondents say that they are influenced by all these factors.
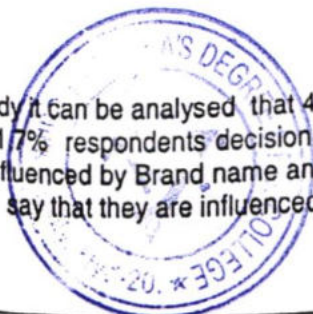
From the analysis it can be interpreted that people are conscious of the quality when they the products. It is found that people are conscious of the brand because of the quality but if they get the same quality from PLBs they are willibg to buy the products.

Do you prefer to buy new products
60 responses

● Yes
● No

13.3%
86.7%
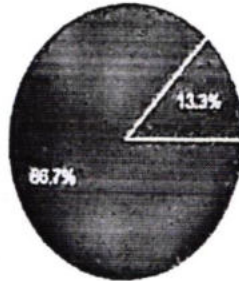
From the data it can be analysed that 86.7% of the respondents prefer to buy new products. Whereas 13.3% of the respondents not prefer to buy new products. It is found that 86.7% of the people do try for new products.

"What others think about you"
buy Private Label Brands
60 responses
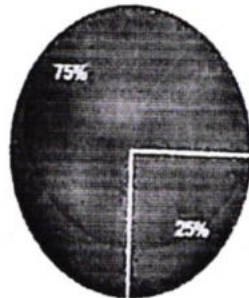
Does this bother you when you

● Yes
● No

75%
25%

It is analysed from the data that 75% of the respondents are no influenced by what others think and 25% of the respondents feel that they are influenced by what others think if they purchase PLBs. From the given information we can say that 75% of the people are not conscious about what others think hence their purchasing decisions are influenced by their own choice and preference.

Do you think purchasing PLB is risky
60 responses

● Yes
● No
○ depends upon the kind of product
● May be

50%
23.3%
26.7%

From the data it can be analysed that 50% of the respondents feel that risk is associated with the the kind of the products and 23.3% feel that it is not risky to buy PLBs and 26.7% feel that it is risky to buy PLBs
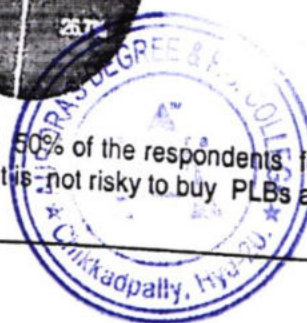
From the study it is understood that 50% of the people feel risk of buying a product depends on the kind of the products they buy.

Do you seek out information about new products and brands

60 responses

● Yes
● No

13.3%

88.7%
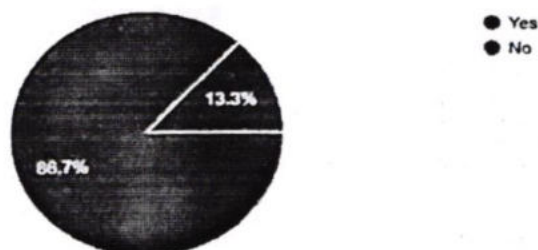
From the data it can be analysed that 86.7% of the respondents seek the information about new products. Where as 13.3% of the respondents are not interested in seeking information about new products
From the study it is found that 86.7% of the people are interested in knowing about new product and gathering more information because the tendency to try for something new and something more variety.

How important is price when you purchase PLBs

60 responses

● Very Important
● Important
○ Moderate
● Little important
● Not Important

18.3%

38.3%

35%
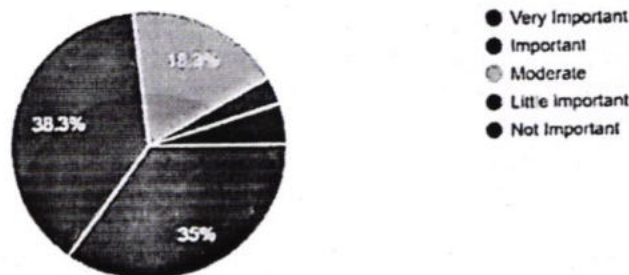
From the data it is found that for 38.3% of the respondents price is important when they buy PLBs, for 35% of the respondents price is very important, for 18.3% price is moderately important, and for the remaining it is of little or of no importance.
It can be interpreted that for 73% of the people feel that price is important or very important ,18% say it is of moderate importance and 9% say price is not important.

Do you think it is worth the time and effort to find a product of low price

60 responses

● Yes
● No
○ Maybe

13.3%

30%

56.7%
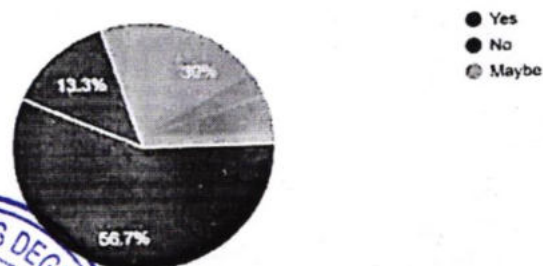
As per the data 58.7 respondents say it is worth spending time to find a product of low price. And 30% say it is maybe worth to spend time to find a new product with low price. And 13% say it is not worth to spend time to find a new product with low price. From the given information it can be interpreted that 88% of the people take time to find out new product with low price. And feel it is worth spending the time. And the remaining feel that it is not worth spending the time for knowing about new products.

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To what extent are you satisfied with the quality of PLBs
60 responses
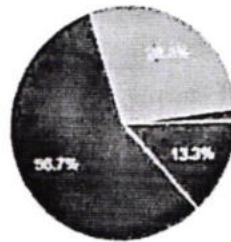
- Very Satisfied
- Satisfied
- Not Satisfied not dissatisfied
- Dissatisfied
- Very Dissatisfied

From the given date 28.3% feel very satisfied with the quality of PLBs. 58.7% feel that they are satisfied with PLBs and over 41.6 % feel that they are not satisfied or dissatisfied with PLBs.
It can be interpreted that 58.7% are satisfied with the quality of PLBs .

Do you believe PLBs provide same quality as that of NBs
60 responses

- Yes
- No
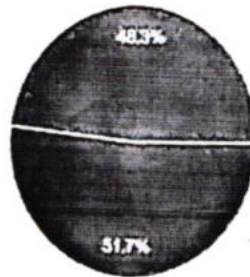
From the data it can be analysed that 51.7% of respondents say that PLBs provide the same quality like NBs, 48.3% do not agree to this. It can be interpreted that there is almost 50% respondents who say that the quality of PLBs is equal to NBs

How likely are you to visit again the shop where you purchased PLBs
60 responses
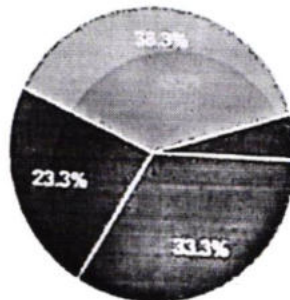
- Often
- Rarely
- Sometimes
- Never

Over all 94% of the respondents are likely to visit the shop where they have purchased PLBs and around 6% of the say they would never visit the same store again
It can be interpreted that 94% people visit the stores where PLBs are being sold more often

Would you recommend your friends and relatives to purchase PLBs
60 responses

- Yes
- No
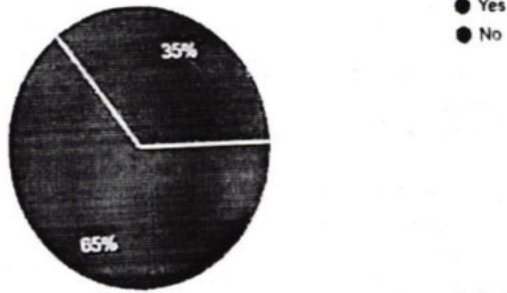
From the data it can be analysed that 65% of the respondents say that they will recommend their friends and relatives to purchase PLBs . 35% say they will not recommend. It can be interpreted that 65% of the people who purchase PLBs are impressed by products and hence they are interested in recommending others to also purchase PLBs.

Does the brand name play a very significant role in your purchase decisions
60 responses

- Yes
- No
- Not Always
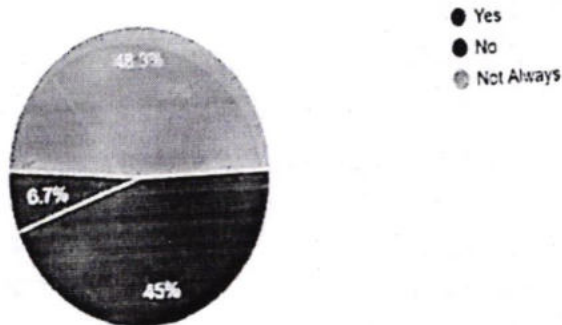
From the data it can be analysed that 93.3% of the respondents say that brand name plays an important role in making the decision to purchase the products,
It can be interpreted that 93,3% of the people say that brand name plays an important role in purchasing a product.

You prefer to buy PLBs mostly in
60 responses
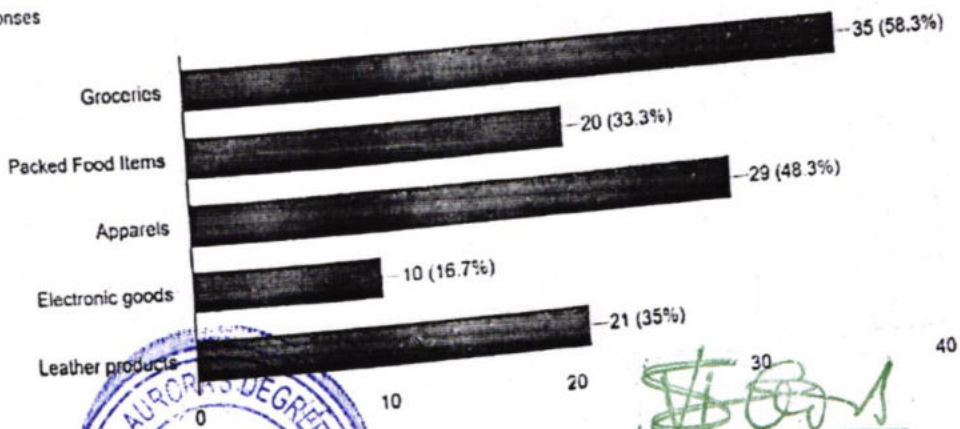
From the above data it can be analysed that PLBs are preferred by 58% in Groceries, 48.3% prefer Apparels, 35% prefer Leather products, 33,3% prefer packed food items and 16% prefer Electronic items .

It can be interpreted that the general tendency of the people is that they prefer to buy PLBs in such products where the risk is low like groceries 58%, Apparels48%, Leather products 35%, packed food 33.3%, and 16% prefer electronic goods hence it can further be interpreted that people are more conscious about purchasing electronic goods.

Findings

1. From the above study it is found that the people who make the decision to purchase the goods belong to the age of above 30 years.
2. From the study it is found that more no of female are involved in purchase of goods when compared with male
3. It is found that the 66.7% of the people who visit the stores are those with the income above 30,000 and 23.3% have an earning between 30,000 and 20,000 and 10 % between 20,000 & 10,000. Hence we can say that most of the people who visit the store have higher income.
4. It is found that 76.7 % of the population say that they are aware of PLBs.
5. From the study it is found that 70% of the people are brand conscious.
6. 80% of the respondents prefer national brands and 20% say that they prefer Private labels
7. From the analysis it can be interpreted that people are conscious of the quality when they the products. It is found that people are conscious of the brand because of the quality but if they get the same quality from PLBs they are willibg to buy the products.
8. It is found that 86.7% of the people do try for new products.
9. From the given information we can say that 75% of the people are not conscious about what others think hence their purchasing decisions are influenced by their own choice and preference.
10. From the study it is understood that 50% of the people feel risk of buying a product depends on the kind of the products they buy.
11. From the study it is found that 86.7% of the people are interested in knowing about new product and gathering more information because the tendency to try for something new and something more variety.
12. It can be interpreted that for 73% of the people feel that price is important or very important ,18% say it is of moderate importance and 9% say price is not important.
13. From the given information it can be interpreted that 88% of the people take time to find out new product with low price. And feel it is worth spending the time. And the remaining feel that it is not worth spending the time for knowing about new products.
14. It can be interpreted that 58.7% are satisfied with the quality of PLBs .
15. It can be interpreted that there is almost 50% respondents who say that the quality of PLBs is equal to NBs
16. It can be interpreted that 94% people visit the stores where PLBs are being sold more often
17. It can be interpreted that 65% of the people who purchase PLBs are impressed by products and hence they are interested in recommending others to also purchase PLBs.
18. It can be interpreted that 93,3% of the people say that brand name plays an important role in purchasing a product.
19. It can be interpreted that the general tendency of the people is that they prefer to buy PLBs in such products where the risk is low like groceries 58%, Apparels48%, Leather products 35%, packed food 33.3%, and 16% prefer electronic goods hence it can further be interpreted that people are more conscious about purchasing electronic goods.
20. PLBs are not associated with low price or low quality
21. Consumers feel NBs and PLBs quality are the same.

Suggestions

a. People with higher income generally purchase PLBS. And people with lesser income do not go for plbs the reason could be that customers do not want to take the risk in trying out new things hence the retailer should make efforts to try to gain the confidence of the such customers also.
b. Most of the customers are aware of PLBs but are brand conscious And prefer to buy NBs in high risk products like electronic items and prefer to purchase PLBS in low risk items.
c. people are conscious of the brand because of the quality but if they get the same quality from PLBs they are willibg to buy the products.
d. If the quality of the product is like that of NBs Customers will be interested in purchasing plbs.

e. Customers are willing to try out new varieties hence if retailers can give good quality with reasonable price and educate the customers about the product PLBs can do well in the market.

f. Though the customers are aware of PLBs and are willing try new product but still prefer to buy NBs. Hence retailer should go for some promotional strategies,

g. As the people are not bothered about what other people think about them if they purchase PLBs and consumers also feel that the quality of PLBs is the same as that of NBs hence retailers can innovate the way of presenting the products in the retail store in such a way that consumer are motivated to pick PLBs.

h. Consumers are interested in purchasing new variety products and they are also interested in looking for new information so the retailer can go for providing better shelf space, more information pasted or hung in the store.

i. The customer who is satisfied with PLBs do word of mouth promotion hence retailer should make a list of such customers and regularly keep updating the customers with latest information with special offers discounts etc.

j. As the consumers are more favourable to purchase groceries, leather products, apperal's packed food hence retailer should innovate new Varieties

Conclusion

This study has found that there is a significant growth in Apparels and Fast Moving Consumer Products categories. It is noticed that there is visible growth in Private Label Brands (Refer Table 2) as indicated in the results. The following are few aspects which is observed by the researcher. • It is critically observed that Private Label Brands is an alternative to National Brands which is giving opportunity for retailers to capitalize it. • It is also found that Private Label products under Consumer durables have to incur huge investments and perhaps due to this reason very less number of Private Label Brands exists. • The study has addressed the fact that customers before purchasing Private Label Brands they look for value proposition in the merchandise offerings. At the same time, they do trade off between National Brands and Private label Brands.

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The Summons faced by E-Commerce Players

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Abstract

The wide spread of using internet has taken into a new digitalization world where we can sell and buy the things whatever we need. The demand of digitalization has transformed into to the way as E-Commerce. The companies uses the platform to offer goods and services as well as a customer is using to fulfil his needs through this platform. E-Commerce is ICT based infrastructure, uses to accomplish the objectives. The effective implementation of E-Commerce may leads to sustainable economic growth. In India the growth of E-Commerce is at satisfactory level, but not that much as U.S.A, and other countries in the world. The India also enjoyed the fruits of E-Commerce, opportunities by adopting modern ICT's, 4G technology and brand bonds. But still there are some problems like poor telecom infrastructure, no strict legal bans and lack of knowledge towards technology. These are the factors which exploring the challenges in India in the prospective of the national economy. The main aim of this study is to explain the challenges of E-Commerce facing by the government and private agencies and suggested updating the legal frame works to develop ICT infrastructure. For this study the data collected from the secondary sources such as websites, newspaper articles and journals etc.

Key words: Digitalization, ICT, E-Commerce, Internet

Introduction

In India most of the people are interested to buy and sell the products through electronic system. Users of e-commerce directly link the customers with manufacturers, stake holders, marketers, goods and service providers. But in India, E-Commerce industry is growing slowly year-by- year. Internet is the main medium which connects the customers with this E-commerce platform. Through this facility the sellers or merchants can sell their product or services to the customers directly and allows them to pay through debit card or credit card in online. However an e-commerce provides most freedom as well as privacy to the customer to use internet and purchase different models and evaluate their prices and customer satisfactory comments and comparisons. Recently, Government organizations have started using electronic communication technology to connect with the people to solve their day to day problems. Now-a-days various social e-commerce junctions are available for the customers to fulfills their needs. With the help of these E-commerce junctions they can receive the things very quickly and comfortably at homes or at working places. The current e-commerce has changed the way of shopping. In 1999, K Vaitheeswaran, the man who started India's first e-commerce website 'Fabmart.com'. Today E-commerce is a backbone of Indian society. Which has become integral part of our society life because it is providing multiple benefits to the customers in the form of availability of goods at lower cost, wider choice and saves time as well as allows to make payment using Debit cards, Credit cards and through UPI payment systems.

Objectives of the study

- To discuss the present scenario of e-commerce in India.
- To recognise the challenges of e-commerce in India
- To demonstrate some measures to conquer the challenges and the growth of E-commerce in India.

Methodology

The secondary data has collected from various websites, books, journals, articles and daily newspapers. All the sources of data have been acknowledged. In this article an attempt has been made to identify the challenges and opportunities of E-commerce players in India and from the available data tried to explore the objectives.

Review of Literature

In Kaur, E. H., & Kaur, M. D. (2015) paper the author explored as Every person can utilize the advantage of E-commerce services. The Retailers, Wholesalers, Producers and Contractors may communicate with each other online as well as they may touch with the customers to meet electronic orders and can provides various services all the time through E-commerce. The authors explained that there are various segments which would grow in future with the benefits availing through this E-commerce like cost effectiveness, fast shopping, better comparison and best customer services. In continuation of this study it has been studied that the Challenges faced by the E-commerce players and the opportunities for the growth of E-commerce in India..

Present scenario of e-commerce in india

For a smooth flow of E-commerce operations in India, it requires some essential factors such as Legal requirements for using ICT infrastructure to generate invoices for online transactions, to offer multiple payment options, replacement services, quick service and to provide 24/7 customer care support. From a Producer till end customer every citizen can use this platform to get various opportunities. The following are the categories of E-commerce Players:

E-commerce for Producers

Producers can take advantage of ecommerce by linking themselves with consumers and retailers online to sell their goods directly by giving better information about their products. Connecting to the other links in the business chain they can maintain the brand identity to have a potential communication with the customers without distributing any leaflets or pamphlets.

E-commerce for whole salers and Distributers

Wholesalers can take advantage of ecommerce by connecting capable contractors and with reputed producers on-line. Ecommerce helps them in decreasing the cost of creating, processing, distributing, storing and retrieving information by digitizing the process

E-commerce for Retailers

A Retailer can continue his existed business by linking with the on-line distribution. They can make available much additional information about various things to the consumers, meet electronic orders and be in touch with the consumers all the time. Retailer can put the information about their product on various web site which are continuously visited by users . Hence, many people will get attracted and makes the orders by seeing the advertisements on various websites which are sending by the retailers.

E-commerce for People

People can buy with a click of mouse button without moving out of their house or office, online services such as purchasing the needed products, banking , ticketing including airlines ,bus, railways, hotel booking etc have been tremendous benefit for the customers. E-commerce allows consumers to interact in electronic communities and to exchange ideas and can compare experiences. As earlier said E-commerce is an advantageous platform for businesses and Individuals. There are some highlighted points which are advantageous to all the parties who ever are dealing with E-Commerce.

Cost Effective

Businesses either small or large can reduce the logistical problems and can minimise the cost. Running business in online by using E-Commerce platforms is much cost effective for them.

Economy

There will be no further investment to maintain physical warehouses, insurance or for any infrastructure. Unlike a complete monetary Investment it needs an intellectual idea, a unique product or a well designed technological source to reach the customers and to fulfil their requirements. Hence, E-commerce is said to be an economy friendly.

Improved Customer Service

In E-commerce process better and quicker customer services can avail. Online customer service makes the Customer happier. No need of any phone conversation with the company of product or service. In entire process the web merchant will play an active role in delivering the products or services directly to the customers to save their time and money.

Quick Shopping

Consumers can finish their shopping very quickly and easily without any additional costs when compared with manual shopping.

Information Sharing and Convenience
This new trending marketplaces are available with the flexible information which is sharing between merchants and customers and helping in quick deliveries. These online market places will work 24/7 hours with continuous flow of services for the convenience of customers.

Challenges of e-commerce

Online transaction is easy to do but there are challenges facing by web merchants and customers in India. Now a days dealing in online is doubtful to some extent because of the fake ads, spam emails, the fear of stealing bank details and credit card information. Being a dynamic, the customers always wanted to keep their information confidential when they involve in the E-commerce operations.

An Absence Of Online Identity Verification
When the customer wants to visit any e-commerce site by sign up for the sake to know something or to buy something, they will have a mistrust that whether the site is believable or not. On the other hand Web merchant's point of view, whatever the information has entered by a customer is a questionable because whether that information is genuine or not. Now-a-days most of the customers using COD option on purchasing. But in some situations unsure customers uses fake phone numbers and addresses. So, without knowing the genuine information about the customer if the web merchant delivers that product, it not only incurs the cost and also causes loss in revenue.

Digital Payments are Overtaking Traditional Methods
The world is moving away from cash to cards especially when doing shopping on online. There are many digital wallets like Apple Pay, Google Pay, PayPal, UPI, and Pay tm etc. But if a buyer doesn't see their preferred digital payment method at checkout, they're likely to stop the process. The Challenge for web merchants is that they need to keep update with the new digital payment platforms for the flexibility of customers to do wide range of transactions in the same site.

Omni Channel Experience
Most of the consumers use their mobile phones to shop for products online, but some customers may choose desktop, tablets also. Omni-channel retailing can help the shopper's to purchase products from well-integrated channels to achieve smooth shopping experience. The use of different channels can help the E-commerce website owners to promote, distribute products and to grab more sales. But lack of transparency of inventory across the enterprise, and navigating each and every customer uniquely are the biggest challenge for retailers in implementing Omni channel.

Competitor Analysis
In a competitive environment there will be many E-commerce players who offers the same products and services to the customers. It is one of the Challenges to online sellers. It is significant to develop strategies by enabling better services to face the competitors and to promote their products.

Difficulties in Customer Service
If E-commerce website owner neglects the customer service then they may no longer continue in the E-commerce platform. If people find it difficult to locate a particular site's phone number or email address, they may feel that there is hiding something. Lack of clear contact information on merchant website can be a sign that their company is not trustworthy. Therefore, It is necessary to have a clear way to reach the people and people reach them.

Maintaining Customer Loyalty
Creating a new customer is one of the important characters in the e-commerce. Creating trust and loyalty among the customers is a main challenge of E-commerce companies. It is necessary to known each other about buyer and seller.

The Problem In Product Return And Refund
When the product returned by the customer due to dissatisfaction or damaged the e-commerce seller suffers a heavy loss because there are many obstacles in diversifying the product for free. While delivering that product they incur transportation and shipping costs which cannot recover further. Besides, they also need to bear the burden of refund. If they failed to do this they may loose the trust of their customers.

Shopping cart abandonment

Shopping cart abandonment is a huge issue. Even e-commerce giants are not immune to this problem. For instance, when brick and mortar heavyweight Nordstrom started an e-commerce portal, they witnessed big losses from abandoned carts. The tedious and bug-filled checkout process has caused the customers to leave their company.

Reasons for Abandonments During Checkout

Reason	%
Extra costs too high (shipping, tax, fees)	50%
The site wanted me to create an account	28%
Too long / complicated checkout process	21%
I couldn't see / calculate total order cost up-front	18%
Delivery was too slow	18%
I didn't trust the site with my credit card information	17%
Website had errors / crashed	13%
Returns policy wasn't satisfactory	10%
There weren't enough payment methods	6%
The credit card was declined	4%

Source: https://baymard.com/lists/cart-abandonment-rate

Security

Security continues to be a problem for online businesses. Customers have to feel confident about the integrity of e-dealers and the payment process before they commit to the purchase. There are risks of hackings and cybercrimes too. Hence, the customers are not showing much interest in these online shopping through internet. Which is not a good gesture of E-commerce business.

Lack Of Digital Illiteracy

One of the biggest challenge for the e-merchants is to reach the maximum customers across the country. But due to unaware of using the digitalization and improper internet facilities majority of people are using traditional purchase system.

Solutions to checkmate the E-commerce Challenges

1. First, to face the challenge of Identity of the customer, the web merchants should look out for suspicious browsers activity. Otherwise these suspicious browsers will take a lenience of giving high value or large orders. Hence, these online sellers need to identify fake phone numbers, email addresses and should check whether zip codes are matching with the particular city/state by sending a verification link when a customer
   signs up either via text message or email to validate the absolute customer.

2. In the case of COD purchases, an automated call could even dial out to the customer asking them to validate the delivery address.

3. These E-commerce web owners should modernize themselves by using visual tools and should enable their organization to serve customers across all touch points, channels etc. Even, Customer care personnel should also have a interaction via preferred channels of the customers such as phone, email, live chat, online help centres which ever is flexible for them.

hours, once in a year. For breeding animals in a captive environment, the selection process has to be done, where the animals with maximum fitness and ability to produce offspring that can perform better in wild are selected for breeding. The selection process opted for captive inbreeding is relaxed natural selection and unintentional domestication selection. Both of these selections caused reduced fitness. According to a few hypotheses, they expect that with unintentional domestication selection, the animal with the greatest fitness in a captive environment would produce offspring that perform the worst in the wild environment. While with relaxed natural selection, the population would have spent many generations in a captive environment to attain a rapid decline in fitness. Few studies state that the selection response is considerable when dealing with a single generation in a captive environment but show maladaptive in the wild. As a result of genetic changes occurring within captivity due to the environmental effects of captive rearing and inbreeding (the process of breeding where the organisms mate among close relatives) caused captive-born individuals to undergo inbreeding depression. Inbreeding depression is the reduced biological fitness attributing to an organism's ability to survive and preserve its genetic material.

Artificial insemination technique is used to overcome inbreeding depression and produce the desired offspring, with more genetically diverse populations. This process involves the collection of semen from male animals and introducing it into the female cervix to achieve fertilization without mating. It is very useful when compatible partners are from different captives, in this situation they transport animals from one captive to another for mating. However, because of transportation, animals feel stressed and loose interest in mating and so rather than transporting animals from one place to another, it would be easy to transport semen. Artificial insemination is the only option for the animals that do not prefer to mate. Along with many advantages, it also has few disadvantages, such as high cost, less quality semen, males undergo stress during semen collection and female animals undergo stress during artificial insemination. The quality of semen is modified because of the travel time that extends more than sperm life. To achieve high-quality semen, either the distance has to be considered or they could use preservation tubes used in cryopreservation for semen collection though it is expensive.

After multiple generations, when the population size of captive-born individuals increases to a level, then these animals are taken back to their natural habitat and are reintroduced into wildlife. By doing this the number of endangered animals increases resulting in a balanced ecosystem. These captive animals are expected to live in wildlife, survive and increase their generations while performing their role in biodiversity. But unfortunately, few captive animals survival rate in wildlife is low. Individuals from a population that has been in captivity for multiple generations are adapted for safe, secure, and simple life which provides food and shelter unlike wildlife, where they have to compete for food or shelter and at the same time also have to safeguard themselves from predators. Once when they are introduced into wildlife, these captive animals are all alone fighting for their survival where they do not have any option but have to compete with their co-species, hunt their prey, and protect themselves from their predators. If they achieve all of these, only then they can survive and can help in improving the ecosystem. But this was not possible because captive breeding causes the change in the behavior of the animals in such a way that few of them will not at least try to survive in wildlife. This might render into decreased survivorship upon reintroduction leading to reduced ability to persist once a population is introduced back as they are less capable of hunting leading to starvation and also, they fail to avoid predators. To overcome this, the captive population has to be exposed to a semi-wild environment so that they can learn to compete or hunt for the food while safeguarding themselves from predators.

Conclusion

From various literature studies, it can be concluded that there are certain effects of captive breeding to be acknowledged and focus on in order to make the process more approachable. Nevertheless, few of the interconnected problems faced in captive breeding can be minimized by adapting a differential stage of semi-wild environment, where the captive-born individuals are made to encounter frequently with their predators under the supervision of experts. This practice will gradually enable captive-born individuals to adapt to the natural wild environment before their reintroduction with reduced or no maladaptation, which automatically changes the behavior of the animals resulting in an increase of survivorship.

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Artificial Intelligence Based Autonomous Vehicle

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Abstract

Artificial Intelligence (AI) is intelligence illustrated by machines, unlike the natural intelligence dispose by humans and animals. It has been applied in our daily lives in a variety of ways with many successful stories. As technology is developing Artificial Intelligence is ready to create a new revolution in the world by making intelligent and smart machines. An Autonomous Vehicle (AV) is a vehicle that which can guide itself, as against to being controlled by human. The AV is a kind of driver less vehicle that has become in reality and is the art of driving using computers for future. This AI based vehicles will cause a huge change in our life. Here we will research and analyses the various impacts on society, legal and ethical challenges, and importantly environmental constraints, target of AV, Benefits and Challenges, AV Sensors, Artificial Intelligence in Autonomous Vehicle and so on.

Keywords: Artificial Intelligence (AI), Autonomous Vehicle (AV), Smart Machines, Sensors.

Introduction

Artificial Intelligence

Artificial Intelligence (AI) is Intelligence illustrated by machines, unlike the natural intelligence dispose by humans and animals. It has been applied in our daily lives in a variety of ways with many successful stories. As technology is developing Artificial Intelligence is ready to create a new revolution in the world by making intelligent and smart machines and is a machine intelligence tool providing broad possibilities for smart industrial revolt. It helps gathering compatible data/information, identifying the alternatives, choosing among alternatives, catching some actions, making a decision, reviewing the decision, and predicting smartly.

Autonomous Vehicles

An Autonomous Vehicle (AV) is a vehicle that which can guide itself, as against to being controlled by human. The AV is a kind of driver less vehicle that has become in reality and is the art of driving using computers for future. This AI based vehicles will cause a huge change in our life. Automated vehicles (AVs) are coming to our roadways. They are beginning to pose problems and issues that many of the public have not yet encountered or even witnessed. The present work addresses how the measurements and impacts of growing stages of ground automation can be communicated to and understood by the general public. To overcome all this, we should investigate to integrate our separate perspective on the topic of AVs which feature, first, a science communication perspective that focuses specifically on how the traveling public can predict, accept and recognize the effects of such innovation. Our second narrative strand features a human-centered approach to the on-coming perforation of AVs, looking to understand specifically how these diverse forms of full and semi automation will be experienced by human drivers. All three levels—public communication, human– machine interaction, and technical feasibility—coast to cast the upcoming forms of transportation. The resulting system promises to be strikingly different from its traditional and contemporary form, which has come to be accepted as the status quo for almost a century. Shared declaim, including public communications referring to this disturbing evolution is critical to our mutual understanding of the future we may able to create (1). The complexity of AV data/information (processing 1 GB per second) is increasing which is used for Advanced Driver Assistance Systems (ADAS) and entertainment. Hence, it is essential to increase software and hardware requirements, which use sensors, cameras, activator devices and software, to face the operations similar to the human brain as planned through AI. Fig: 2.

AV sensors and devices produce data containing information such as time, date, motion detection, navigation, fuel utilization, voice recognition, deceleration, vehicle speed with acceleration, voice search, cumulative mileage, recommendation engines, driver monitoring and eye tracking, image recognition, gesture and speech recognition, sentiment analysis and virtual assistance. Thus the total data 100 terabyte is over per year for 1 lakh vehicles.(3,4)

Why AV?

It has been showing that 90% of the automatic clashes which is done by human errors and in average the safest drivers drive ten times better. The automated vehicle safety is significant, and users are requiring 1000 times smaller acceptable risk level (2). Road traffic injury take the lives of approx. 1.3 million people every year and at the same time injured 20-50 million people globally. India, has the highest rate of growth in motorization which is guided by rapid development in urbanization and road networks. Consequently the country is encountered with various issues and impacts on road traffic accidents and road safety level. It takes a bulk financial year on the economy above and over the morbidity and mortality associated with RTA. Road traffic accidents(RTA) are preventable and predictable. For understanding the different accepts leading to RTA is must. Strict implementation of traffic rules and inflexible punishments alone will not clear the continuing problem. The change in the mind set of drivers, riders and road users should realize their responsibilities. It requires strong official promise and needs of 6 E's of road safety are engineering (roads), education, enforcement, engineering (vehicles), enactment and emergency care and most prolonged strategies to address the current demands. Everyone has the role in avoiding RTA.(5)

AV Sensors

The major device of autonomous vehicles is the sensors. The sensors that can be part of autonomous vehicles are Lidar, cameras, sonar, radar, Global Positioning System (GPS), wheel Odometry, an Inertial Measurement Unit (IMU). Sensors in automotive vehicles which analyze the collected data by the computer and used to control the brake, steer, and speed. To make decisions and vehicle control it utilizes the information of other vehicles data which is uploaded by other vehicles maps stored in the cloud. Fig 4. Vehicles will communicate through hotspots. Fig 2.

Camera

Cameras are one of the major types of sensors used in autonomous vehicles. Novel vehicles have dozens of different cameras mounted on vehicles. Cameras enable an autonomous vehicle to literally visualize its surroundings. They are very systematic at the categorization of texture explosion, more affordable than radar or lidar and are widely available. The downside of the camera is the computational power needed for processing the data. The latest high-defin ition cameras can produce millions of pixels per frame, with 30 to 60 frames per second, to develop intricate imaging. This leads to multi-megabytes of data needed to be processed in real-time. The applications of camera usage in self-driving vehicles are endless since the camera is a crucial sensor in driverless ride(6)-(10). The domain of application includes perception, semantic segmentation, end-to-end autonomous driving, and many others. Cameras can be also used inside of the vehicle for the human machine interaction [11].

Radar

Radar means Radio Detection And Ranging. Radar is a sensor fixed into vehicles for different purposes like blind spot warning collision, adaptive cruise control and avoiding collisions. Even a radar is a great technology still gets improved specially for the application of driverless driving [12]-[13] Fig: 4.

Lidar

Lidar stands for Light Detection and Ranging (LiDAR). Lidar uses an infrared laser beam to determine the distance among the sensor and a nearby object. Mostly 900 nm wavelength range of light used by current lidars, although some lidars use longer wavelengths, which perform somewhat better in fog and rain.

Industrial revolutions of AV's

Technologies, automation, and data exchanges are the trend of industrial development year wise shown in Fig.1. The new challenges in terms of market demand, competition and they must take radical change to Industry 4.0 evolution. Artificial Intelligence is one of the capabilities that enable improved better decision precision and decision dynamics for industry 4.0, resulting in reducing machine failure, somewhat best business performance, improving quality control, increasing productivity, improving quality control, and lowering costs. Some of the major advantages of autonomous vehicles are: (1) Reduced emissions and dust particles (2) Reduction of accidents, (3) Releasing of business opportunities and driver time, (4) Reduction of fuel usage, (5) New potential market opportunities, and (6) Increasing vehicle safety. However, AVs must use large-scale data/information from their sensors and devices.

Legal and Ethical challenges

The main ethical challenges that we faced in Industrial revolutionary are Safety, Security, Privacy, Trust, Transparency, Reliability. The major aspects in legal challenges are Operational Design Domain ("ODD"),
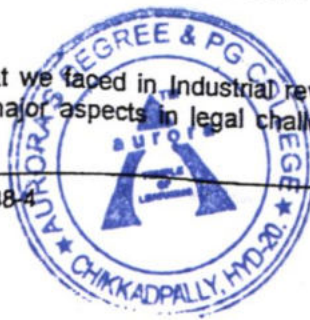
System Safety, Object Event Detection Response ("OEDR"), Validation Methods, 0. Data Recording, Human-Machine Interface and Fallback (Minimal Risk Condition).

Impacts on society

In today's society autonomous vehicle are fast gaining prominence and there is a complete **Transforming experiences** where Transportation researchers have demonstrated how understanding the embodied experiences of being in transit is vital for developing of why do people travel the way that people do. Sheller (2004) highlights the significance of emotional dimensions and affective of vehicle travel for attachments and generating meanings(15). Constrains and political dimensions of enablement focused for development in transportations studies where **transformation inequality** is the second major contribution. Transportation research is also characterized by relational thinking which highlights how the transportation of some come at the expense of the mobility of others (16).

Transforming labour is the 3rd contribution of transportation studies that we develop is the focus on transformations to labour. Much emphasis in the study of transportation has explored how transportation can facilitate different kinds of work. Where we have discussed the potential transformations to the relationship between working and moving in terms of vehicle resources, here how systems of transportation themselves want different kind of labour we are interested in. In this, has been told about how the innovation of mobility systems goes hand-in-hand with the revolution of new system of labouring, specially emotional labour (17). **Transforming systems** the transportation studies have showed in society that to understand the significance of technologies of transit, it is vital to consider how they operate within the systems of larger interlocking, preferably than visualized as discrete entities(14).

Implementation

From year 1925 onwards many companies or projects like Houdina Radio Control, General Motors, RCA, Chrysler, Kikuchi and Matsumoto, OSU, Tsugawa, Stanford Cart, Dickmanns , DARPA, Google, Telsa, Volvo, performed different approaches and different types of activities like Demonstrates a radio-controlled 'driverless' car, Exhibit 'Futurama' model, Begin the technical explorations, Research collaborative a large project, The concept car called Firebird II-, The Firebird II exhibited is receivers for detector circuits in roadways, The first car with cruise control called imperial Wire following in Japan, Futurama II exhibit, Research by Fenton, Vision guidance in Japan, Used as a video processor to navigate a cluttered room with no human input on autonomous vehicles. (Table 1). The functionalities (table2) comfort assist and completely take over well-defined activities for increased safety or drivers. Current vehicles can, perform pliant cruise control on highways, parked themselves, alert drivers about objects in blind spots fig 3 during lane changes and steer themselves during stop-and-go traffic. Radar and vision technology were leveraged to develop pre-collision systems that let vehicles automatically break when risk is detected. Deep learning has been applied for recognize sounds and to enhance the capacity of vehicles to identify objects in the environment.

Vehicular AV Challenges

The evolution from manually operated to **Autonomous Vehicle (AV)** will pose several new challenges. Some of these challenges come from the massive deployment of sensors on the AV and the huge amount of data that the AV can pick up from the environment. Other challenges result from the fact that the AV *"drives itself autonomously"* while the driver may be busy with background activities and not capable to intervene immediately in case of emergencies.[28].

NDN Network Layer: The NDN network is required to find content, not hosts or IP addresses that is, content is found by exploiting geographic relevance more than naming hierarchy. In fact, due to node mobility one cannot assume that there is a geographically consistent name hierarchy such that the prefix location gives a hint about the location of the target content. This *"environment monitoring"* service will become popular when there will be lots of AVs on the road, equipped with all sorts of sensors, from vibration sensors to video cameras and GPS, and capable to capture every detail of the environment. Today, Google cars roam the city and map topology, and combine it actual pictures of the buildings. [20]

Beacons and Alarms: One important application built within the vehicular cloud is *"Beaconing and Alarms"*. Recall that the AV sensors (from optical to Lidar) do most of the work in the attempt to keep the vehicle and its passengers out of trouble. Sensors alone, however, are not sufficient to maintain stable operations in high speeds and extremely reduced inter-vehicle spacing. This is particularly true in truck platoons Likewise, V2V (Vehicle-to-Vehicle) communications are necessary to avoid the formation of shock waves in a long column of AVs when a slow down or accident occurs in front. Intersection collisions will not be so critical when most of the cars are autonomous, since the AVs (unlike human drivers) abide by the signals and speed limits and approach intersections with caution. However, V2V communications will still be required among
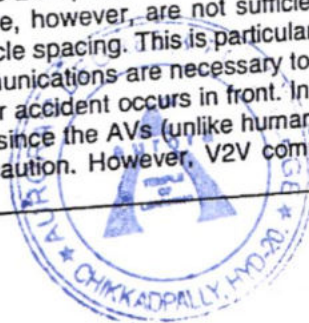
lead cars facing 4-stop intersections in order to implement the *"smart traffic light"* [26]. AVs will also find out about road conditions ahead, via V2V in order to make the drive more comfortable for the passengers.

Intelligent Transport: The AVs will be able to use the existing highway network much more efficiently than manually-operated cars because they can be packed in compact platoons and convoys. They can also make efficient use of preferred (or pay-per-service) lanes, by maintaining a *"train on wheel"* configuration on such lanes, and by allowing efficient in-and-out lane switches using a combination of sensors and V2V communications in a much safer way than human could. The AVs can also manage automatic charges.[25][26].

Infrastructure Failure Recovery: The AVs depend on the infrastructure (e.g., WI-FI access points, DSRC RBUs, and LTE) for several non-safety functions such as advanced sensor data processing and intelligent transport. To avoid a second disaster, caused by the AVs going out of control, it is important to maintain a V2Vsupported propagation of traffic conditions and congestion state on adjacent roads. This background *"crowdsourcing"* of traffic will allow the AVs to make intelligent routing decisions so that the human drivers can progressively take over with confidence [27].

File and Media Downloading: Efficient downloading of multimedia to drivers and passengers (e.g., TV shows, movies and games) will be a critical marketing strategy for the automated driving. The crowded wireless access spectrum the download of popular content from web is best done using bit torrent techniques via V2V support [25]. Downloading from WIFI access points or LTE alone will not work. Content distribution to AVs is also motivated by safety considerations. It will give them the impression of *"being in control"* without having to work on the commands.

Cognitive Radios and Spectrum Data-base Crowdsourcing: The DSRC dedicated spectrum, in principle, can support the V2V traffic, or at least the traffic for beacons and emergency services. The cognitive radio functions must be supported by a multi-radio AV platform. They can also be supported by AV crowdsourcing of the occupancy of the 802.11b/g channels ahead [24].

Virtualization: Virtualization is one of the most important features of the Internet cloud and plays an important role in the VCC and in particular in the support of AVs. Because of the rich assortment of sensors on board, the AV fleet may be required to perform *"data mining"* like tasks such as recognizing a fugitive in the vehicular cloud in a certain geographic area[22]. For example, the car manufacturer can access all CAN (Controller Area Network) bus sensors and all cameras, while a neighbor vehicle may access only the outward pointing camera[23].

Security: Besides the common security requirements like privacy, confidentiality, Distributed Denial of Service (DDoS) protection and authentication,[22] the AV is very vulnerable to vicious attacks that may, say, disable the steering or the brakes system. They are extremely more dangerous for AVs because there is no driver on instant stand by. For this reason, the protection from attacks both external as well as internal must be designed with stricter standards. Yet, access to the cars' internal mechanism and possibly to On-Board Diagnostics (OBD) and CAN bus must be allowed when the AV is out of control, because of either internal malfunctioning or a malicious attack. One interesting research in these security issues is a multi-factor protection strategy [16]. As shown in Fig. 5.

Conclusion

The collection of sensor platforms to the Internet of Autonomous Vehicles. Like other instantiations of the Internet of Things, the Autonomous Vehicles will have storage , communications, learning capabilities and intelligence to anticipate the customer's intentions. This article claims that the equivalent of Internet Cloud for vehicles, the Vehicular Cloud will be the core system environment that makes the evolution possible and that the autonomous driving will be the major beneficiary in the cloud architecture. We showed a vehicular cloud model in detail and discussed potential design perspective with highlights on autonomous vehicle, AV, for future research.

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Digital Forensic Science on Web browsers

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Abstract

The web browser's memory cache contains uploaded and downloaded files such as videos, images, documents, scripts and executable files. Web based application generally consists of data entered into multiple web forms such as search queries, social networks, financial account information, passwords and logins for email accounts, Web browsers are the means of accessing internet and cybercrime, so as to main target to commit the cybercrime related illegal activities to the internet. It is crucial for the digital forensic examiner to accumulate the data and analysis to web browser usage of the suspect. In the market we have different we browsers such as Microsoft Edge, Google Chrome, Firefox Mozilla, Opera and Safari etc. The current research paper mainly focuses on analyzing the identifying locations, history, cookies, login data, shortcuts, user profile and pre-fetch file to collect data related to internet activities on Linux/windows installed Google Chrome. The outcome of this research will serve to be a significant source for various departments like cyber law, forensic investigators and the digital forensics research community.

Keywords: Web Browser, Cybercrime, Investigators, Digital forensics, Activities, Data analysis

Introduction

Web Browser history is one part in the search of digital evidence. As part of a lot of Digital Forensics investigations, obtaining information of the user's browsing habits is a key role step. There are various kind of Web Browser forensic tools, depend on the web browser itself. We will give some web browser analysis tools that useful in Digital forensic investigation. Web browsers can be used to be able to access key information about the user. By using the information that is accessed by the web browser you can be able to know what the user has been searching. Web browsers can be used as a computer forensics tool. Web browsers contain more features that are designed to make life easier to the end users. Everything from remembering recently viewed web pages to record web form data, saving passwords, sending geographical location information and synching updated browser history across devices.

Content	Found in File/Folder
Visit count	History
Website Visited	History, Cache ,Cookies, Recovery Folders, Suggested Sites
Search Words	Auto Complete, Cache
Sites Saved	Bookmarks

Navigation History: Contains data about the navigation history of the user. Can be used to track down if the user has visited some malicious sites for example

Autocomplete Data: This is the data that the browser suggest based on what you search the most. Can be used in tandem with the navigation history to get more insight [2].

Bookmarks: Self Explanatory.

Extensions and Add-ons: Self Explanatory.

Cache: When navigating websites, the browser creates all sorts of cache data (images, JavaScript files...etc.) for many reasons. For example to speed loading time of websites. These cache files can be a great source of data during a forensic investigation.

Logins: Self Explanatory.

Favicons: They are the small icons found in menu tabs, bookmarks, URL and such. They can be used as another source to get more information from website or user visited places.

Form Data: Anything typed inside forms is often times stored by the browser, so the next time the user enters something inside of a form the browser can suggest previously entered data.

Table 1. End User Activity on Web Browsers

End User Activity	Word in URL
Search	Search, word about serch
E-mail	Mail, e-mail
Blog	Blog
Social Media	Facebook, Twitter, Instagram, vb.
News	News
Shopping	Shopping, shop, foni, vb.
Weather Condition	Weather
Game	Game
Video, Visual Content	Video
Music	Music, mp3
Banking	Bank, Credit

Analyses of Web Browser Forensic Process

Mozilla Firefox

Profile Path : Contains the profile data and the majority of the artifacts.
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\C:\Users\ARJUN\AppData\Local\Mozilla\Firefox\Profiles\[profileID].default\

Navigation History + Bookmarks [SQLite Database]
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\places.sqlite

Bookmarks Backups [Folder / .jsonlz4 Files]
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\bookmarkbackups\

Cookies [SQLite Database]
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\cookies.sqlite

Cache [Multiple Types Of Data]
C:\Users\ARJUN\AppData\Local\Mozilla\Firefox\Profiles\[profileID].default\cache2\entriesC:\Users\ARJUN\AppData\Local\Mozilla\Firefox\Profiles\[profileID].default\startupCache

Form History [SQLite Database]
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\formhistory.sqlite

Addons + Extensions [SQLite Database] Contains data about the installed addons in the browser.
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\addons.sqliteC:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\extensions.sqlite

Favicons [SQLite Database]
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\favicons.sqlite

Settings And Preferences
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\prefs.js

Logins + Passwords [JSON File]
LoginsC:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\logins.json-
PasswordsC:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\key4.dbC:\Users\A
RJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\key3.db (Older Version)

Sessions Data [jsonlz4 File] : A file that contain data about the current session.
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\sessionstore.jsonlzC:\Users\AR
JUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\sessionstore-backups\

Downloads [SQLite Database] : List of downloaded files from Firefox
C:\Users\ARJUN\AppData\Roaming\Mozilla\Firefox\Profiles\[profileID].default\downloads.sqlite

Thumbnails: Folder containing the images shown when we open the "about:newtab" page.
C:\Users\ARJUN\AppData\Local\Mozilla\Firefox\Profiles\[profileID].default\thumbnails

Google Chrome

Profile Path: Contains the profile data and the majority of the artifacts.
C:\Users\ARJUN\AppData\Local\Google\Chrome\User
Data\DefaultC:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData

Navigation History + Downloads + Search History [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\User
Data\Default\HistoryC:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\ChromeDefaultData\Histoy

Cookies [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\CookiesC:\Users\ARJUN\AppData\Local\
Google\Chrome\User Data\ChromeDefaultData\Cookies

Cache [Multiple Types]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\CacheC:\Users\ARJUN\AppData\Local\G
oogle\Chrome\User Data\ChromeDefaultData\Cache

Bookmarks [JSON]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\BookmarksC:\Users\ARJUN\AppData\Loc
al\Google\Chrome\User Data\ChromeDefaultData\Bookmarks

Form History [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\User   Data\Default\WebData
C:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData\Web Data

Favicons [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Favicons
C:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData\Favicons

Logins [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData\Login Data

Sessions Data- Current Sessions / Tabs
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Current
SessionC:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\ChromeDefaultData\Current
SessionC:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Current Tabs- Last
TabsC:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\ChromeDefaultData\Current Data\Default\Last
(Previous) Sessions / TabsC:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData\Last
SessionC:\Users\ARJUN\AppData\Local\Google\Chrome\User

SessionC:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Last
TabsC:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\ChromeDefaultData\Last Tabs

Addons + Extensions [Folders]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Extensions\C:\Users\ARJUN\AppData\Loc
al\Google\Chrome\User Data\ChromeDefaultData\Extensions\

Thumbnails [SQLite Database]
C:\Users\ARJUN\AppData\Local\Google\Chrome\UserData\Default\Top
SitesC:\Users\ARJUN\AppData\Local\Google\Chrome\User Data\Default\Thumbnails (Older versions)

Microsoft Edge

Profile Path:
C:\Users\ARJUN\AppData\Local\Packages\Microsoft.MicrosoftEdge_ARJUN\AC

History + Cookies + Downloads [ESE Database
C:\Users\ARJUN\AppData\Local\Microsoft\Windows\WebCache\WebCacheV01.dat

Settings + Bookmarks + Reading List [ESE Database]
C:\Users\ARJUN\AppData\Local\Packages\Microsoft.MicrosoftEdge_ARJUN\AC\MicrosoftEdge\User\Default\
DataStore\Data\nouser1\ARJUN\DBStore\spartan.edb

Cache
C:\Users\ARJUN\AppData\Local\Packages\Microsoft.MicrosoftEdge_ARJUN\AC\#!ARJUN\MicrosoftEdge\Ca
che

Sessions - Last Active
C:\Users\ARJUN\AppData\Local\Packages\Microsoft.MicrosoftEdge_ARJUN\AC\MicrosoftEdge\User\Default\r
ecovery\Active

Google Chrome Analysis process

This is the most commonly used web browser on internet today say like digital forensics examiners will likely
come across this browser in one of their investigations. Google Chrome is a open-source browser project
developed by Google [3]. The Chromium project has not seen the light as a standalone browser, so we can
consider Google Chrome as the public version of this project. Many third-party web browsers are based on
the Chromium project, like Yandex Browser, Opera and Cent Browser. Most web browsers that are based on
the Chromium project are going to store data in a similar way; this fact allows examiners to use the same
investigative techniques used with Google Chrome to investigate these browsers, making investigating
Google Chrome act as a standard template for most Chromium-based web browsers [4]. Similar to other web
browsers, Chrome (developed by Google Inc.) stores its software configuration settings and user private
information in SQLite databases; these databases are files without extensions, so do not get confused on how
to open them when using SQLite browser. Just navigate to target the Google Chrome profile folder and make
sure that the option "All files (*)" is selected as appears then select the file you want to examine. Results of
this experiment show that traces of web browsing activities can be found, even after removing the portable
browser device.

Web Browsers	Operating Systems	File Path
Internet	Windows 95/98	C:\Temporary Internet Files\Content.ie5
		C:\Cookies
		C:\History\History.ie5
	Windows 2000/XP	C:\Documents and Settings\%username%\Local Settings\Temporary Internet Files\Content.ie5

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		C:\Documents and Settings\%username%\Cookies
		C:\Documents and Settings\History\history.ie5 Settings\%username%\Local
	Windows 7/10 and latest version	C:\Users\%username%\AppData\Local\Microsoft\Windows\Temporary
		Internet Files\
	Linux MacOS-X	C:\Users\%username%\AppData\Local\Microsoft\Windows\Temporary
		Internet Files\Low\
		/home/$USER/.mozilla/firefox/$PROFILE.default/places.sqlite
		/Users/$USER/Library/Application
Firefox		Support/Firefox/Profiles/$PROFILE.default/places.sqlite
	Windows XP	C:\Documents and Settings\%username%\Application
		Data\Mozilla\Firefox\Profiles\%PROFILE%.default\places.sqlite
	Windows 7/10	C:\Users\%USERNAME%\AppData\Roaming\Mozilla\Firefox\Profiles\%PROF
	and latest version	ILE%.default\places.sqlite
	MacOS-X	/Users/$USER/Library/Safari/
		/Users/$USER/Library/Caches/com.apple.Safari/
Safari	Windows XP	C:\Documents and Settings\%username%\Application Data\Apple
		Computer\Safari\
		C:\Documents and Settings\Application Settings\%username%\Local
		Data\Apple Computer\Safari\
	Windows 7 /10	C:\Users\%username%\AppData\Roaming\Apple Computer\Safari\
		C:\Users\%username%\AppData\Local\Apple Computer\Safari\
	Linux	/home/$USER/.opera/
Opera	MacOS-X	/Users/$USER/Library/Opera/
	Windows XP	C:\Documents and Settings\%username%\Application Data\Opera\Opera\
	Windows 7/10	C:\Users\%username%\AppData\Roaming\Opera\Opera\
	and latest version	
	Linux	/home/$USER/.config/google-chrome/Default/Preferences

	MacOS-X	/Users/$USER/Library/Application
		Support/Google/Chrome/Default/Preferences
Google Chrome	Windows XP	C:\Documents and Settings\%username%\Local Settings\Application
		Data\Google\Chrome\User Data\Default\Preferences
	Windows 7/10	C:\Users\%username%\AppData\Local\Google\Chrome\User
	and latest version	Data\Default\Preferences

Future Trends

Web Browser forensics has become an important role of research for the Web forensic researchers. Today, most of the Web browser Forensic tools target any specific web browsers, and those few that are able to analyze multiple web browsers, lacks the accurate artifacts extraction. In order to address this issue, a methodology should be designed to analyze multiple browsers simultaneously with one tool, and integrate their data according to the timestamps for integrated artifact analysis. Based on this designed methodology, a forensic tool should be developed for the forensic experts, to speed up their process of investigation[9]. Moreover, since the web browsers are updated frequently, Cyber forensic analysts must able to forensically analyze the newer versions too. Browser forensics should similarly be conducted on other Operating systems too. However, since the trend of computer is gradually shifting towards the smartphone, the forensic investigators must also thoroughly carry out browser forensic of smart phones[10].

Conclusion

As web browser the only means in accessing the web and crime handling criminal cases to target the web browser in-order to commit web related crimes. Tracing evidence of Web browser use is an important process for digital forensic investigation. After data being analyzed by the Web browser usage, it is possible to determine the objective, methods, and unauthorized activities of a criminal suspect. When a cyber-investigator examines suspect's computer, the Web browser's log file will be one of his top concerns. Web browser Forensic Tools are the best source for the cyber forensic experts to find the artifacts from web browser, in cases like wise suspected illegal Internet activity. The forensic experts can therefore utilize the efficiency of these forensic tools to find internet artifacts from various different locations in the computer's memory. Though the stored web data can be traced down to the exact folder, the deletion of any evidence by the culprit can seriously affect the progress of the case.

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The role of IoT, Logistics & Supply Chain Management (LSCM) in Industry 5.0

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Abstract

The potential to dramatically change the way business using Supply Chain work has a Fifth Industrial Revolution (Industry 5.0). The objects of logistics are capable of communicating, processing information and taking their own decisions based on the relation between LSCM and an Internet of Things (IoT) for transport logistics. The implementation of IoT in all aspects of human life, which results a fast paced daily life activities is a clear indication that the future is here now. In future, logistics will become a new stage for development in industry 5.0 using IoT technology. Now a day's logistics industry 5.0 is looking to adopt innovative technologies and digitalizing to connect, increase profits and improve fleet management to achieve a better share in the business world. The adoption of Industry 5.0 technologies based on the relationship between Logistics & Supply Chain Management and supply chain management in IoT to improvement of the old industry. The study of an IoT, LSCM and Logistics survey with manufacturing companies to improvement for supply chain performance that implementation based digital technologies in the era of Industry 5.0. This paper presents a Systematic Literature Review focused on Supply Chain Management (LSCM), IoT and Logistics which described some principles and characteristics in Industry 5.0 and implementation of the application in modern logistics.

Keywords: IoT, Logistics, Supply Chain Management and Industry 5.0

Introduction

Digitalization has created a new paradigm in manufacturing—where factories are becoming more modern and sophisticated. The use of technologies such as IoT, robots, automation, sensors, advanced analytics, and artificial intelligence has revolutionized industrial-scale production, and its impact can be seen globally. Although the manufacturing industry desires to setup near-total automated factories to grasp cost savings, it has raised concerns about eliminating human jobs. The four major industrial revolutions would help us understand where the manufacturing industry is regulated and what would differentiate the next one, taking shape over the next two decades, 'Industry 5.0.' Figure 1.

1. Industry 1.0: The introduction of engines powered by water, steam, and coal, which moved the economy away from agriculture to industrial production.
2. Industry 2.0: Industry 2.0 is use of new-found energy resources such as oil, electricity, and gas also gained momentum with the electrification of the assembly lines for mass production.
3. Industry 3.0: The Industry 3.0 is use of microprocessors, information technology, and robots for a high level of automation in production.
4. Industry 4.0: The 'information revolution' introduced the concept of Industry 4.0 with digitalization and integrated it into manufacturing. The advent of connected devices and technologies such as cyber-physical systems (CPS), Industrial Internet of Things (IIoT), data analytics, cloud computing, cyber security, big data and artificial intelligence (AI).

Industry 5.0

Japan defines Industry 5.0 as 'Society 5.0 'human touch' revolution: "A human-centered society that balances commercial advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space." Figure 2. The fifth revolution could already be proceeding among the companies that are just now accepting the principles of Industry 4.0. The term Industry 5.0 refers to people working together with robots and smart machines. Industry 5.0 is set to motivation on the return of human hands and minds into the industrial framework. It's about robots helping hands for humans work better and faster by leveraging advanced technologies like the Internet of Things (IoT) and big data. It adds a personal human touch to the Industry 4.0 pillars of mechanization and proficiency. The greatest advances projected of Industry 5.0 involve the interface of human intelligence and cognitive computing. Combined, humans and electronic machinery are expected to take manufacturing to new levels of speed and perfection. The fifth revolution could also prove
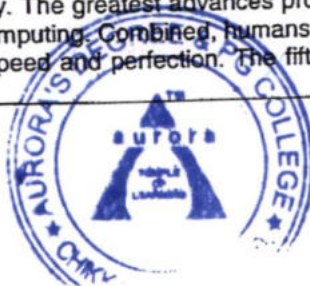
more advantageous to the environment, as companies develop systems that run on renewable energy and reduce waste.

The Rada has given Industry 5.0 includes 6R methodology and L.E.D. principles. The 6R are:

1. Recognize
2. Reconsider
3. Realize
4. Reduce
5. Reuse
6. Recycle

6R methodology actually defines a business improvement model. It can be considered as a business process improvement or a business process innovation. Therefore, the 6R methodology is subject to the rules, assumptions, and dynamics of process improvement efforts. The Industry 5.0 is deferring from industry 4.0 in table 1. :

What is required for Industry 5.0?

The problems associated with the removal of human workers from different processes will solve by Industry 5.0. However, it will need even more advanced technologies to achieve this, which is discussed below.

- Networked Sensor Data Interoperability
- Multi-scale Dynamic Modelling and Simulation: Digital Twins
- Shop-floor Trackers
- Virtual Training
- Intelligent Autonomous Systems
- Advances in Sensing Technologies and Machine Cognition

Internet of Things (IoT)

Internet of things is a network of varied physical devices which connects physical devices and allows / facilitates exchange of data. The IoT devices with built in electronics and software connect through a whole lot of actuators, sensors. Each device can be identified by its embedded computing system. This makes devices to inter-operate within the established infrastructure. The IoT depends upon three building blocks, based on the ability of smart objects to: (i) To communicate (anything communicates), (ii) Be identifiable (anything identifies itself) and (iii) To interact (anything interacts). The focus of IoT is on the data and information, instead of focusing on point-to-point communication.

Advantages of IoT

- Communication
- Automation and Control
- Time
- Money
- Efficient and Saves Time

IoT Architecture: The various categories involves in IoT in term of an umbrella term that is:

- Wireless sensor/actuator networks
- Internet-connected wearable
- Low power embedded systems
- RFID tracking
- Use of mobile phones to interact wit
- Devices that connect via Bluetooth
- phones to the Internet
- Connected automobile And many more

Some specific requirements for IoT and LSCM environments that support Industry 5.0 are:

- People and Things
- Edge and Communication
- Data collection, analysis, and actuation

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- Scalability
- Security
- Application and Services

Logistics & Supply Chain Management(LSCM)

Generally logistics is about adding "place utility" to a product meaning that, for example, a product needs to be moved from one point to another point. The product could be raw material to be processed in a factory, or the product could be finished from the factory and to be distributed to the market for consumption. In terms of LSCM is "place utility" in logistics, this is due to the fact that a seller and a buyer of the product have agreed to buy and sell the product at assured conditions that include carriage price and time. When it is in transport or under logistics service, the "product" will be termed as "cargo" or "goods". As per the agreement, the cargo may need to be stored in somewhere along the transit; this service is termed as 'warehousing' and depending on the necessity and type of cargo, the warehouse location, size, type etc. will be determined. The buyer may buy the product in a big lot for once in a month or every week in a smaller lot and this decision influences the level of inventory the buying company has to maintain.

Logistics = supply of raw materials + materials management in a factory + distribution to customers

The logistics management is the most commonly used term and contains logistics not only in the private business sector but also in the public / government and non-profit sectors. There is confusion about the definition of logistics due to the fact that a number of terminologies are used to describe logistics management including the following:

- Logistic Management
- Integrated Logistics management
- Physical Distribution Management
- Procurement and Supply
- Marketing Logistics Management

- Business Logistics Management
- Materials Management
- Industrial Logistics Management
- Product Flow Management

It measures performance along the logistics supply chain within a country and offers two different perspectives: International and Domestic.

Importance of Supply Chain Management:

- Customer Service
- Reduction of Operating Costs
- Decrease Production Cost
- Decrease Total Supply Chain Cost
- Improve Financial Position
- Reduce inventory costs
- Improves handling of goods
- Improves process integration

Supply Chain Management Challenges

- Globalization Challenge
- Fast changing markets
- Quality and compliance
- Managing Inventory
- Managing Suppliers
- Managing safety and quality
- Risk Mitigation

Weak links in supply chain

- **Adaptability-** Managing sudden changes in demand
- **Visibility-** To gain proper visibility of the market requirements is difficult.
- **Agility-** Responsiveness to customer requirements.
- **Analytics-** Not efficient enough to be deployed to the entire supply chain.

IoT TECHNOLOGIES AND ALGORITHM

Technologies used for LSCM divided in two layers:

A. **Infrastructure layer:** It consists of all the physical units of the management system

1. **Sensors-** Sensor is a device which serves the purpose of detecting events or changes in its surrounding environment and sends the information to other electronics, frequently a computer processor. A sensor is always used with other electronic devices. In Simple words the sensors are the eyes and ears of the system as they detect occurrence of events, surrounding conditions and transmit the collected information. Different types of sensors used in proposed system are:

   B. Temperature Sensor
   C. Humidity Sensor
   D. PH Sensor
   E. Chemical Sensor
   F. Tilt Sensor
   G. Location Sensor
   H. RFID Tag
   I. Vehicle Speed Sensor (VSS)
   J. Pressure Sensor
   K. Real Time Clock (RTC)
   L. Moisture Sensor

2. **Sensor Nodes (SN)** - It is the transport vehicle that carries various kinds of goods. The IP address which helps to identified and its unique identification by each sensor node. Each sensor node communicates to all of its sensor data and its subsequent gateway. Figure 3 A sensor nodes are composed of:

   i. **Controller-** The controller performs the tasks of processing the data and controlling the functioning of other components in the sensor node.
   ii. **Transceiver-** The single device known as a transceiver has functionality of both transmitter and receiver is combined. Transceivers often lack unique identifiers. The operational states are receiving, idle, transmitted and sleep.
   iii. **External memory-** The application dependents on memory requirements and program memory also contain identification data of the device if present.
   iv. **Power source-** Power is stored either in batteries or capacitors. The sensor node consumes power for communicating, data processing and sensing.

1. **Gateways-** All the information that has been sensed and collected by the sensors is transmitted to the gateways. Gateways turn as a common point of contact wherein diverse kinds of information coming from various types of sensors gets collected. Which is responsible for the global addressing of Sensor Nodes (SN) and it is the gateway by making use of IPv4 addresses. To enhance the granularity of SN identification so as every gateway is allocated more than one area. Gateway transmits all forms of unstructured information to its subsequent proxy servers.
2. **Mobile Device-** It acts as a representative for a customer or a supplier. It is the mobile device which allows the end user to monitor, track and manage the entire supply chain on a real time basis. Any alert that is triggered from a sensor node is directly communicated to the mobile device in wait of an appropriate response.
3. **Proxy Server-** It acts as an intermediary node for requests coming from a supplier or a customer. Proxy server provides a communication link between local processing Cloud and also offers the rest of the system and storage capabilities in order to boost the efficiency of the system.
4. **Cloud-** Cloud controls the entire system. It is used for storage of real time data, algorithms, customer information, and product information.

B. **Application Layer-** This layer consists the working and the flow of the entire system

1. **Mobile application-** It resides on the mobile device of a supplier or a customer and allows them to interact, monitor and manage the rest of the entities of the system. The mobile application receives alert notifications from the middleware and responds to them in form of suitable actions which are then conveyed to the pilot through the user interface.
2. **User Interface-** It resides on the vehicle that is responsible for the transportation of goods. It informs the pilot of the vehicle about the route to be taken, sensor node status, supplier information, sensor alert notifications and end user requests.
3. **Middleware-** The purpose of the middleware is to receive orders from the controller and communicate them to the respective entities involved in the system. The middleware resides at the proxy server and

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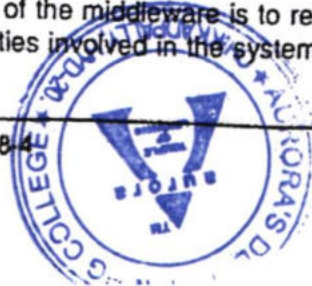
regularly updates the controller regarding the status and working of all other entities, It communicates this information to the controller in response of a suitable order.

4. **Controller-** Controller orchestrates the functionalities of other application modules and entities within the system. The controller exists in at the cloud end and has detailed information regarding every supplier, source, destination, sensor node, actuator, product, customer, gateway and proxy server. It is the controller which generates detailed product supply chain booms on the basis of supply chain performance, quality control and alters triggered by the sensors.

Algorithm	Description
1. Start()	1. Start.
2. Controller()	2. Controller is activated which sends request to middleware at proxy server to send information.
3. Middleware()	3. Controller first gets information from command centre of source i.e. suppliers end and destination i.e. customers end.
4. Product_Info()	4. Controller sends this information to middleware.
5. (product_Source, product_destination) → Controller ()	5. Sensors sense the data which is collected at sensor node, sensor node sends data to a particular gateway.
6. Controller()→ Middleware()	6. The gateway then sends the sensor data, time at which it is taken, location of sensor and route to proxy server.
7. SensorNode(sensor_data) → Gateway	7. Proxy server then updates the sensor data, time, location of sensor, route and other details. Step 5-7 takes place continuously in a loop till alert is generated.
8. Gateway(time, sensor_data, location_sensor, route) →ProxyServer	8. If a sensor detects alert the sensor node sends the sensor data along with alert to the gateway
9. ProxyServer (product_Source, product_destination, time, sensor_data, location_sensor, route) → {UserInterface, Mobileapplication, Cloud}	9. Gateway then sends the sensor data, alert and location of sensor to proxy server.
10. SensorNode(Sensor, Alert_type) → Gateway	10. Proxy server updates the sensor data and send alert massage to gateway
11. Gateway(Sensor, Alert_type, location_sensor, time, route) → ProxyServer	11. Proxy server sends sensor data, alert, time, location of sensor and route to user interface, mobile application and cloud.
12. ProxyServer(Sensor, Alert_type, location_sensor) → {UserInterface, Mobileapplication, Cloud}	12. Cloud call for alert action and sends alert action with alert type to proxy server.
13. CloudAlert → Action()	13. Proxy server the alert action, sensor data, sensor location, time and route to user interface.
14. Alert_Action(Alert_type) → ProxyServer	14. User interface sends action taken to proxy server.
15. ProxyServer(Alert_type, Sensor, location_sensor, time, route) → {UserInterface}	15. Proxy server updates action taken on cloud and mobile application.
16. UserInterface(Action_taken) → ProxyServer	16. User interface sends action which is taken to proxy server.
17. ProxyServer (Action_taken) → {Cloud,Mobileapplication}	17. Once the product reaches the customer the customer is authenticated by mobile application.
18. Mobileapplication(Customer_Authenticat ion) → ProxyServer	18. Mobile application sends data to proxy server.
19. ProxyServer (Customer_Authentication) → Cloud	19. Proxy server sends data to cloud.
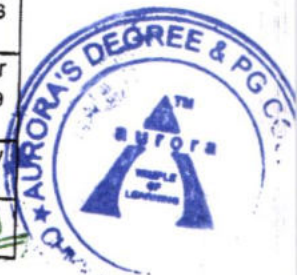
20. Distribution_Pattern → Cloud	20. The distribution pattern is updated on cloud for future use.
21.End()	21. End

Results

Industry 5.0 will bring exceptional challenges in the field of human–machine interaction (HMI) as it will put machines very close to the everyday life of any human. Even though we are obsessed with machines such as programmable assistive devices and programmable cars, we do not consider them a version of cobots (even though the deference are not that great from a certain perception), commonly because of their shape. Cobots will be very deferent as their organization and introduction will contain human-like functionalities such as gripping, pinching, and interaction based on intention and environmental factors. We also expect that Industry 5.0 will create several jobs in the field of HMI and computational human factors (HCF) analysis. Industry 5.0 will transform manufacturing systems across the globe by taking away dull, dirty, and repetitive tasks from human workers wherever possible. Intelligent robots and systems will penetrate the manufacturing supply chains and production shop floors to an unprecedented level. Industry 5.0 will increase productivity and operational proficiency, reduce work injury, be environmentally friendly and shorten production time cycles. However, Industry 5.0 will create more jobs than it takes away and contrary to immediate sensitivity. A large number of jobs will be created in the intelligent systems arena, training, scheduling, repurposing, AI, robotics programming, maintenance and invention of a new breed of manufacturing robots. In addition, since repetitive tasks need not be performed by a human worker, it will allow for inspiration in the work process to innovatively use different forms of robots to be boosted by encouraging everyone in the workplace. Furthermore, in terms of both hardware and software, across the globe and as a direct impact of Industry 5.0, a large number of start-up companies will build a new ecosystem of providing custom robotic solutions. This will further boost cash flow, the global economy and increase across the globe.

Conclusion

The Fifth Industrial Revolution will emerge when it's three major elements—intelligent devices, intelligent systems, and intelligent automation—fully merge with the physical world in co-operation with human intelligence. The term "automation" describes independent machines as intelligent agents collaborating with humans at the same time, in the same workspace. The reliability and trust between these two parties will achieve minimum waste, promising efficiency, flawless production and customizable manufacturing. In doing so, it will bring more people back to the workplace and increase the process efficiency.It is determined that management of the supply chains in various industries has developed meaningfully from earlier manual, laborious and risk prone operations to real time, automatic and risk free operations to a large extent. The initiation of IoT and its applications in to supply chain management has developed to an extent which has not only helped tracking and of goods in transit but has impacted the efficient management of inventories and reducing losses of supply chains. This has resulted in large scale economic benefits to the companies and has helped in growing supply chain operations over large geographies. Opening from simple goods identification devices to complex network of physical devices operating in a corresponding manner, the application of IoT has approved greater visibility in manufacturing of goods as well as the supply chains to deliver the finished goods till end user.

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Impact of Covid19 on Investment Behavior of Middle Class Income Group with regard to Banking Sector

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Abstract

Banking sector is one of the important sectors which is occupying prominent place in our daily life. It has taken very less time for this sector to transform itself from manual banking to personalized banking or E-Banking. E-Commerce has replaced a wide variety of banking services with an ease to carry out banking functions via Internet. The transformation of traditional banking to e-banking had its impact on early 1990's. Over the last 30 years Customer shopping experience has seen a drastic change which paved the path towards online shopping. In the present scenario the responsibility of banking sector has increased to a great extent, they are the ones who are trying to make digital India .The concept of Digital India was launched by Prime Minister Narendra Modi which was initiated through Ministry of Electronics and Information technology on 1st July 2015.The main purpose of digital India campaign was to ensure the government services are made available to the citizens electronically by improving online infrastructure and internet facility i.e making India digitally empowered in the field of technology. So this paper basically talks about how banks have adapted the changes and to what extent the customers are satisfied with services. In addition to this even we are concentrating on the impact of on line shopping on the banking sector.

Objectives of the study

1. To study the impact of Ecommerce on online banking.
2. To analyze to what extent there is an impact of online banking on the regular customers.

Research Methodology

For the study both Primary and Secondary data is used. Primary data in the form of a structured questionnaire which is being circulated among 150 respondents and secondary data from various websites.

Limitations
- Time constraint.
- The study covers those groups of people who deal with digital banking to the maximum extent.

Need for the study

Now-a-days the traditional banking has got a lot of changes. Earlier people used to go the bank for carrying on the banking activity whereas at present the traditional banking has got replaced with the online banking. So it is felt that there is a need to study on what aspects there is a change.

Introduction

Meaning of Digital Marketing:
Digital marketing is a method where goods and services are rendered online. One of the best example for digital marketing is Internet .It also includes marketing goods and services using mobile phones and other digital media / Devices.

Definition

Digital marketing is a general term for any the effort by a company to connect with customers through electronic technology, including email, geolocation and mobile marketing, social media, online customer communities, webinars, and other video-based content.

Market is a physical place where we find exchange of goods and services along with ownership transfer. The term marketing refers to the process of transferring ownership from the manufacturer to the customer. Digital Marketing not only includes internet marketing, but it covers various channels that do not use internet. Example: SMS , MMS, Display advertising , social media and any other form of digital media etc. Digital marketing refers to advertising and promotion in the digital world.

Reasons for Digital Marketing

Now a days because of the increasing of digital marketing even the small companies are also having wide options for advertising their products. The following are the various reasons which will explain us that digital marketing is better than traditional marketing.

1. In the traditional methods of banking customers are supposed to go to the bank for all the banking transactions whereas with the digital banking the customers can access from anywhere and they can do the banking functions at their convenient time.
2. Digital marketing has an edge over traditional marketing due to its cost effectiveness.
3. Some studies have proved that Digital marketing will generate more revenue .
4. We will have a lot of transparency in case of digital marketing comparatively with traditional marketing.
5. In digital banking the customer satisfaction is given core importance.
6. Banking with digital channels are growing more frequently and now people are using the mobile banking system.
7. Debit & Credit card facilities are one of the best examples for this . With the introduction of this card system people have got an access to do monetary transactions from anywhere through any bank and it has become comfortable to them by saving their time.

Traditional Banking definition
slideshare.net

- The original type of commercial bank that handled customer deposits and made investment loans to businesses. Traditional banks, chartered at the national, state, or local levels, were the only entities legally able to issue checking accounts prior to the 1980s.

Pros of Traditional Banks: More Options

Using a traditional banking system might seem old-school or too conventional, there are certain advantages with a financial institution with more number of branches. One of the advantages of traditional banking is that it will provide better solution for keeping and handling money safe.

- More options: Options related to this kind of banking is more. It may be related to savings of an individual, checking balance in the account, transferring funds from one account to another account , providing certificate of deposit to the public or any others ,many traditional banks offer wealth management and investment services, too.
- Convenience: Most of the leading banks, like Chase, Wells Fargo and Bank of America, are providing a lot of services to the customers and that are trying to make customers free from all the banking requirements.
- Best of both worlds: Many banks offer customers the flexibility of being able to walk into a branch to deposit cash or to transfer money via a smartphone. With online banks, people will only have the electronic transfer option.
- Cash deposits: Instead of various changes still the industry is following the traditional form of currency transformation.

Cons of Traditional Banks: Low or No Interest Rates

Banks can offer critical conveniences but are not without their flaws. To help you decide if a traditional bank is the right solution for your financial needs, review some of the drawbacks to banking at a larger institution:

- Low or no interest rates: Brick-and-mortar banks are notorious for their lower interest rates on savings accounts, compared with online banks. In fact, in a recent survey by GO Banking Rates, the best savings accounts were all with online banks: My Savings Direct, Ally Bank, Barclays, I GO banking and CIT offered the top five highest interest rates.
- Wide range of fees: When you think of a traditional bank, you might also think of bank fees. Bank of America, for example, charges a $35 nonsufficient funds fee, whereas Alliant Credit Union one of the largest credit unions open to the public charges just $25 for an NSF fee.

- Poor customer service: A 2015 study by Consumer Reports suggested that one of the major downfalls of big banks is that they do not understand customers' needs or and do not provide personalized service. According to the survey, the four mega banks like Bank of America, Chase, Citibank, and Wells Fargo ,which hold approximately 40 percent of all U.S. commercial bank assets, landed in the bottom fifth of the customer satisfaction rankings. Smaller financial institutions have a smaller demographic, but this seems to help them gain insight into banking with them and what those customers want.

Alternatives to Large Banks

When deciding where to put your money, there are many options to consider, including credit unions, online banking and local brick and mortar banks. Each of these alternatives to megabanks offers advantages, depending on your needs.

- Credit unions: Credit unions are financial institutions that are cooperatively owned by all members and democratically run by members who volunteer as board members. The members vote on issues like interest rates, and because these institutions are not for profit, account holders usually get better rates on both loans and savings interest. Credit unions are insured by the National Credit Union Administration, so members' money is secure.
- Online banks: Serving as another alternative to traditional banks, online banks such as Ally Bank, Simple or Bank 5 Connect tend to offer more favorable services and rates. For example, Ally Bank offers 0.60% APY on its checking accounts whereas Bank of America offers just 0.02% APY. Online banks do not have to spend money on supporting many physical locations, so they're able to pass on these savings to customers.
- Community and local banks: Community banks are a vital part of many areas, especially rural and farming communities, which depend on local banks for loans and basic services. Because these areas are usually tight-knit, these types of banks are more flexible with loan requirements than big banks. For example, the Independent Community Bankers of America Association says it considers character, family history and discretionary spending in making loans; this is not the kind of service you could typically expect to find in a big, traditional bank.

Data Analysis

Gender

156 responses
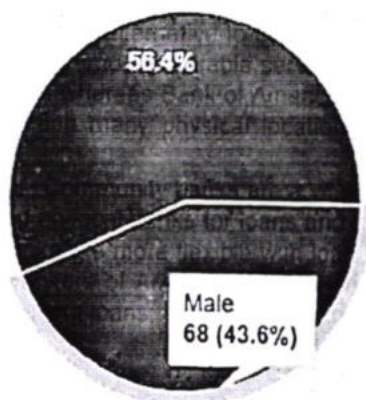
For the study 150 respondents were taken. Out of which 75 are Males and 75 are Female respondents.

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Age

156 responses

- 18-30
- 31-40
- 41-50
- 51 & above

26.9%

13.5%

55.8%
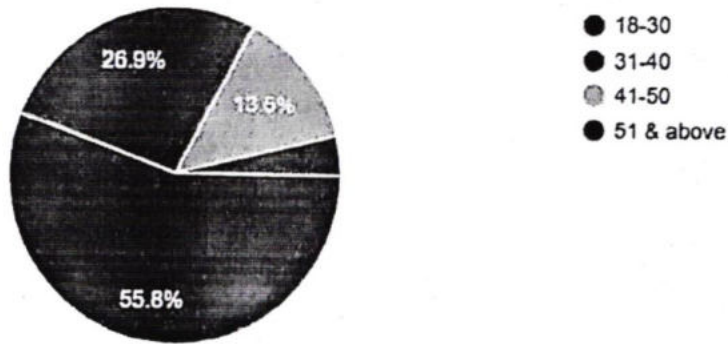
All the age groups to the maximum extent are covered. In this regard a structured questionnaire was prepared and age wise grouping was made. Out of which 55.3% of the respondents belong to the age group of 18-30 , 27% of the respondents belong to the age group of 31-40,13.8% of the respondents belong to the age group of 41-50 and remaining percentage is from the age group of 51 and above.

Occupation

156 responses

- Student
- Professional
- I.T Sector
- Business
- Other:

27.6%

14.1%

45.5%
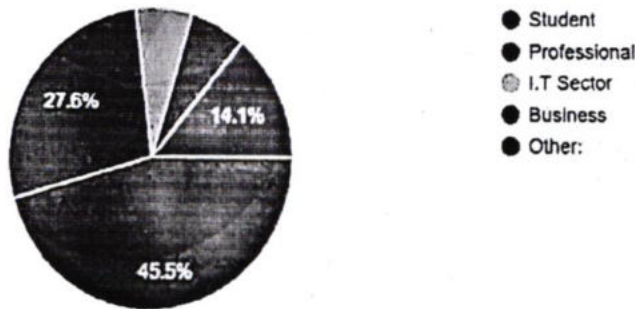
Different employees like professionals, I.T Sector, Business and others were considered for the study. In this regard 27.6% are professionals , I.T 46.1% and 13.2% belongs to the field of business.

Which mode of banking transactions do you prefer the most

156 responses

- Online / digital
- Offline/ traditional

10.3%

89.7%
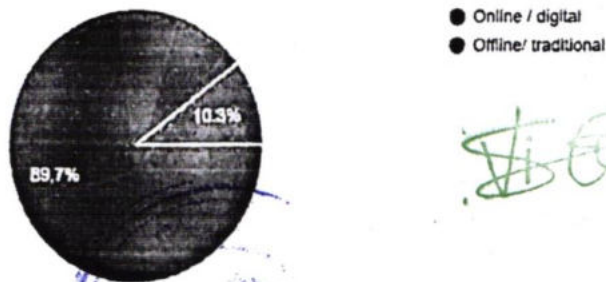
Out of the 150 respondents to the maximum extent the respondents said that they prefer online i.e. digital trading and only 9.9% of the respondents said that they prefer offline or traditional trading.

Are you a regular user of online banking

156 responses

- No
- Maybe
- yes

71.8%

14.1%

14.1%
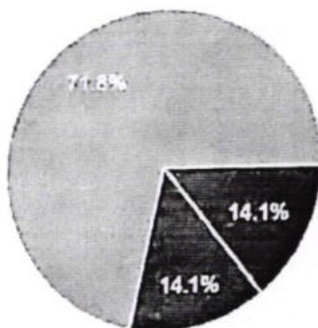
Majority of the respondents i.e 72.4% of them said that they use online banking and remaining said that they use both online and offline banking.

For which products do you prefer the online banking

156 responses

- EMI
- Bill payments
- Shopping
- Fund transfer
- All

42.3%

12.2%

21.2%
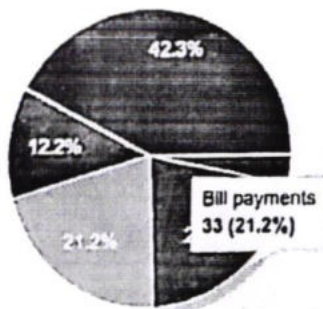
Bill payments
33 (21.2%)

The above diagram represents that 41.2 % of the respondents said that they prefer online banking for the products like EMI,Bill payments , Shopping , Fund transfer and so on . 21.6% prefer online banking

Do you think your online transaction are safe?

156 responses

- Yes
- No
- Maybe

29.5%

65.4%
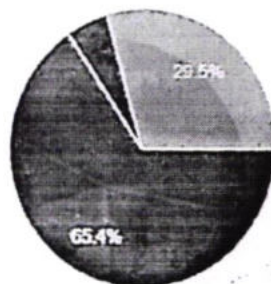
Out of the respondents 65% of the respondents have felt that online transactions are safe , and 29.8% felt that online transactions are not safe.

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Do you prefer online banking for purchases?

156 responses
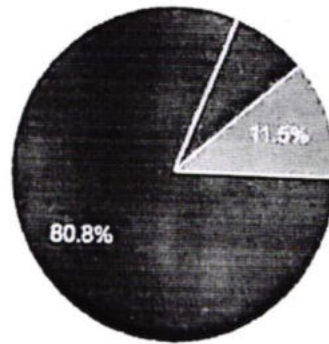
- Yes
- No
- Maybe

Majority of the respondents felt that they prefer online purchases and remaining people were not preferring online purchases.

How often you prefer online banking?

156 responses
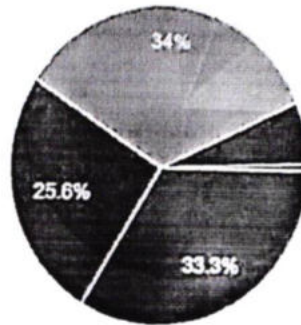
- Always
- Often
- Sometimes
- Rarely
- Never

Out of the respondents 34% of them felt they prefer online banking always.25.5% of the respondents felt that they often prefer online banking.33.3% of the respondents felt that sometimes they prefer online banking.

Do you think digital banking is replaced with traditional banking?

156 responses

- Yes
- No

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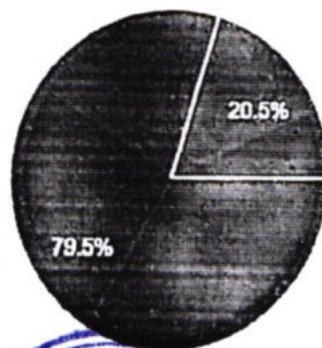
79.1% of the respondents have felt that traditional banking is replaced with digital banking and 20.9% have felt that traditional banking is not replaced.

Rate your satisfaction of the queries handled

153 responses
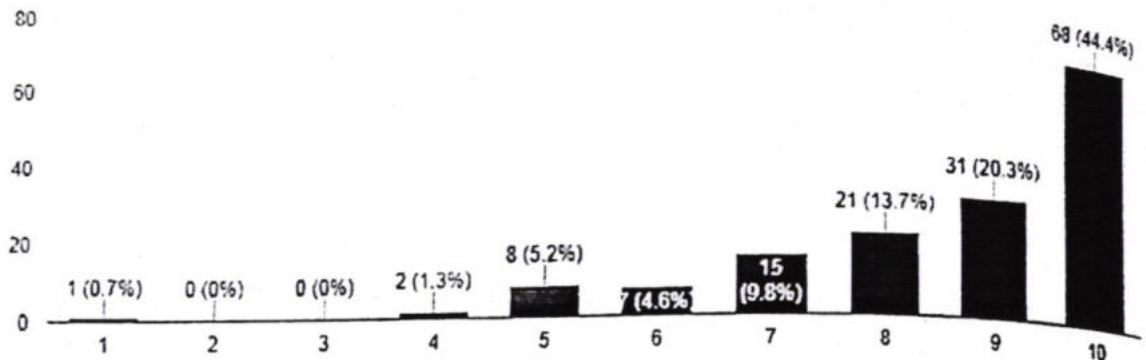
Out of 156 respondents 68 have given there response as strongly agree whereas 31 of them have rated it as agreed. Remaining respondents have said it as good.

Rate your satisfaction on online banking

156 responses
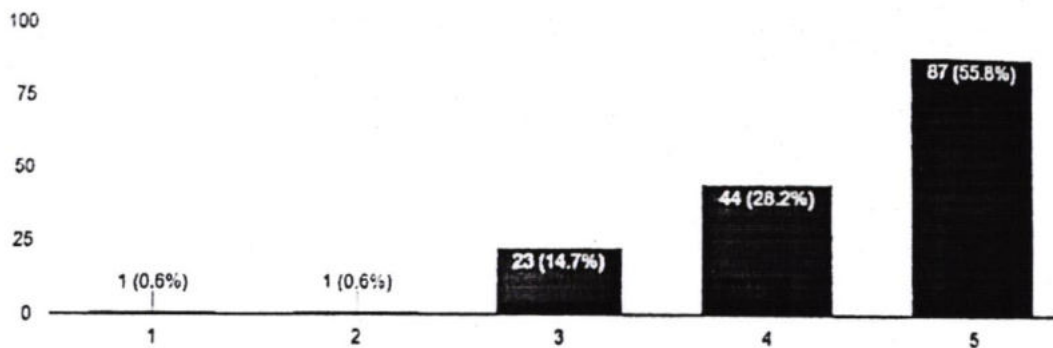
Most of the respondents have strongly agreed and said that they are satisfied with online banking , remaining respondents have said that they are satisfied with online banking.

Conclusion

It is being observed that majority of the respondents have felt that Traditional banking got replaced with the digital banking to the maximum extent. Majority of the respondents are trying to use the digital banking for all the banking transactions and they are satisfied with all the recent changes. Even though most of them are satisfied it is being observed that some group of people are still following the traditional banking system and they are in the assumption that it is convenient for them.

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Plant Extracts – Is It a Promising remedy for Tuberculosis?

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Abstract

Tuberculosis (TB) is caused by Mycobacterium tuberculosis. It is estimated about 9.3 million new cases and 13 million chronic active cases responsible for million deaths annually. Furthermore, the emergence of M. tuberculosis strains resistant to conventional first-line and second-line anti-tubercular treatment is particularly worrisome. The enormous diversity of plant-derived compound makes them one of the most promising reservoirs of potentially novel anti-TB molecules. Many medicinal plants are used to treat diseases. These plants should be screened and identified for the treatment of TB. There are some medicinal plants which have anti-mycobacterial activity comparable to the existing anti-tubercular drugs. The present review focuses on medicinal plants and plant-based active constituents showing both immune-modulatory and anti-mycobacterial activity. The present study evaluates the anti-mycobacterial activities of Citrullus colocynthis, Ricinus communis, Calotropis procera and some other medicinal plants also have antibacterial property. Citrullus colocynthis and Ricinus communis plants' extracts are effective against rifampicin-sensitive and rifampicin-resistant strains of MTB.

Key Words: Citrullus colocynthis, Ricinus communis, anti-TB drugs, tuberculosis.

Introduction

Mycobacterium tuberculosis is responsible in causing tuberculosis and it is one of the second leading causes of death throughout the world. Global efforts have been made to control TB, but still, this is a serious threat as MTB produced resistance against both the first- and second-line drugs. At present there are many multidrug-resistant, extremely drug resistant, and totally drug-resistant TB needs attention in discovery of new anti-TB drugs. Medicinal plants offer great hope to fulfil these needs and have been used for the treatment of various diseases for many centuries and there are some crude materials or the pure and semi-pure compounds isolated from plants. There are several reports of medicinal plants and natural products with anti-mycobacterial activity. Medicinal plants offer great hope to fulfil these needs and have been used for the treatment of various diseases for many centuries. Many plants have been identified for anti-TB activity, and a varied kind of phytochemicals was stated for anti-TB activity including Quinone's, and triterpenoids alkaloids, peptides, tannins, phenolic compounds they can act as natural anti-TB agents .Well-known examples are rifampicin, a semi-synthetic derivative of rifamycin, which is a product isolate Citrullus colocynthis is used in the traditional medicines to treat microbial infections, and disease. Likewise, Calotropis procera is usually used for the management of various types of diseases such as leprosy diseases of the liver, spleen and abdomen. The buds of the shrub show gastrointestinal and improvement properties. On the converse, the powdered root bark has been used for the treatment of diarrhoea and dysentery. Different parts of the C. procera have been reported to possess a number of antimicrobial, anticancer, and anti-inflammatory. Ayurvedic traditional system to cure diseases, in which there is a large number of plant types for the treatment of TB. In Ayurveda more than fifty plant species are listed for TB and leprosy Ricinus communis proves to be potential against TB, leprosy, and associated abnormalities. Observance in assessment, the old-fashioned uses and antimicrobial activities, the current study was correct to check the anti-tubercular activities of C. colocynthis, R. communis.

Materials and Methods

Citrullus colocynthis have common names including colocynth, bitter apple.C. colocynthis is a desert viny plant that grows in grimy, dry top soil, plants Fresh parts (roots, stem, and leaves) were collected from the region of Place of Origin Rajasthan, India whereas R. communis the castor bean or castor oil plant is a species of perennial flowering plant in the spurge family, Euphorbiaceae, were collected from different areas of Hyderabad ,India. Drying and Grinding of Plant Materials should be dried at temperatures below 300°C to avoid decomposition of thermo-labile compounds. Similarly, it ought to be safe from sunlight since of the possible for biological transformations causing from contact to ultraviolet radiation.1.To stop the collection of

Design and simulation of Frequency Counter using PIC Microcontroller

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Abstract

Frequency Counter is an electronic device which is used to measure the frequency of a signal. It measures the number of cycles in applied electrical signal. Frequency is defined the number of cycles completed in one sec. To measure frequency one of the popular devices is CRO. Using CRO we can not only measure frequency but also signal can be viewed. But, the main disadvantage of Oscilloscope is it is very expensive and its precision is very less. Hence, a simple Digital Frequency Counter can be designed to measure frequency of any type of input signal. So in the present work a PIC Microcontroller (PIC16F8877A) based Digital Frequency Counter is designed. As Frequency and time period are inversely proportional with each other. In this paper frequency is calculated indirectly by measuring time period. The method involved in the present work is any type of waveform is converted to square wave by using Schmitt trigger. The output of Schmitt trigger is applied to PIC16F8877A as external interrupt at rising edge and timer is used to measure time period of the applied input signal. An algorithm is developed to convert time period into frequency and displayed on 16*2 LCD display. The frequency counter is designed and simulated using Proteus Software.

Key Words: Frequency Counter, PIC Microcontroller, Schmitt trigger

Introduction

Digital Frequency counter is an electronic instrument which is used to measure the frequency of a period signal like sine, square or triangle wave. In many applications measurement of frequency is necessary. As frequency and time period are inversely proposition to know number of times an event is happening frequency measurement is needed[1]. Also frequency measurement is indirectly useful in measurement of output of sensors. Measurement of frequency is also important in Electrical engineering. In distributed generation of power, frequency variations are one of main causes for unexpected system faults. Hence frequency measurement is one of the important indexes of power system stability.

Literature survey

The frequency of AC signal can be measured using CRO by applying to the inputs of oscilloscope and signal is optimized. The number of horizontal divisions form one peak point to another peak point is counted and then multiplied with time/division which gives time period. Inverse of time period will give frequency of the signal. This is the most common method to measure frequency of input signal. The main disadvantage of this method is it does not give direct reading of frequency and cannot be used for remote measurements and also the precision of oscilloscope is very limited. Mr. Khairul Alam [2] explained Measurement of Power Frequency with Higher Accuracy Using PIC Microcontroller deals with digital measurement of power of frequency i.e 50Hz using microcontroller based system. This measurement system measures the frequency up to three decimals accuracy. Li Su, Aiguo Shang,[3-4] has discussed Frequency meter in which hardware part mainly includes C8051F020 microcontroller, high speed comparator and TFT LCD screen. Surya Prakash[4] constructed a simple "Frequency Counter using Aurdino" which might be in handy to measure the frequency of a clock signal. To avoid these drawbacks in the present work advanced microcontroller is used to design a digital frequency meter[5-6].

Methodology

PIC16F877A based digital frequency counter measures the frequency of Sine, Square, Triangle and Sawtooth wave forms and it displays the frequency on LCD screen[7]. The block diagram of Digital frequency meter is sown in Fig 1. The block diagram consists of Schmitt trigger, PIC Microcontroller, Crystal oscillator and LCD.
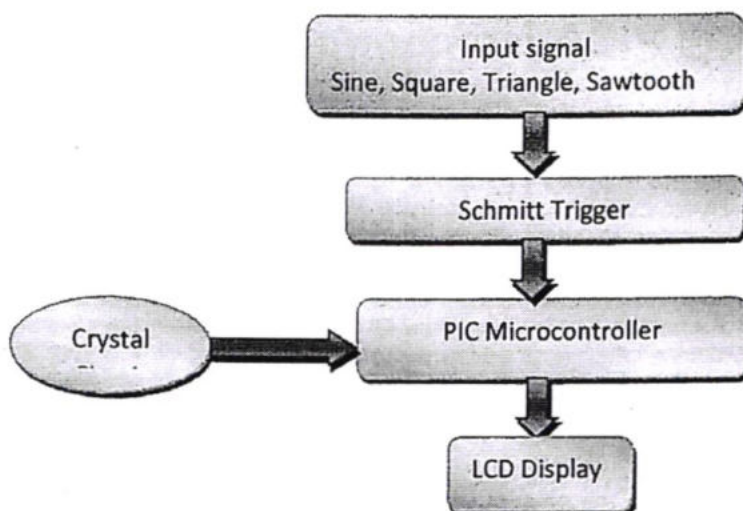
Fig 1 Block diagram of Digital Frequency meter

The input signal (Sine, Square, Triangle, Sawtooth) is applied to the Schmitt trigger. Schmitt trigger circuit is used to convert any type of wave form to square wave[8]. Output of Schmitt trigger is connected to pin number 33 RB0 which is bit 0 of port B as it can be used as external interrupt pin. RB0 must be initialized as an external interrupt pin and not as input or output pin. For this in OPTION_REG Register (Address 81h) bit 7 is enabled by writing '0'. Once the RB0 pin is initialized as an external interrupt pin, for rising edge of external signal at RB0 pin INTF will become 1 and the code inside the void interrupt function will get executed since the Interrupt Service Routine (ISR) will be called. Now Timer 1 is turned ON to read the time period of the input signal. The time period is converted to frequency in the software. The output is displayed on LCD screen. The data lines of LCD screen are connected to Port B4 to RB7 of PIC microcontroller, control lines E (Enable) is connected to RB3 and RB4 is connected RS pin of LCD.

Hardware Design of Digital Frequency Counter using is PIC16F877A

Digital Frequency meter is constructed using Proteus software. The Fig 2 shows the Hardware Design of Frequency Counter using is PIC16F877A before simulation.
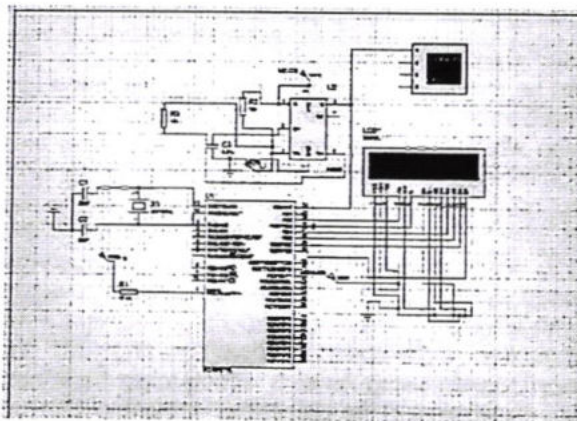
Fig 2 Hardware Design of Frequency Counter using is PIC16F877A before simulation

Results and Discussion

Hard ware circuit of Digital Frequency Meter is tested in Proteus software. To estimate the frequency the code is written in Micro C. when 1 KHz Sin wave or Square wave input signal is applied to the Schmitt trigger then the LCD displays same frequency on the screen. The tables 1 and 2 shows the Actual and measured frequencies of Sin wave and Square waves of frequencies 1KHz, 2KHz, 3KHz and 4KHz. The present Frequency counter is calibrated to master clock of 20MHz for any other frequency few changes must be done

in software. As the frequency is increased the % of error in the output is increased this is because of real time simulation errors. The Hardware circuit after simulation is shown in the Figure 3. Fig 4 indicates measurement of frequency for Sinusoidal Signal. Fig 5 depicts that measurement of frequency for Square wave form.
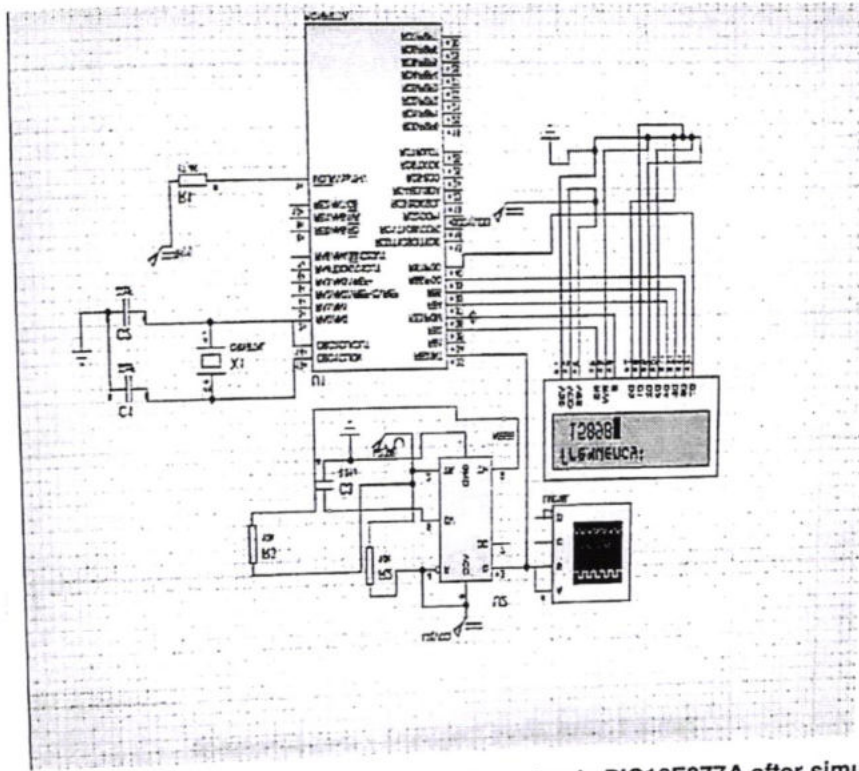
Fig 3 Hardware Design of Frequency Counter using is PIC16F877A after simulation
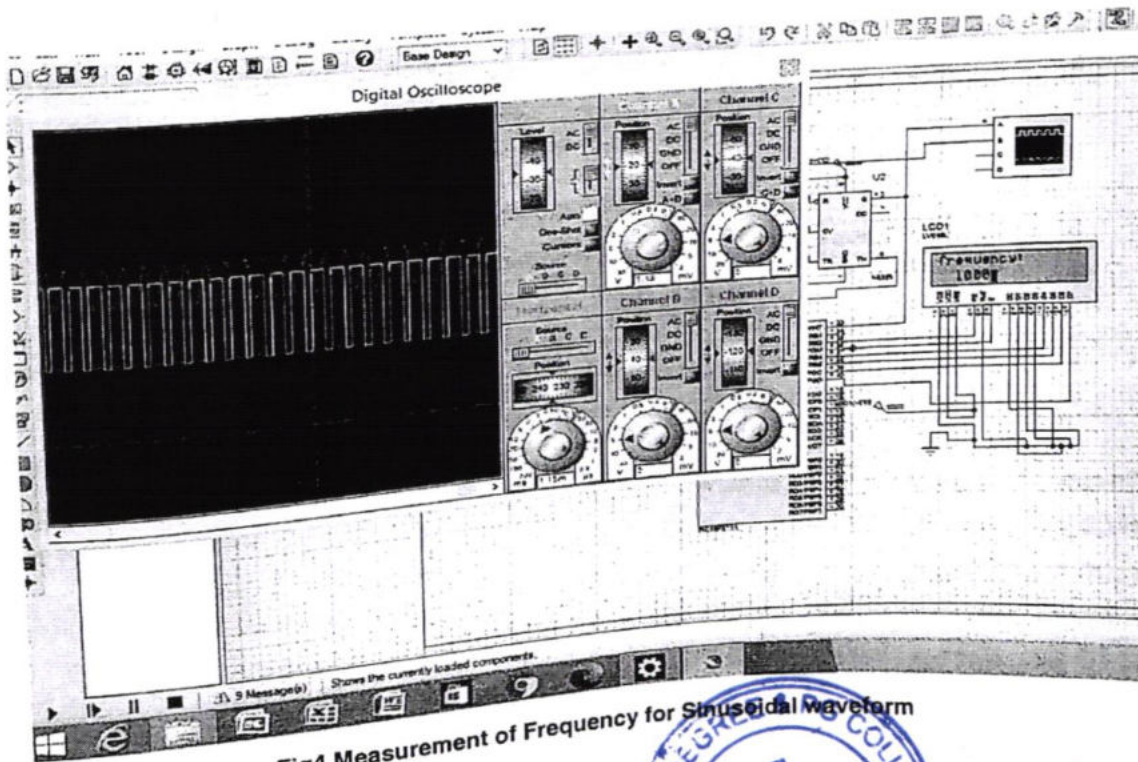
Fig4 Measurement of Frequency for Sinusoidal waveform
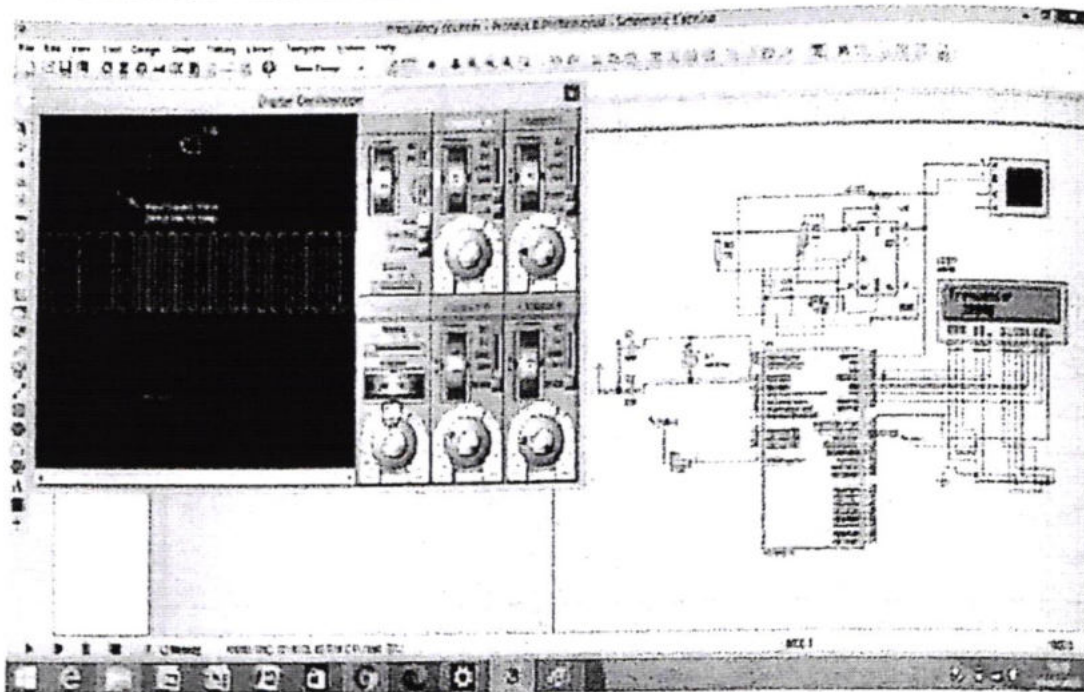
Fig5 Measurement of Frequency for Square waveform

Table 1 Sine wave frequency measurement

S.No	Nature of Wave form	Applied Input Frequency	Measured Frequency	% Error
1	Sine Wave	1kHz	1000	0%
2	Sine Wave	2kHz	2000	0%
3	Sine Wave	3kHz	2998	0.066%
4	Sine Wave	4kHz	3996	0.1%

Table 2 Square wave frequency measurement

S.No	Nature of Wave form	Applied Input Frequency	Measured Frequency	% Error
1	Square Wave	1kHz	1000	0%
2	Square Wave	2kHz	2000	0%
3	Square Wave	3kHz	2998	0.066%
4	Square Wave	4kHz	3996	0.1%

Estimation of Frequency by using Micro C

```
sbit LCD_RS at RB2_bit;
sbit LCD_EN at RB3_bit;
sbit LCD_D4 at RB4_bit;
sbit LCD_D5 at RB5_bit;
sbit LCD_D6 at RB6_bit;
sbit LCD_D7 at RB7_bit;
```

```
sbit LCD_RS_Direction at TRISB2_bit;
sbit LCD_EN_Direction at TRISB3_bit;
sbit LCD_D4_Direction at TRISB4_bit;
sbit LCD_D5_Direction at TRISB5_bit;
sbit LCD_D6_Direction at TRISB6_bit;
sbit LCD_D7_Direction at TRISB7_bit;
int on=0,value,freq;
char text[7];
void interrupt(void)
{
if(T1CON.TMR1ON==0)
{
T1CON.TMR1ON=1;
INTCON.INTF = 0;
}
else if(T1CON.TMR1ON==1)
{
T1CON.TMR1ON=0;
value=(TMR1H<<8)|(TMR1L);
INTCON.INTE = 0;
freq=(5007999/value);
//freq=1/value;
IntToStr(freq, text);
Lcd_Init();
lcd_out(1,1,"frequency:");
lcd_out(2,1,text);
delay_ms(1000);
TMR1H=0;
TMR1L=0;
INTCON.INTE = 1;
INTCON.INTF = 0; //
}
}
void main(void)
{
TRISB.f0 = 1;
T1CON=0X00;
```

```
TMR1H=0;

TMR1L=0;

INTCON.GIE = 1;

INTCON.INTE = 1;

OPTION_REG.INTEDG = 0;

{

} while(1);

}
```

Conclusion

In the Present work a PIC based Digital frequency meter is designed. This instrument counts sine, Square, Triangle and Sawtooth wave forms frequency. This meter is very useful because it counts the frequency of any type of input signal. The designed instrument has the main advantages of providing high precision and more portable and Flexible.

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Quinones: A vital compound of life

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Abstract

Quinones are the most widely distributed proteins in the world. The range of the distribution can be seen from the lowest level of organization bacteria, to highest level of organization of Eukaryotes. The numerous functions of quinones arise with minor variation in their functional groups resulting in varied functionality and interactive properties. Quinone is a yellow, crystalline, cyclic unsaturated diketone($C_6H_4O_2$) which is formed by oxidizing reaction of aniline or hydroxyquinone widely utilized in photography and in tanning leather industry. There are various forms of the compound such as quinone, quinoid, quinidine, quinol, quinoline, quinolone, quinone, quinone diamine, quinonimine, quinonoid, quinoxaline, quinq etc. Quinones are known to occur as biological pigments(biochromes) such as plastoquinone A and B in plants as well. Quinones play a key role in organisms such are bacteria and fungi for numerous metabolic processes. Marine life is also indicated to show quinones in the development process such as that seen in Sea Urchins, Aphids. These are consumed from plants, animals as major sources. They show wide range of activity like anti-viral, anti-fungal. These are involved in the respiratory chain in higher eukaryotes and many metabolic pathways. They are further used as respiratory biomarkers for environmental hazard cleaning methods such as respiratory quinones are used to study activated sludge reactors using bacterial community.

Keywords: Quinone, Unsaturated Diketone, quinoxaline, plastoquinone, respiratory biomarkers.
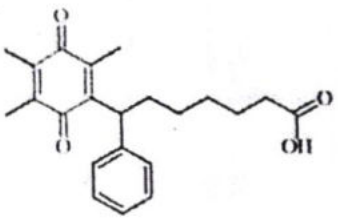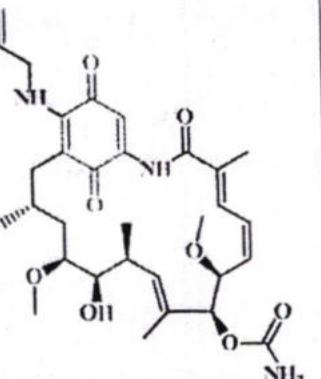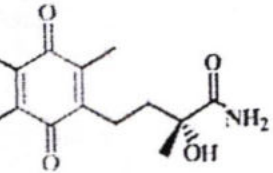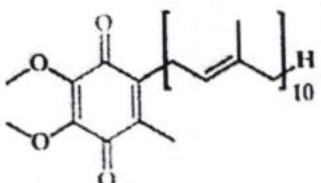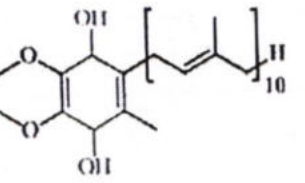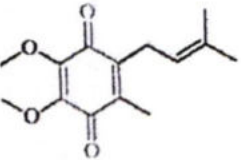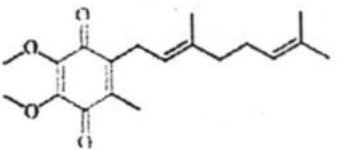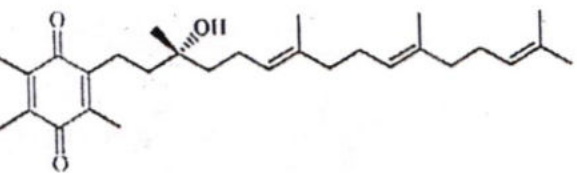
Introduction

Quinone a yellow coloured complex formed as result of oxidation and followed by reduction of benzene chemically and in life forms it generally is being formed from acetyl co, amino acid and vitamin K (menaquinone in plants). They have a melting temperature and boiling temperature varies depending on the side chain and origin of the compounds. Most widely distributed quinones in the life is class of coenzyme Q molecules as most important molecule essentially required for the respiration activity and also in other enzymatic processes. These are some various types of quinones and their change in the functional groups resulting wide functionality ranging from oxidation and redox reaction involved in in lower organisms to more complex organelles such as plants and animals. A single quinone molecule forms primitive bacteria while under favourable conditions the showing a precursors structures of other higher organism. The most common sources of quinones for animals is basically due gut bacteria, animals and also from the plant based dietary sources. A few examples of quinones rich foods are : soy beans (fermented), parsley, green peppers, Kiwi, papaya, tofu, beans, carrot are few plant sources. Meat fish, eggs, etc are few examples of animal sources of quinones.

Most of the times these quinones from any sources they will be in an association with other complex molecules, which are broken down in intestine/ stomach and can also be observed in cells as a result of metabolism process as secondary or tertiary metabolites. They involve in wide range of function such as electron transport chain, photosynthesis, nerve transmission, muscle contraction and also responsible for the normal activity of the brain. Mostly in animals the quinones are observed in combination with vitamin B9 metabolism absorption and free radical mechanism a important functionality for the cell to survive. Bound quinones in the photosynthetic reaction centre of Rhodo-pseudomonas viridis.
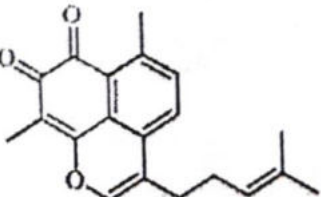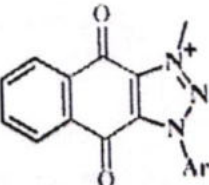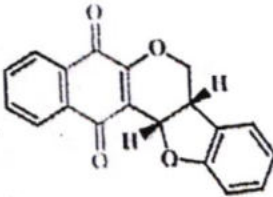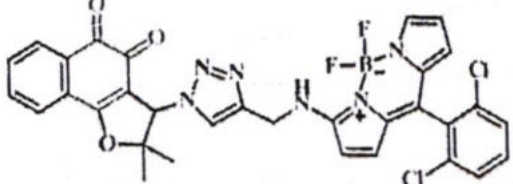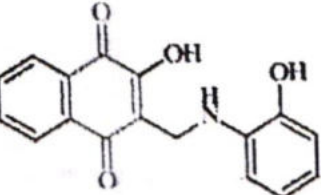
Vitamin K a naturally occurring quinone exists in two natural forms, phylloquinone (K1) and menaquinone (K2), with 4 and 6 isoprenoid units. In phylloquinone, three isoprenoid units are hydrogenated. Menadione (K3), without an isoprenoid chain it would be synthetic in origin and is commonly used in treatment and understanding the condition related to blood clotting and coagulation.

Seratrodast	Tanespimycin	Troloxamide quinone (EPI-589)
Ubidecarenone	Ubiquinol	Ubiquinone Q1
Ubiquinone Q2	Vatiquinone	

The majority of quinolones can be used for the treatment of various conditions which were anticancer, antibacterial, antifungal, leishmanicidal, trypanocidal, antimalarial and molluscicidal properties.

B

Biflorin	Cationic anthraquinone analogs	LQB-118
		Hydroxynaphthoquinone
Fluorescent lapachone-based BODIPY		
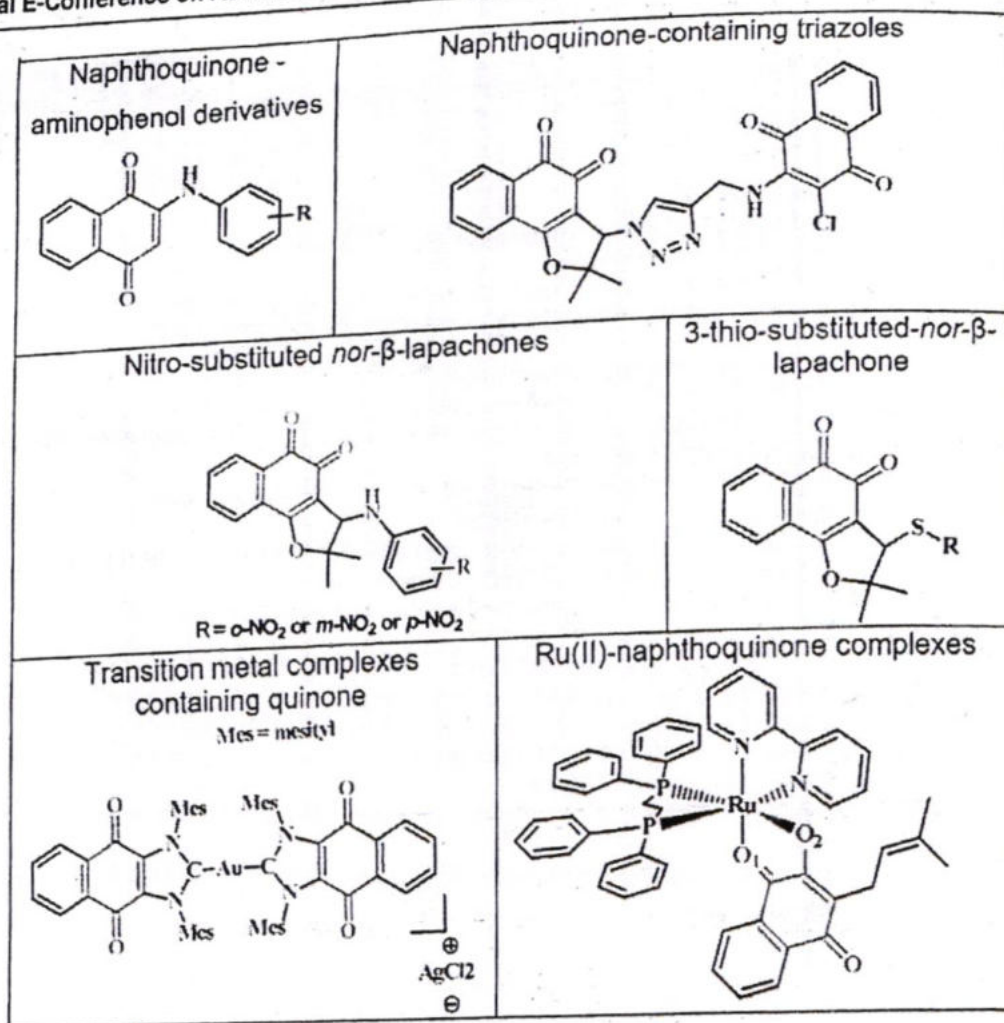
Naphthoquinone - aminophenol derivatives

Naphthoquinone-containing triazoles

Nitro-substituted *nor*-β-lapachones

R = *o*-NO₂ or *m*-NO₂ or *p*-NO₂

3-thio-substituted-*nor*-β-lapachone

Transition metal complexes containing quinone
Mes = mesityl

Ru(II)-naphthoquinone complexes

They are ambivalent nature, ranging from highly positive to highly negative, depending on the structure and its concentration concerns the strong coupling as electron carrier with oxidative stress mechanisms leading to the production of reactive oxygen/nitrogen species (ROS/RNS) which are essential for redox signalling, and cell homeostasis and sometimes it even induce cyto-protection through detoxification enzymatic pathways, anti-inflammatory activities, and modification of redox status. Under certain circumstances the same activities may lead to acute cytotoxicity, immunotoxicity, and carcinogenesis, they are ambivalent nature, ranging from highly positive to highly negative, depending on the structure and its concentration, concerns their strong coupling as electron carriers with oxidative stress mechanisms leading to the production of reactive oxygen/nitrogen species (ROS/RNS), which are essential for redox signalling, and cell homeostasis.

Mechanisms of molecular actions of quinones

cancer cells exhibit disturbed intracellular redox balance, having increased ROS levels compared with normal cells, because their accelerated metabolism generates high electron fluxes. The levels of ROS are considerably closer to the critical redox threshold at which cell death by apoptosis would be triggered in normal cellular counterparts. These biochemical differences between healthy and cancer cells are significant and may be used in the design of selective drugs to enforce these critical ROS levels.

Conclusion

Quinones are excellent biologically redox-active compounds, molecular activities based on electron transfers also a chemical inhibitor, a polymerisation agent, oxidising agent, tanning and photographic agent. A various types of quinones are also produced as result of xenobiotics and natural exposure. Naturally occurring most of the quinones are proven to be allergic unless they are to be absorbed in proper biological form or as a medicine for treatment.
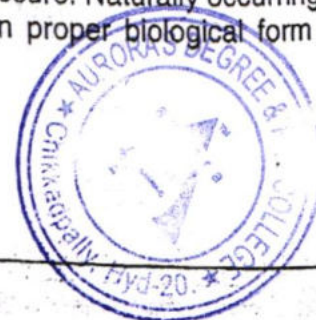
Internet of Things (IoT) –A Review Article

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Abstract

The saying IoT refers to "Internet of Things", which is a connection of various physical devices and objects throughout the world via internet. It was proposed by "Kevin Ashton in 1999. IoT set scope in many areas of scientific and Technological development in the world. The prediction of this effect will be more than ten years. According to the predictions trillions of the devices will be connected in the network by using IoT. It has created high opportunities in the organizations. In addition it is influencing people in their daily lives. In this paper, it starts with a general view of IoT like definitions, basic requirements. The main objective is to give an overview of IoT and its uses in our daily life. It also describes architecture and some protocols and gives up to date protocols. This paper will facilitate knowledge for new researchers, who want to do research in this field.

Key Words: IoT, Protocols, Architecture

Introduction

Internet of things promises many applications in human life, making life easier, safe and smart. There are many applications like smart cities, homes, transportation, energy and smart environment. within the near future, storage and communication services are visiting be highly pervasive and distributed: people, machines, smart objects, surrounding space and platforms connected with wireless/wired sensors, M2M devices, RFID tags will create a highly decentralized resources interconnected by a dynamic network of networks. In the IoT, the communication languages are visiting be supported interoperable protocols. operating in heterogeneous environments and platforms. IoT during this context is additionally a generic term and every one objects can play a lively role to their connection to the online by creating smart environments. where the role of the web has changed. The aim of this paper is presents the net of things Applications. Related Future Technologies, and challenges .The remainder of this paper is structured as follows: In section 2 Internet of things applications were discussed. Section 3 IoT Protocols are over viewed, section 4 the challenges that facing the IoT, section 5 computing of IOT are visiting be reviewed. Finally the chapter will end by a conclusion of the sections.

Applications

i. **Smart Cities:** IoT turns major cities to smart cites by smart projects, like Seoul, New York, Tokyo, Shanghai, Singapore, Amsterdam, and Dubai. Smart cities should be viewed as cities of the long run and smart life, and by the modernization rate of making smart cities today's, it'll became very feasible to enter the IoT technology in cities development. Smart cities demands careful planning in every stage, with support of agreement from governments, citizens to implement the net of things technology in every aspect. By the IoT, cities may be enhanced in many levels, by improving infrastructure, enhancing public transportation reducing hold up, and keeping citizens safe, healthy and more engaged within the community. By connection all systems within the cities like transit, healthcare system, weather monitoring systems and etc., additionally to support people by the net in every place to accessing the database of airports, railways, transportation tracking operating under specified protocols, cities will become smarter by means of the web of things.

ii. **Smart Home and Buildings:** Using of Wi-Fi's technologies are primarily because of the networked nature of deployed electronics where electronic devices like TVs, mobile devices, etc are usually supported by Wi-Fi. Many companies are considering developing platforms that integrate the building automation with entertainment, healthcare monitoring, energy monitoring and wireless sensor monitoring within the home and building environments. By the concept of the web of things, homes and buildings may operate many devices and objects smartly, of the foremost interesting application of IoT in smart homes and buildings are smart lighting, smart environmental and media, air control and heat,

employs a message exchange model. This message exchange model is resource proficient and does not follow a specific data structure. A client receives a message from the broker, which it subscribed to, about a topic when a message is posted by the device. The purpose of the broker is to confirm message delivery by simplifying management and facilitating IoT devices connected through the network. MQTT is well suited for machine-to-machine communication following a lightweight messaging protocol. It also provides security even if the connection breaks off for the transmitted messages by resolving glitches with untrustworthy connections. Constrained Application Protocol (CoAP) Constrained Application Protocol (CoAP) was introduced by IETF Constrained RESTful Environment working group for lightweight RESTful interfacing known as CORE. REST architecture is used as a communication between HTTP client and server because of its lightweightness and is easier to consume, but for lightweight IoT applications, it could result in excessive power utilization and overhead. CoAP is best suited for low-energy consumption sensors to utilize RESTful services within their power limitations. This protocol that allows communication with internet using similar protocols for constrained IoT devices, which are termed as 'nodes'. It is best suited for devices that are on same or different constrained network. CoAP can be considered as a substitute to HTTP as it is built over UDP rather than TCP which is a common practice in HTTP. CoAP uses the XML Interchanges (EXI) format which is space effective as compared with XML/HTML which is a binary format. The architecture of CoAP is shown in Figure 6.

Internet of Things Challenges

The fact that Internet of things applications and scenarios outlined above are very interesting which provides technologies for smart everything. , but there are some challenges to the appliance of the web of Things concept in cost of implementation. The expectations are that the technology must be available at low cost with an oversized number of objects. IoT are faced with many other challenges, such as: Scalability: Internet of Things includes a big concept than the standard Internet of computers, thanks to things are cooperated within an open environment. Basic functionality like communication and repair discovery therefore must function equally efficiently in both small scale and enormous scale environments. The IoT requires a brand new functions and methods so as to realize an efficient operation for scalability. Self-Organizing: Smart things mustn't be managed as computers that need their users to configure and adapt them to particular situations. Mobile things, which are often only sporadically used, have to establish connections spontaneously, and ready to be organized and configure themselves to suit their particular environment.

i. **Security and privacy:** additionally to the safety and protection aspects of the net such in communications confidentiality, the authenticity and trustworthiness of communication partners, and message integrity, other requirements would even be important in an online of Things. there's a necessity to access certain services or prevent from communicating with other things in IoT and also business transactions involving smart objects would wish to be protected against competitors' prying eyes.

ii. **Software complexity:** A more extensive software infrastructure are needed on the network and on background servers so as to manage the smart objects and supply services to support them that because the software systems in smart objects will need to function with minimal resources, as in conventional embedded systems.

iii. **Wireless communications:** From an energy point of view, established wireless technologies like GSM, UMTS, Wi-Fi and Bluetooth are far less suitable; more moderen WPAN standards like ZigBee et al still under development may have a narrower bandwidth, but they are doing use significantly less power.

iv. **Data Volumes:** Some application scenarios of the web of things will involve to infrequent communication, and gathering information's form sensor networks, or form logistics and huge scale networks, will collect a large volumes of information on central network nodes or servers. The term represent this phenomena is big data which is requires many operational mechanism additionally to new technologies for storing, processing and management.

v. **Data Interpretation:** To support the users of smart things, there's a necessity to interpret the local context determined by sensors as accurately as possible. For service providers to take advantage of the disparate data that may be generated, must be able to draw some generalizable conclusions from the interpreted sensor data.

vi. **Fault tolerance:** Objects in Internet of things is far more dynamic and mobile than the net computers, and that they are in changing rapidly in unexpected ways. Structuring an online of Things during a robust and trustworthy manner would require redundancy on several levels and a capability to automatically adapt to changed conditions.

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Network Security – Is it a Myth?

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Abstract

In a modern computer-based communication system, security of computer networks plays an important role. Today, we are experiencing several threats and attacks such as security and privacy threats, intellectual threats, integrity threats, computer resource threats etc. Millions of people use computer networks for their financial transactions. Malicious users hack networks to steal such confidential information and claim eligibility for network services. Intrusion Detection System plays a significant role in providing security against threats and malicious attacks. Today, most commonly used computer networks are Wireless Sensor Networks (WSNs). Possibility of security attacks is more in Wireless Sensor Networks due to its open wireless channel. WSNs consists of sensor nodes. Sensor nodes are capable of self-healing and self-organizing. Many solutions have been proposed for security attacks in WSNs. These solutions could not eliminate most of the security risks. This paper presents the role of Artificial Intelligence in minimizing security risks in Wireless Sensor Networks using Intrusion Detection System

Keywords: Security and Privacy threats, malicious users, Intrusion Detection System, Artificial Intelligence, Wireless Sensor Networks (WSNs)

Introduction

Wireless sensor network (WSN) is a network of devices that can communicate the information through wireless links. It is composed of millions of small sensor nodes that provides connectivity among all the nodes world wide spread across different platforms. A sensor is a device that can detect certain type of input such as temperature, pressure, heat, sound, light, pollution levels, wind, humidity etc from the environment and transmits an electrical signal as output to controller for further processing. Wireless Sensor Network has become a prominent area of research and have attracted rigorous interest from the perspective of industrial, academia and commercial applications. WSNs can be generated spontaneously to transport sensor data wirelessly. Due to broadcast nature of the transmission channel used in wireless networks, they are susceptible to security risks. Generally, sensor nodes are often placed in dangerous open environment where they cannot be protected physically. Therefore, it is difficult to monitor and protect sensors from physical or logical attacks in large scale wireless sensor networks. Several solutions such as firewalls, authentication, key exchange, and secure routing have been proposed to prevent security attacks but could not provide flexible and adequate solution. An Intrusion Detection System (IDS) is one possible solution for identification of attempted or ongoing attacks on a computer system or network. IDS play an important role in network security. Once the attack is detected then IDS raises an alarm to inform the controller to take necessary action. There are several techniques available to design and implement IDSs for wireless network security applications. Several peripheral devices such as detectors and sensors exist for protecting and monitoring the present infrastructure, but has proved to be inefficient and there is a need of more urbane cyber defence systems which must be robust enough, adaptable and flexible.

Artificial intelligence (AI) based techniques plays an important role in development of IDS. Wide range of threats can be easily detected by using Artificial intelligence techniques. They   are capable enough in detecting various threats and helps in taking real-time intelligent decisions. This paper highlights the role of Artificial Intelligence in minimizing security risks in Wireless Sensor Networks using Intrusion Detection System This paper presents a review of existing IDSs using Artificial Intelligence techniques. It is organized as follows. Section 2, describes security issues in Wireless Sensor Networks, Section 3 provides an overview of Intrusion Detection System that includes important definitions, IDS architecture and classification. Section 4 highlights Artificial intelligence-based techniques for development of IDSs. Section 5 provides insight into proposed methodology, finally section 6 concludes the paper.

Security issues in Wireless Sensor Networks

WSNs are prone to several types of security attacks at various layers due to its open wireless channel, decentralized architecture, and deployment in hostile and physically non protected areas. In WSNs, two types of attacks are possible: active and passive [2-4]. Active attacks are used to misdirect, temper, or drop

packets. Passive attacks are silent in nature and extract important information from the network. But these attacks do not harm the network or network resources.

IDS main function is to monitor network behaviour and user's activities at different layers of the network. One of the severe attacks against WSN is Radio jamming [2, 5]. The lifetime of the network is based on battery power of sensor nodes in WSN. Hence it is necessary to design power efficient systems for sustainable WSNs. Less energy is consumed by sensor nodes when they are in sleep mode as compared to active mode. The attacker sends unnecessary data to sensor nodes to make them always busy and will not allow them to go into sleep mode in energy exhaustion attack.

WSNs are susceptible to many physical attacks such as node replication, node destruction, node replacement, battery replacement, or reprogramming of node with malicious code as they are used in hostile environment [6, 7]. These attacks access the network physically. Contention based carrier sense multiple access with collision avoidance mechanism (CSMS/CA) is used in most WSNs. It tries to avoid collision, but it adds more complications in the form of collision, hidden-node problem, MAC selfishness, and unfairness [1, 3]. However, such attacks need to physically access the network. Most WSNs use contention based carrier sense multiple access with collision avoidance mechanism (CSMA/CA). This mechanism tries to avoid collision; however it adds more complications in the form of collision, hidden-node problem, MAC selfishness, and unfairness [1, 2]. Appropriate route selection from source to destination is the responsibility of Network layer [8, 9]. The multi-hop route from source to destination in WSN is susceptible to many active and passive attacks [10, 11]. Most common active attacks are packet dropping attacks, packet-misdirecting attacks, rushing attack, Sybil attack, byzantine attack, routing table overflow attack, spoofed routing information, hello flood, and acknowledgement spoofing [2, 12].

Intrusion Detection System

Security attack detection and prevention in WSN is complex due to its multi-hop distributed operations. It is very difficult to trace attackers in a multi-hop distributed environment. Several solutions have been proposed for security attack detection and prevention, but could not provide flexible and adequate solution. For example, most secure routing protocols are designed to counter few security attacks [13, 14]. To protect data against passive attacks, Encryption mechanisms are designed. Similarly to handle hidden-node problem or selfishness, new media access mechanisms are designed. Intrusion Detection System (IDS) was first introduced in early 1980's, is a software or a hardware based application developed to monitor computer or network activities with an intent of finding any unauthorized activity by malicious users and safeguard information systems in WSNs. To harm network resources or sensor nodes attackers perform malicious or unlawful activity called intrusion. IDS can be used to detect such unlawful or malicious activities [15]. Monitoring network behaviour and user's activities at different layers is the main function of IDS. In general, IDS accuracy can be measured in terms of false positives (false alarms) and false negatives (attacks not detected), where the IDSs role is to minimize both these terms [16].

The main goal of IDS is to recognize all interruptions in an effective way. IDS architecture [17] is shown in the figure-1

In the above diagram audit source acts as input to the system and input format can be of different types based on the type and location of the intrusion detection system. The collector pre-processes the audit source data. The knowledge database holds information about attacks. The classification engine authorizes the received data by comparing it with the attack information available in the knowledge database. The response and detection of intrusion system is configured by policy rules. The response unit results in different types of responses based upon the incoming events and their severity. The detailed information is stored by event database, which is used for variety of purposes such as attack report generation, and framing new rules.

Classification of IDS Intrusion detection systems (IDS) intends to identify intrusions with a low false alarm rate and a high detection rate. Intrusion detection systems are classified into two main types, network based (NIDS) and host based (HIDS) intrusion detection systems.

1) Network based Intrusion Detection System: NIDS detects any malicious pattern on the network with the help of any sensors (network appliances) over NIC. They are passive devices and specifically designed to monitor suspicious activity. It examines the moving traffic over the subnet, and matches those traffic that are passing on the subnets to the library of identified attacks. Upon identification of attack, or if any abnormal act is detected, an alert is sent to the administrator. Commonly used tools for simulation for network intrusion detection systems is OPNET and NuSim. It is hardware based application.

2) Host based Intrusion Detection System: HIDS act on information gathered from individual hosts, devices or servers rather than from the whole network and detects and monitors any misuse or intrusion and

packets. Passive attacks are silent in nature and extract important information from the network. But these attacks do not harm the network or network resources.

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2) Host based Intrusion Detection System: HIDS act on information gathered from individual hosts, devices or servers rather than from the whole network and detects and monitors any misuse or intrusion and

notifies the concerned authority. It is a software based application and provides deep visibility into critical security system

Types of attack

An attack is an abnormal behaviour observed that [18, 19] tries to collect, decline, infest, debase, or ruin information to the system resources or data itself. An attack can be of types active or passive. Fig.2 shows the types of attacks in the network

1) Passive attack

These are the attacks that attempts to make use of information from the computer system without clashing system resources. The goal of intruder is to retrieve information being transmitted over network. Example includes eavesdropping or monitoring transmission.

> **Wiretapping**: It is so called because "wires" composed of network and it is a form of snooping where third party monitors the information over network. The secret connection will be a real electrical tape of the telephone line
> **Release of message content**: Attacker tries to monitor the content of these confidential or sensitive transmissions such as Telephone conversation, Email messages.
> **Traffic Analysis**: Attacker when tries to capture the encrypted messages could not extract any information from it. The opponent would determine the location, identify communication hosts, and would observe length and frequency of messages exchanged. All incoming and outgoing traffic over network may be analysed but cannot be altered.

1. Active attacks

These attacks attempts to modify information over system and also alter system resources. Example includes creation of false statement.

> **Denial of Service**

The attacker thwarts a server from providing a service. It performs disruption of a whole network by overloading it with messages or disabling network in order to degrade performance of system. Denial usually occurs at the source side, thus preventing server access to the resources to perform a specific task, also at the destination end by blocking communication

> **Spoofing**: Also known as Masquerade attack. It is a form of impersonation where one program tries to pretence as another by sending wrong information. Ex. DNS Spoofing, if a user tries to read a file, but instead an attacker gives the user a different file, and spoof has taken place.
> **Man-in-the-middle** MITM attack is where the attacker modifies some part of the message or delays to give unauthorized effect. The attacker creates independent connection between them and relays the messages.
> **ARP Poisoning** Also known as ARP spoofing/ARP poison routing/ARP cache poisoning. The attacker sends falsified ARP messages onto the Local Area Network which results in linking attackers MAC address with the IP address of genuine host computer or server over the network. Once connection is established between MAC address of intruder with the IP address of legitimate computer, attacker tends to receive all those data meant for IP address. Spoofing may allow an attacker to modify, stop or intercept all traffic.

> **Buffer Overflow** Attackers tries to exploit buffer overflow issues by replaces adjacent memory location, thus changing execution path of program and damage a file and expose any confidential information... This is a special case of the violation of memory safety and exists in programming languages and are largest collection of vulnerabilities.
> **Cyber Attack** Any type of destructive operation that misuses the technology for the purpose of destroying valuable information and access to the resources thereby causing big loss of society.
> **Phishing attack** It is the fraud attempt to obtain sensational information such as user name, password and financial details from online users. The attackers try to lure users with fake offers and motivates in retrieving sensitive details with the intention of misuse.

Techniques of IDS

The majority of the detection mechanisms discussed are network-based intrusion detection systems (NIDS). These can be divided into two primary categories: signature-based and anomaly-based detection.

1) Signature based detection

This is otherwise called as **misuse based detection/Rule based IDS.** It can only detect the known threats, but not unknown patterns. (E.g. Antivirus software).The known patterns (signature) describes suspicious sequence of activities that is detrimental and stored in database. Whereas it is very difficult to detect new malware attacks whose patterns are not present in database and can easily be deceived.

2) Anomaly based detection

It can also detect the unknown malware attacks and used for any changes in behaviour. Anomaly-based IDS makes use of machine learning techniques and creates authorized model and compares any upcoming activities and regarded as suspicious/anomalous and triggers the event. Classification is shown in fig.3

3. Hybrid Intrusion Detection Systems.

Hybrid IDSs is the combined approach of Signature-based and Anomaly-based detection systems. It has two modules for detection, out of which one module takes responsibility of detecting known patterns using signatures available in database, where as other module detects any deviations in the normal behaviour using anomaly-based detection. Hybrid IDSs is well known to have few numbers of false positives. The concept of Hybrid IDS is taken from [20].

4. Artificial Intelligence and Intrusion Detection

The term AI was introduced at a seminal 1956 workshop at Dartmouth College. In a simpler terms AI is defined as study of intelligent agents that performs actions as it receives input from environment (Norvig and Russell). Algorithms play a predominant role in the structure of AI ranging from most simple to very complex in strong AI applications. The main goal of AI is learning, reasoning and perception. AI is continuously emerging field in different industries such as linguistics, mathematics, computer-science, psychology, finance and healthcare etc.

AI is an interdisciplinary science with numerous approaches but the powered applications such as machine learning and deep learning are gaining much popularity in all sectors. The role of AI is ever increasing in the modern world making human life easier and can tackle any kind of security breaches in no time. AI aims at developing machines and programmes that are intelligent enough to solve problems (human intelligence exhibited by machine), but it doesn't provide a deeper insight into how the problem is solved. One of the recent advances in AI or a subset of AI "machine learning" , ability of machine to learn by itself by analysing data and feed algorithms(e.g. neural networks) to solve complex problem [21,22,23].

Deep Learning/deep neural learning is a subfield of machine learning concerned with algorithms inspired by information processing patterns in human brain called **artificial neural networks**. Relationship between Artificial Intelligence, Machine learning and deep Learning is shown in fig.4

Intrusion detection systems (IDSs) play a crucial role in providing tightened security to computer networks, as massive amount of sensitive data travel across network. These networks acts as strong pillar in various fields like defence, healthcare, banking, transportation etc. Safeguarding data passing over network is the foremost responsibility of every organization and spending heavily to prevent attacks from intruders. Numerous IDS techniques have been adopted and presented to overcome the above limitations.

Artificial Intelligence based techniques for IDSs

Several peripheral devices such as detectors and sensors exists for protecting and monitoring the present infrastructure, but has proved to be inefficient and there is a need of more urbane cyber defence systems which must be robust enough, adaptable and flexible. They are capable enough in detecting various threats and helps in taking real-time intelligent decisions. A wide variety of Artificial Intelligence methods of computing plays a significant role in prevention and detection of cybercrime.

Artificial Neural Network (ANN)

IDS based on Artificial neural network (ANN) is stimulated from human nervous system. Number of neurons (basic processing elements) are interconnected with one another through weighted connections in an ANN. ANNs appears like distributed and parallel processing systems with vast number of massively connected processors.
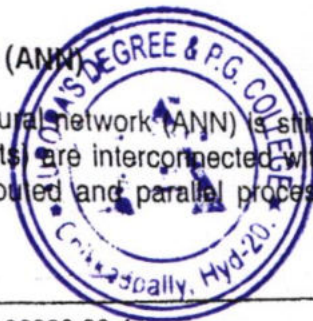
There are two types of ANN architectures: Feed forward ANN and Feedback ANN. In feed forward ANN architecture, the signals move in only one direction from input to output. In feedback ANN, the signals move in both directions. The structure of neuron in neural network is shown in the figure.5, and it is related to the biological model. In the above model of artificial neuron, the input signals, x_i, are weighted by their synapses weight, w_i, and, if the value of w_i is positive, the synapse will be excitatory, otherwise the synapse will be inhibitory. After that, the bias b_k (neuron activation threshold) and the input signals (x_i), already weighted by the synapses (w_i) of the neuron, are combined and the result, v_k, is the output of the summing junction. Such result is applied to the activation function, which limits the output, y_k [24]

ANN solution to pattern recognition problems, has produced great results. Today, we are using ANN in several research areas such as: medicine, biology, engineering, etc. ANN solution developed to perform pattern recognition is trained in such a way that the input is leaded to a specific output objective. Until the network output is well-matched with the output objective and the neurons have acquired the knowledge of the parameters, the ANN is constantly under adjustment during the comparison process.

ANN for pattern recognition is shown in figure.6

KDDCUP'99 dataset is most commonly used in research areas of ANN based IDS systems and machine learning mechanisms. Based on decision tree, genetic algorithm or fuzzy logic [24], [25] many papers have been reported. Among ANN based work, one that uses Radial Basis Function (RBF) [26] and two others that use Multilayer Perceptron (MLP) [25], [27] can be highlighted. Usually, methods using ANN-MLP provide the best results.

The following table shows the results in attack recognition using the KDDCUP'99 dataset [28] in figure.7

KDDCUP'99 dataset is a set of connections and network packets parameters commonly used in training, validating, and testing ANNs. This dataset was built based on the data captured in DARPA (Defence Advanced Research Project Agency) and was used in IDS evaluation program [29]. The whole database was captured by the Lincoln laboratory in the MIT after simulating for more than nine weeks a LAN network receiving a large variety of intrusion attacks. All raw data obtained was processed and converted in connection registers with 41 types of connection and network packets parameters. Each register was labelled as normal or as a specific type of attack.

There are 24 types of attacks, which can be classified in 4 main categories:

1. DoS Attack: The Denial of Service (DoS) is an attack which makes a machine or network resources unavailable to its intended users by disrupting services of system resources. It accomplishes this attack by flooding the target with traffic or by sending information that causes a crash. Example: Back, Smurf, Neptune.
2. Probe Attack: In this attack, the attacker tries to find some vulnerability or obtain important information of the computer network. Using this captured information, the attacker can find out what type of services are running on the network by mapping the network topology. Example: Nmap, Satan, IPsweep.
3. R2L Attack: In Remote-to-Local attack, without having an account the attacker can send packages to system through the network to get local access as an authorized user and explores some vulnerability. Example: Imap, Multihop, Ftp-write.
4. U2R Attack: In User-to-Root attack, an attacker tries to gain root access through some vulnerability by having local access (perhaps gained by sniffing passwords, a dictionary attack, or social engineering) in the system. Example: Load Module, Perl, Rootkit.

Genetic algorithms

GA is one of the upcoming field in Network security and widely used in numerous areas of computing to solve complex problems i.e. it is based on optimization technique and used to find optimal or near-optimal solutions to complex problems which otherwise would take infinite time to solve, thereby generating high quality solutions for search and optimization problem. .The solutions provided are robust, adaptive, and optimal solutions for any computing related problems.GA can be defined in different ways by different researchers. Li [30] describes genetic algorithm as a family of computational models based on natural selection process. Bobor [31] defines a genetic algorithm as a programming technique, which imitates biological evolution as a problem solving approach. But Holland highlights the benefits of applying nature inspired adaptability function into artificial systems [32]. These algorithms follows "Darwinian Principle of Evolution" in which they simulate "fittest survives" and is selected for breeding and forwarding its genetic information to offsprings. The genetic algorithms makes use of techniques inspired from biological process like generic inheritance, mutation, evolution, natural selection and crossover.

Structure of genetic algorithms

GA is thought to be an abstraction of biological evolution. Any deformities are specified and are removed by measuring deviances from normal processes by using distributed IDS system with the rehabilitated and adapted relationship. A genetic algorithm consists of various parameters such as processes and operators reaching to an optimal solution. A simple description of the parameters, operators and processes is shown in figure. Fitness Function/Evaluation Function: A function that summarises or evaluates the closeness of solution to the optimum solution for the desired problem. A highest fitness value leads to improved design.

Selection: The selection process gives most appropriate solution to some precise problem by using the fitness function. The fitness function is evaluated for every individual, providing fitness values, which are then normalized. Solutions which are not optimal are discarded.

Crossover: The crossover process in genetic algorithms is used to exchange different parameters from different solutions to get a new solution.

Mutation: The mutation process in genetic algorithms exchanges one or two parameters to get optimality. Any change in the bits gives rise to genetic diversity of the mutated algorithms.

Structure and processing in Genetic Algorithm is shown in figure.8

Functioning of genetic algorithms

The GA starts its functioning with natural selection process that uses a chromosome-like data structure [33] and initially selecting a random population of chromosomes. The chromosomes are composed of finite number of genes, that's predefined [34]. Each chromosome is encoded as string and represents a problem to be solved. The chromosome positions are usually represented as binary (0, 1) or as a list of integers. The positions are sometimes referred to as genes and changes with every initialization. The population is cultured by applying concepts of mutation, crossover, inversion, and selection processes the generic pseudo code for a genetic algorithm taken from [35] is given below for better understanding the process:

InitPopulation (P)

Fitness(P)

While MaxGenerationNotReached do

for i = 0 to xfactor do

p1 = Selection(P)

p2 = Selection(P)

(o1, o2) = crossover(p1, p2)

Crowding(p1, p2, o1, o2)

end for

for i = 0 to dfactor do

p = Selection(P)

Dropping(P)

end for

for i = 0 to mfactor do

p = Selection(P)

Mutation(p)

end for

Fitness(P)

end while

SelectionBestIndual(P)

Advantages of genetic algorithms

The various advantages of genetic algorithms are:

1. Genetic algorithms possess incredible abilities for parallel processing.
2. Genetic algorithms provide a broader solution space.
3. Genetic algorithms are easily modifiable.
4. Genetic algorithms handle functions with noisy environment efficiently.
5. Genetic algorithms show high performance even in the case of multi – modal problems.
6. Genetic algorithms do not need prior knowledge of the problem space.
7. Number of parameters are too large.
8. Genetic algorithms are not affected by any discontinuities in the problem space.
9. Genetic algorithms use probabilistic selection rules, not deterministic ones.

Limitations of genetic algorithms

Genetic algorithms are efficient, but have certain limitations:

1. Finding a fitness function is not always easy
2. Representation of problem space is very complex.
3. In many cases genetic algorithms converge prematurely to a solution.
4. Selecting the optimal parameters for a genetic algorithm is a tough task.
5. Fitness function evaluations are more in Genetic algorithms.
6. Genetic algorithm based system are not easy to configure.

Difference between genetic algorithms and conventional methods

1. Traditional optimization techniques operate on the problem parameters directly, whereas genetic algorithms operate on coded version of the problem parameters.
2. Most Traditional methods operate on a single solution for producing an optimal solution, while as genetic algorithms operate on a series of solutions to select more optimized solutions in every iteration.
3. Conventional methods use derivatives for evaluating the solution produced, whereas power of genetic algorithms lies in use of fitness function for evaluating the optimal solution produced.

Genetic algorithms in intrusion detection systems

This section provides an overview of an intrusion detection systems implemented using genetic algorithm technique, then the role of genetic algorithms in intrusion detection is discussed and proceeds with the advantages of implementing intrusion detection systems using genetic algorithms.

1. The capturing of data packets is done in the intrusion detection system to get knowledge of network traffic or logs.
2. The genetic algorithm is applied to the captured data. The genetic algorithm at this point has classification rules learned from the collected information.
3. Set of rules from the previous phase is applied to the incoming traffic, and results in the creation of a new population with good qualities Off springs makes use of genetic operators until the most suitable individual is found.

Genetic algorithm implementation in intrusion detection systems is shown in figure.9

Genetic algorithm when applied to IDS, results in changing pseudocode.

Role of genetic algorithms in intrusion detection and advantages

The use of genetic algorithms in different subfields of IDS are optimization, automatic model designing, and classification. The implementation of genetic algorithms offers many advantages to intrusion detection systems.

1. Can work with multiple directions simultaneously.
2. The use of GA as a good choice is due to its crossover and mutation properties.
3. Genetic algorithms are highly recommended to be re-trainable.

Genetic Algorithm based IDS (GAIDS)

The proposed Genetic Algorithm Intrusion Detection System (GAIDS) is depicted in figure
Which consists of the following phases:

Advantages of genetic algorithms

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The proposed GAIDS includes 2 phases as shown in fig.10

A.Preprocessing & features extraction phase

From DARPA data sets, two separate testing and training datasets are chosen randomly, symbolic features must be converted to numerical, normalizing data sets and selecting most appropriate features. [36]

B.Testing & training phase

Population initialization, evaluating population, creation of new generation and applying genetic operators until individuals with highest fitness score is reached [37]

Training phase: most suitable individuals are used i.e. GAIDS is trained using training data sets.

Testing phase: So overall system performance is measured to the testing data sets

Proposed Work

The main objective of this proposed framework is to develop and design a system for detecting intrusions in the network using AI connected techniques like Artificial Neural network and Genetic Algorithm with multi objective. The proposed framework for Artificial Neural Networks is based on using KDD cup datasets. The performance of the proposed system is tested in invasive behaviour, and the experimental results shows that ANN-IDS is suitable for demonstrating classification model with good accuracy which is better than the traditional classification methods. The simple structure of proposed model for GAIDS is described in earlier section to detect malicious threats using DARPA sets. The paper will prove as a good starting point for newcomers to the field of Artificial Neural networks and Genetic algorithms based intrusion detection systems. The results obtained using this approach helped in finding various attacks with less false positive and negative rates.

Conclusion

The Intrusion detection methods outlined in this paper are based upon Artificial Neural networks and Genetic algorithms. In order to keep wireless sensor networks safe and secure from threats and intrusions, there is a need of more intelligent machine learning based intrusion detection systems. An IDS designed using artificial neurons can successfully handle security threats and attacks. Many problems related to pattern recognition, data compression, data mining can be solved efficiently using neural networks. This paper presents a simple neural network structure and how it is used to classifying the intrusions attacks (DoS, Probe, R2L ad U2R). Using ten percent of the KDD cup dataset, the performance was tested. From the results obtained it is clear that detection rate for R2L and U2R attacks is less compared to Dos and Probe even for small quantity of input. This shows that the neural network approach performance also depends on input size. As GA is one of the robust technique for the design of IDS .The characteristics and generics of Genetic algorithm is the strong reason behind considerable attention from the industry and research community during the past decade although existing techniques have their own advantages and limitations. To overcome the limitations a new system GAIDS is proposed and the changed pseudocode when GA is applied to IDS, to detect specific attack with minimal computation.

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Challenges Faced by the Entrepreneurs in the Present Scenario

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Abstract

Entrepreneur has to face the challenges to get success and to manage the business. Presently we are in a dynamic and fast-paced world, so we have to update our strategies very quickly, if not company may struggle to reach its benchmarks. There are some risks faced by Entrepreneur in the present scenario. In developing countries like India, market may not be stable. Like food service, retail and consulting business sectors have high rate failures in historically, thus Entrepreneurs may have difficulties to find investors. Current situation is an example for the Entrepreneur to say that business requires immediate task and decision making to avoid risk. It also face that Entrepreneur should be careful enough and have alternative solution for facing any situation that occurs in the business. Linking this sentence with concepts and conventions —even if person is not existing business will exist forever. To achieve this Entrepreneur should play very important role by keeping customers into consideration, which will help to face any situation like this.
This study create an awareness among the public that the risk faced by Entrepreneur in the present scenario.

Key words: Entrepreneur, Pandemic situation, Risk, Concepts and conventions.

Introduction

In this present scenario and situation the most of entrepreneurs went into the severe losses during this pandemic situation, some of them winded up their business and the most of them who came to other state for business went back to their native places. But, if we see last year's economy there was a rapid development of our society, entrepreneurs has become one of the most dynamic forces, there was a driving technological boom, which in turn is driving much of the world's economic growth. As the globalization of business becomes even more widespread, this impact will be felt even more deeply. Entrepreneurship requires an entrepreneur to be a person of superior ability who pursues his or her goals despite of obstacles, opposition, setbacks, and failure. He or she must persist in the face of adversity, unknown challenges, and risks and learn from failures, have confidence in his or her capacity to deal with the world, and take practical rational steps in the pursuit of the goals. The successful entrepreneur tends to be a visionary, competent, independent, action-oriented, passionate, confident, and virtuous person who uses reason to focus his or her enthusiasm on reality in the efforts to attain the goals. Hence the entrepreneurs face many challenges while starting their business. It includes financial related problem, government related problem, production related problem and labour related problem. It discuss about the various barriers and how they overcome the barriers by solving the problem.

Objectives of the study

- ➤ To study the challenges faced by the entrepreneurs during present scenario.
- ➤ To fence the ways to overcome the barriers faced by entrepreneurs.
- ➤ To study the problems of entrepreneurs while running the enterprise efficiently and profitably.
- ➤ To investigate the major strength and weakness of entrepreneurs.
- ➤ To create an awareness among the public that the risk faced by Entrepreneur in the present scenario.

Review of literature

- ➤ Some people suggested that it would be much better when a teacher gives clear explanation and practical knowledge in the college to the students like Startups, Business Management.
- ➤ It also suggests that entrepreneurial learning style preferences are consistent with active participation and that increased opportunities to participate in the classroom would increase student awareness and enhances the ability to learn from experience.
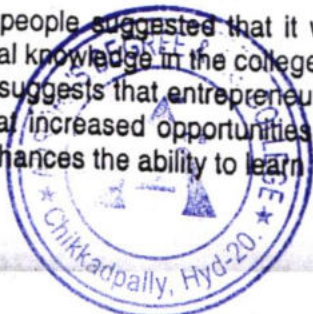
5. Qualification

■ Graudate

20% Respondents are Post Graduates.
56% Respondents are Graduates.
18% Respondents are Diploma Holders.
6% Respondents are S.S.C

Most of the Respondents are Graduates and Post Graduates, Questionnaire being circulated in the educated group.

6. Number of years of experience in the field of running a business

■ 0 to 5

■ 5 to 10

44 % of the Respondents have 15 years and above experience in their running business, 31% of the Respondents have between 5 to 10 years of experience in their business, 19% of the Respondents have 10 to 15 years of experience in their business , less % of Respondents have below 5 years of experience in their current business.

7. What are the problems that you are facing in recruiting employees being an Entrepreneur

■ Advertising

■ Fresher

■ People with different qualification
■ All the above

56% of Respondents are facing the problem in recruiting Fresher.
44% of Respondents are facing the problems of Advertising, people with different qualification and fresher.
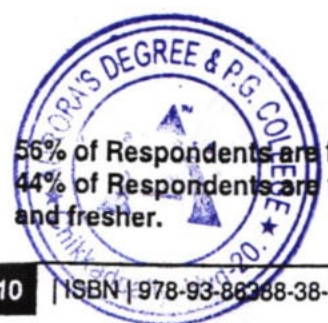
11. Are the strategies formulated by the business organization is useful in the present scenario?
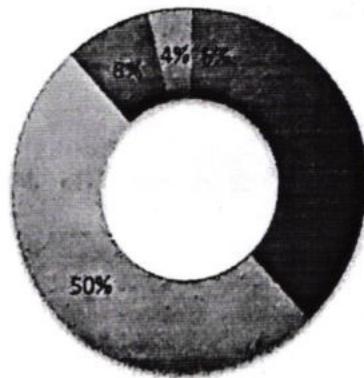
- ■ Strongly disagree
- ■ Disagree

Majority of the Respondents are Neutral in strategies where less % of them have given their opinion

12. In the current position are you able to grow in your business?
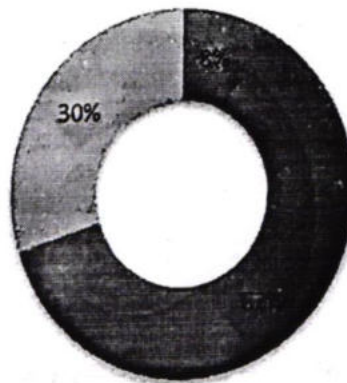
- ■ Yes
- ■ No
- ▦ Maybe

8% of the Respondents are able to meet but majority of the respondents are not in a position to grow in their business.

13. Are you able to arrange the resources in the present pandemic situation?

- ■ Yes
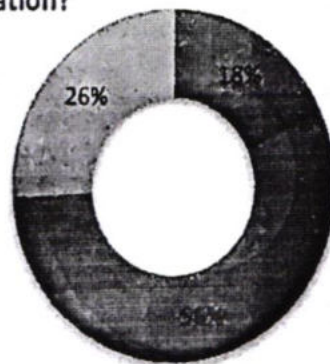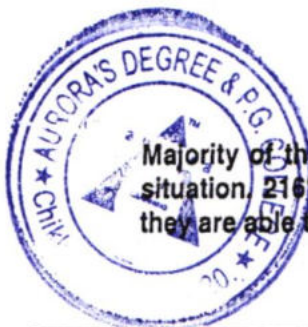
Majority of the Respondents are not able to arrange the resources in the present pandemic situation. 26% of the respondents are Neutral and 18% of the Respondents are agreed that they are able to arrange the resources in the present situation.

Scanned with OKEN Scanner

14. Whether the sales are the same as earlier or any changes

■ Yes
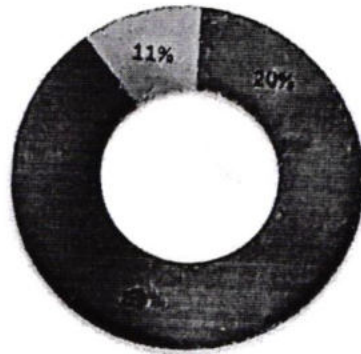
Majority of the respondents did not agree that the sales are not as earlier and they said that there is a lot of change.

15. Being an Entrepreneur are you able to maintain customer satisfaction?
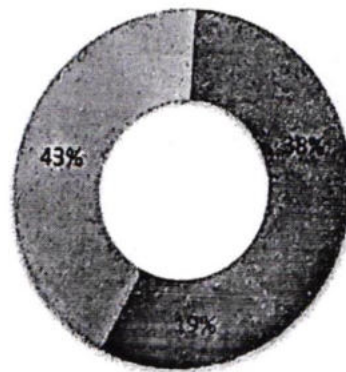
■ Yes

43% of the Respondents are Neutral, 38% of the Respondents have agreed and remaining did not agree for maintain the customer satisfaction.

Suggestions

> The Government should take steps during this pandemic and help the Entrepreneur's and motivate them to go for online trading
> The Government would have also conducted some sessions for the new startups and they would give some subsidies.
> They would have taken some steps and videos of successful entrepreneurs and conduct some programs and they can share some stories and how they faced challenges faced by them and how bravely they overcome.
> Government should encourage the new comers by giving them subsidies.
> The Documentation should be simplified for the new Entrepreneurs.

Conclusion

Finally, my conclusion is Entrepreneurs should be positive and open-minded and should have enough knowledge about the business and they should know the need of the people and they should be ready to increase the society to increase the value of the country. It should be helpful for the job needy. The market conditions and technology should be updated regularly and this may help them to be successful in the business. The market conditions and technology should be updated regularly and this may help them to be successful in the business.The main strength of the entrepreneurs is self-confidence and weakness is fear of

failure which they have while starting their business. Thus, they have confidence in his or her capacity to deal with the world, and take practical steps to attain the goals.

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Captive Breeding: Effects and Approaches

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Abstract

Animals, an acquaintance that are socially, economically and personally important to man are being threatened by direct or indirect human activities such as habitat loss, fragmentation, hunting, pollution, climate change, predation and many more. They can be conserved by captive breeding, an act of maintaining the endangered species in a restricted environment with the hope of rearing sustained population for eventual reintroduction into wild. Methods such as artificial insemination and inbreeding are employed to breed and enhance the population. But, as a result of genetic changes occurring within captivity due to environmental effects of captive rearing, inbreeding among close relatives, relaxed natural selection and unintentional domestication selection caused captive-born individuals to undergo reduced fitness, inbreeding depression in sperm motility and increased behavioural variance in predator response. Considering the methods employed provide minor benefits over serious causes of habitat restoration when reared in a mimicked natural environment to that of natural living habitat. Individuals from a population that have been in captivity for multiple generations seek refuge less often than their wild counterparts and might experience increased mortality in the wild environment due to predation and increased behavioural variance. This might render into decreased survivorship upon reintroduction leading to reduced ability to persist once a population is introduced back. From various literature studies, it can be concluded that at least one of the problem can be minimized by adapting a differential stage of semi-wild environment, where the captive-born are left to be exposed for frequently survival from predators by which they adapt to the natural environment gradually before their reintroduction.

Keywords: Captive Breeding, artificial insemination, inbreeding, behavioural variance.

Introduction

Animals are species that share the same kingdom with humans. They are socially, economically, and personally important to man. But unfortunately, these animals are being threatened by direct or indirect human activities such as habitat loss, fragmentation, hunting, pollution, climate change, predation, and many more. The ecosystem is maintained by plants and animals. When species become extinct, it leads to an imbalance of the ecosystem. This balance is difficult to maintain as one species gets extinct, it triggers the loss of others as well because of the food chain. Organisms are associated with each other by the food they eat. When predator life is endangered and becomes extinct, then all of their prey live a long life without any pressure of predator and consume food, which could result in the starvation of other animals that directly impacts the ecosystem. There are many examples with this concern, when grey wolves are endangered, the beaver population is significantly decreased, which is because of elk (prey of grey wolves), as they are not encountered by their predator, they graze more heavily on plants which are needed by beavers for their survival. Too many deer can lead to change in the ecosystem as they can graze too much, which could even destroy forests. Individual species also have their own importance in maintaining the ecosystem such as the eating pattern of rhinos can help dispersal of seeds, parrotfish can control the algal growth as they graze algae. In this way, the extinction of animals can bring a major impact on the ecosystem.

To maintain the ecosystem and avoid ecosystem imbalance, these animals should be conserved. Captive breeding is one of the conservation facilities, which is an act of maintaining the endangered species in a restricted environment with the hope of rearing a sustained population for eventual reintroduction into wild. It aims to maintain the existing population and increase the population size such that the increased number can be reintroduced into the wild. This involves the removal of animals that are near to extinct from their natural habitat into a confined environment where they are provided with food and shelter, allowed to breed and there would be no stress of predators on them. Methods such as inbreeding and artificial insemination are employed to breed and enhance the population. While captive breeding on one hand is helpful nevertheless it also has certain disadvantages. It was found that maintaining animals in captive environments was relatively easy compared to that of breeding them, which resulted in a difficult task. Studies showed that, giant pandas lose interest in mating after their capture while female giant pandas only experience estrous for 48 to 72

hours, once in a year. For breeding animals in a captive environment, the selection process has to be done, where the animals with maximum fitness and ability to produce offspring that can perform better in wild are selected for breeding. The selection process opted for captive inbreeding is relaxed natural selection and unintentional domestication selection. Both of these selections caused reduced fitness. According to a few hypotheses, they expect that with unintentional domestication selection, the animal with the greatest fitness in a captive environment would produce offspring that perform the worst in the wild environment. While with relaxed natural selection, the population would have spent many generations in a captive environment to attain a rapid decline in fitness. Few studies state that the selection response is considerable when dealing with a single generation in a captive environment but show maladaptive in the wild. As a result of genetic changes occurring within captivity due to the environmental effects of captive rearing and inbreeding (the process of breeding where the organisms mate among close relatives) caused captive-born individuals to undergo inbreeding depression. Inbreeding depression is the reduced biological fitness attributing to an organism's ability to survive and preserve its genetic material.

Artificial insemination technique is used to overcome inbreeding depression and produce the desired offspring, with more genetically diverse populations. This process involves the collection of semen from male animals and introducing it into the female cervix to achieve fertilization without mating. It is very useful when compatible partners are from different captives, in this situation they transport animals from one captive to another for mating. However, because of transportation, animals feel stressed and loose interest in mating and so rather than transporting animals from one place to another, it would be easy to transport semen. Artificial insemination is the only option for the animals that do not prefer to mate. Along with many advantages, it also has few disadvantages, such as high cost, less quality semen, males undergo stress during semen collection and female animals undergo stress during artificial insemination. The quality of semen is modified because of the travel time that extends more than sperm life. To achieve high-quality semen, either the distance has to be considered or they could use preservation tubes used in cryopreservation for semen collection though it is expensive.

After multiple generations, when the population size of captive-born individuals increases to a level, then these animals are taken back to their natural habitat and are reintroduced into wildlife. By doing this the number of endangered animals increases resulting in a balanced ecosystem. These captive animals are expected to live in wildlife, survive and increase their generations while performing their role in biodiversity. But unfortunately, few captive animals survival rate in wildlife is low. Individuals from a population that has been in captivity for multiple generations are adapted for safe, secure, and simple life which provides food and shelter unlike wildlife, where they have to compete for food or shelter and at the same time also have to safeguard themselves from predators. Once when they are introduced into wildlife, these captive animals are all alone fighting for their survival where they do not have any option but have to compete with their co-species, hunt their prey, and protect themselves from their predators. If they achieve all of these, only then they can survive and can help in improving the ecosystem. But this was not possible because captive breeding causes the change in the behavior of the animals in such a way that few of them will not at least try to survive in wildlife. This might render into decreased survivorship upon reintroduction leading to reduced ability to persist once a population is introduced back as they are less capable of hunting leading to starvation and also, they fail to avoid predators. To overcome this, the captive population has to be exposed to a semi-wild environment so that they can learn to compete or hunt for the food while safeguarding themselves from predators.

Conclusion

From various literature studies, it can be concluded that there are certain effects of captive breeding to be acknowledged and focus on in order to make the process more approachable. Nevertheless, few of the interconnected problems faced in captive breeding can be minimized by adapting a differential stage of semi-wild environment, where the captive-born individuals are made to encounter frequently with their predators under the supervision of experts. This practice will gradually enable captive-born individuals to adapt to the natural wild environment before their reintroduction with reduced or no maladaptation, which automatically changes the behavior of the animals resulting in an increase of survivorship.

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Genetic Diversity: An Approach for Eco-Restoration of Wild Communities

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Abstract

Eco-restoration, an approach of rehabilitating the nature whose communities and its association with the ecosystems have been knocked down. The act of humans Shas altered the natural habitat of flora and fauna for the commercial purpose of living. In many ecosystems, humans have modified local native populations of plants and animals, brought in invasive species, converted natural communities for mercantile, begrimed waters, and polluted soil resources. Most of the world's ecosystem has significant damage with an absolute negative footprint on species diversity and livelihood of individuals as well. The habitat loss is leading to both extinction of species and ecosystem utility drop down which is a major concern of the sustainable development of future living. Methods such as reinitiating of natural habitat and conservation of the current viable habitat can reduce the rate of extinction of these species. Eco-restoration can be accomplished by constant efforts using stand out simple methods such as soil restoration by erosion control, re-establishing the existing forests that have vanished due to deforestation, introducing the species of local habitat, and habitat and range improvement of targeted species. The process of ecological restoration can be initiated from restoration of local communities followed by methods such as altering landforms, planting vegetation and reintroducing wildlife. One of the concepts that can be related to eco restoration is by population genetics. Genetic diversity is also a key factor for species diversity. Process such as founder effect, inbreeding depression, outbreeding depression, gene flow and genetic drift are important factors in the action of restoring the ecosystem. Studying gene environmental interactions can ideally provide information on source of populations and their genetic adaptability to the environmental conditions which can be used as an initiative to bring back the lost habitat of local communities there by increasing it to a largescale restoration process.

Keywords: Eco-restoration, Extinction, Genetic diversity, Inbreeding Depression, Outbreeding Depression, genetic adaptability.

Introduction

An ecosystem is collective set of living and non-living community contained within a single specific environment. An ecosystem systematizes all the minute aspects of a single habitat which also allows interaction between its different elements at various levels. The components of ecosystem include varied ranges of elements and processes such as light and moisture to death and decomposition. The living system otherwise the biotic factors of the ecosystem has been grouped into classes such as producers, consumers, and decomposers. The former includes flora which are utilized by fauna and integrant fauna constituents. The latter play a vital role in break down of complex organic components into simpler substance and environment utilizable material often employed by microorganisms. For appropriate functioning of the biotic factors, it is necessary for maintenance of suitable environmental conditions such as climate, social and edaphic factors such as soil texture, pH, salinity etc. These factors together make the abiotic factors.
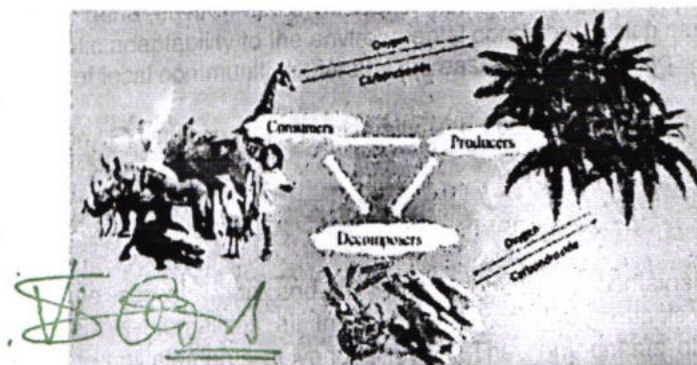
Figure 1: Biotic Components of Ecosystem

The correlated functioning of both biotic and abiotic factors togethers forms a balanced ecosystem. However, an ecosystem is not always a cent percent balance, it changes constantly. In the past few decades increased human activities have been imposing a great threat on the ecosystems. Human activities include includes urbanization, deforestation, pollution, introduction of non-indigenous species and reduced natural habitats through overpopulation, migration of species, and uncertain transmission of diseases affecting species. Decline in diversity of native species is another regard that is huge concern by human activities. Species diversity is a term that refers to diversity or presence of various species in each community or geographical area. The process of urbanization and deforestation can be placed as primary reasons for decline in species diversity.

Species diversity in turn leads to genetic diversity. Genetic diversity through the process of evolution has bought adaptable changes in species. Genetic diversity can be defined as total changes or genetic makeup of species to adapt to surroundings with environmental changes. With the increase in variation, among species these variation posses' alleles that suite the environment. These individuals carrying the alleles adaptable to the environment in turn survive and lead to production of offspring's and those that do not posses the alleles are gradually lost from the population or can be incapable of reproduction which leads to loss of allele from the population directly or indirectly. This strategy is studied as Natural Selection process given by Darwin, popularly known as Darwin's Theory of Natural Selection. Those survive with the new changes continue to show for generations until a sudden loss of allele or change is environment is seen.

Theories such as Neutral theory of evolution, diversifying selection and frequency dependent selection are three theories that can be related with genetic diversity. Neutral theory of evolution proposes diversity that results by accumulation of neutral substitution of alleles. Diversifying selection states that when two subpopulations of a species living in different environment that select for different alleles at a locus. This theory is applicable with respect to large population space. On the other hand frequency dependent selection hypothesises the most common alleles become more vulnerable mostly when studied in case of viruses, while most common alleles are said to be vulnerable when sudden changes in environment are seen leading to sudden disappearance of species. Changes in genetic diversity, such as loss of species leads to loss of biological diversity. Genetic diversity on the other hand can also be due to adaptation, small population size, mutation, and gene flow. Adaptation of species depends on variation in gene pool which allows understanding population with its ability to sustain environmental changes. When an allele is selected against for a trait with changing environment resulting in increase in genetic diversity or decrease in genetic diversity either by maintaining mutation or disadvantageous allele if selected against is lost in population. Large populations more likely to maintain high amounts of genetic diversity due to huge diversification seen in species. In small populations express low genetic diversity over time by random chance, termed as Genetic drift. Due to movement of species from a large population to a small space or isolated space either naturally or man-made efforts leads to loss of alleles by time. Small population due to presence of limited number of living groups leads to inbreeding leading to fixation of an allele with time and loss of other alleles in that region. As inbreeding is leading to fixation of an allele, it is decreasing the genetic diversity. A genetic bottleneck occurs due to random genetic drift. As the fixation of an allele occurs in population. Even with increase in population does not increase the diversity and genetic diversity however remains low. The gene pool when studied for such populations has limited alleles.[14] This is a method to maintain species in an enclosed area. Genetic diversity for such small populations increases at a minute level.

Mutations are one of the key factors responsible for genetic diversity. They increase the diversity as they add new alleles to the gene pool. The maintenance of these mutations depends on drift and selection process. Most of the mutations are either neutral with no effect on population or negative which do not persist the process of selection and have ow fitness values and are lost with time. Very few positive mutations accumulate in population at a very slow rate which participate in the process of producing diversity among species. Mutation rates are high in large populations when compared to small populations. Gene flow in simple terms is movement of alleles in population by the process of migration. Migration leads to decrease in genetic diversity. However, migration leads to retain the existing species from extinction. Eco restoration is a process of recovery of ecosystem that is damaged, degraded or destroyed from its natural form by human activities. Damage refers to producing harmful impact on ecosystem by urbanization processes such as construction, automobiles, industries, or by poaching and invasions of non-native species. Degrade on the other hand is chronic human impact on leading to loss of biodiversity and disrupting the ecosystem's composition and structure in turn imbalance caused in functioning of the ecosystem. Degradation of ecosystem is primarily due to long term grazing and fishing, persistent hunting, and introduction of non-invasive species into environment. Destruction is removing of the complete objects of environment. Destruction occurs when land clearing, urbanization, erosion, mining, or unexpected natural calamities occur.

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A Study on Customer Satisfaction towards Restaurant

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Abstract

A problem of identifying key drivers in customer satisfaction analysis is vital to adopt optimal marketing strategy. In today's hectic lifestyle, finding out time to dine out with family and friends are most preferred way of spending time .Public Places like Restaurant are fast catching up in every locality. In such a scenario, it becomes increasingly important for the restaurant owners and managers to come up with strategies that focus on increasing the profits of the restaurant and staying ahead of its competitors which is to identify characteristics that is driving customers to a restaurant. In this paper, we present an analytical design Jaccard Analysis that effectively identifies the key attributes that are highly preferred by customers or visitors and also focuses on attributes that needs attention. This marketing strategy highlights the characteristics that customers are happy with and the managers need to not waste time, money in further improving these characteristics, instead they can focus on less preferred attributes by putting extra efforts in this direction. As this technique investigates the relationships between potential drivers and customer behaviour such as the likelihood of a recommendation, it is a way to understand customer's mind and perception. Jaccard Analysis deals with attitudinal statements to derive a Jaccard coefficient indicating the relative importance of each attribute. It explains the relative importance of predictor (independent) variables on your outcome (dependent) variable. This is one of the more powerful techniques used in surveys. It explains the most important attribute to customers in a product or service category which influence decision making, such as to buy a particular brand or switch to another brand. It is a vital part of customer satisfaction and loyalty.

Keywords: Jaccard Analysis, Jaccard coefficient, potential drivers, likelihood of recommendation.

Introduction

This study is about relationship between various characteristics that is driving a customer to a restaurant. In today's lifestyle, the best way to spend time with families and friends is to dine out together. Public Places like Restaurant are fast catching up in every locality. In such a scenario, it becomes increasingly important for the restaurant owners and managers to come up with strategies that focus on increasing the profits of the restaurant and staying ahead of its competitors which is to identify characteristics that is driving customers to a restaurant. This paper introduces the reader about the customer satisfaction towards a restaurant. The purpose of this paper is to explore the relationship between restaurant attributes and consumers' willingness to utilize. Past research shows that the most common factors affecting restaurant guests while making this decision are quality of food, quality of service and overall restaurant environment. Customer's expectations are always high and it is difficult to satisfy all of them. It is crucial for restaurant to understand the customer's preferences which will help them to better offer service, quality efficiently. In trying to maximize the likelihood of purchasing decisions, the focuses on customer characteristics out of many other consumer behaviour factors .Performance of a restaurant is based on understanding consumer decisions and satisfaction and to analyze consumer behaviour .How the food and service quality as well as restaurant's environment can progress diner's approval and return investment intentions will be shown by the results provide by restaurant managers.

Objectives

- To identify potential drivers that is driving customers to a restaurant.
- To understand the characteristics that customers are satisfied with and characteristics that needs attention.

Methodology

The data of 50 customers visiting the restaurant in a locality was analyzed on various characteristics. There are various questions inform of variables like Which are the important features that influence likelihood to recommend.The dependent variable likelihood to recommend is captured on 7 point rating scale and the data of Top 2 Box(consists of 6/7 rating) summary is converted into binary form such that , if a respondent rates 6/7 , then the data is recoded into 1 , else 0 . The independent variables data is captured in binary form as 1 and

0. If a respondent selects an attribute, then data is captured as 1, else, 0. We identified all attitudinal variables from survey. Respondents have different attitudes towards different aspects. A respondent selects various options like speed of service, Friendliness of staff, Helpfulness of staff, value for money, pricing, quality of food , taste of food, ambience, comfort based on his choice . These form set of the independent variables which are measures of attribute satisfaction and likelihood to recommend restaurant forms dependent variable which scales from 1 points to 7 points and is an overall measure. The dependent variable is a measure on which the manager is trying to improve the restaurant performance.

Data analysis

In key driver analyses, we use a single dependent variable. A dependent variable is explained using multiple independent variables. Jaccard Analysis is a technique to work on attitudinal statements to derive a Jaccard coefficient, indicating the relative importance of each attribute.

How does the Jaccard Index work?

The Jaccard Index is the number in both sets, divided by the number in either set, multiplied by 100. This will produce a percentage measurement of similarity between the two sample sets.

The data is converted as shown below:

	Associated with Brand A	Not Associated with Brand A
Brand A in Top 2 Box	A	B
Brand A not in Top 2 Box	C	D

Jaccard coefficient is defined as $A/(A+B+C)$. The coefficient value ranges from minimum 0 to maximum of 1.

The values close to 1 means that it is a key positive differentiating attribute and closer to '0' value means that that attribute is not contributing much to the brand.

OUTPUT

From the analysis, the relative importance of attributes clearly indicates speed of service (61%) is preferred by customers followed by friendliness of staff (59%) and the taste of food (59%). Pricing (55%), Value for Money (50%), Quality of food (50%), Comfort (50%), Ambience (48%), Helpfulness of Staff (16%).

INTERPRETATION

The most preferred attribute by customers is speed of service which is essentially the time a restaurant takes to serve a customer. This attribute clearly emerged as highest contributing factor of satisfaction and least preferred attribute is Helpfulness of Staff, the manager needs to focus on ambience of the resturanent by trying to create environment that is conducive to customers. At the same time, focus should be on instructing staff to be more approachable to customers to increase the willingness to pay and help understands the buying patterns for customers and their preferences.

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Data Analysis

11. Table showing the profile of the respondents by age group:

Age groups	Female	Male	Grand Total
20 to 30 years	17	24	41
30 to 40 years	9	16	25
Above 40 years	4	5	9
Grand Total	30	45	75

12. Table showing the different fields of work of the IT employees by age.

Age of the person	Development & Testing	Finance	HR	IT Support	Others	Sales	Grand Total
20 to 30 years	31	1		4	4	1	41
30 to 40 years	13			5	5	2	25
Above 40 years	3		2		2	2	9
Grand Total	47	1	2	9	11	5	75

13. Table showing the number of employees working from home grouped by age & gender

Age of the person	Gender	No	Yes	Grand Total	% of people working from home
20 to 30 years	Female		17	17	23%
	Male		24	24	32%
20 to 30 years Total			41	41	55%
30 to 40 years	Female		9	9	12%
	Male		16	16	22%
30 to 40 years Total			25	25	34%
Above 40 years	Female	1	3	4	4%
	Male		5	5	7%
Above 40 years Total		1	8	9	11%
Grand Total		1	74	75	100%

Interpretation:

Negligible percentage of employees are not working from home during COVID.

14. Table showing the number of employees to whom the company has provided gadgets to work from home

Gender	Yes	No	Grand Total
Female	25	5	30
Male	37	8	45
Grand Total	62	13	75

Interpretation:

It is observed that a majority of the associates i.e. 83%, have received the gadgets required to perform the work. The percentage of people who did not receive the gadgets is negligible.

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15. Table showing the average working hours per week.

Age of the person	Gender	Less than 40 hours of work	40 to 60 hours of work	More than 60 hours of work
20 to 30 years	Female	1	14	2
	Male	2	9	13
20 to 30 years Total		3	23	15
30 to 40 years	Female	0	7	2
	Male	1	12	3
30 to 40 years Total		1	19	5
Above 40 years	Female	1	3	0
	Male	0	4	1
Above 40 years Total		1	7	1
Grand Total		5	49	21
Percentage		7%	65%	28%

Interpretation:

Of the total number of respondents, 65% are working between 40 to 60 hours per week and about 28% of the respondents are working more than 60 hours per week.

A very small percentage 7% of the respondents are working less than 40 hours per week. Of the respondents, there are no women in the age group of 30-40 years and men above 40 years who are working less than 40 hours. Also, there are no women employees over 40 years of age working for more than 60 hours per week.

From this table it can be concluded that the associates are working for longer hours as compared to pre-lockdown period.

16. Table showing efficiency of employees working from home.

More/Less efficient than going to office		Less efficient		More efficient	
Age of the person	Gender	No. Of respondents	Percentage	No. Of respondents	Percentage
20 to 30 years	Female	4	21%	13	23%
	Male	3	16%	21	38%
20 to 30 years Total		7	37%	34	61%
30 to 40 years	Female	3	16%	6	11%
	Male	7	37%	9	16%
30 to 40 years Total		10	53%	15	27%
Above 40 years	Female	1	5%	3	5%
	Male	1	5%	4	7%
Above 40 years Total		2	11%	7	13%
Grand Total		19		56	
Percentage		25%		75%	

Interpretation:

Of the total number of respondents, 25% felt that they were less efficient working from home, while the majority 75% felt that they were more productive working from home.

53% of employees who felt that they were less productive while working from home belonged to the 30 to 40 years age group and 61% of employees who felt they were more productive while working from home belonged to the age group of 20 to 30 years .

17. Table showing percentage of people who were able to spend more/less time than usual with their families during lockdown.

Time spent with family / Age group	Gender	More time was NOT spent		More time was spent	
		No. of respondents	Percentage	No. of respondents	Percentage
20 to 30 years	Female	5	18%	12	26%
	Male	13	46%	11	23%
20 to 30 years Total		18	64%	23	49%
30 to 40 years	Female	2	7%	7	15%
	Male	5	18%	11	23%
30 to 40 years Total		7	25%	18	38%
Above 40 years	Female	1	4%	3	6%
	Male	2	7%	3	6%
Above 40 years Total		3	11%	6	13%
Grand Total		28		47	
Total Percentage			37%		63%

Interpretation:

- Time being spent with one's family being a majorly ignored part of an IT employees life, it was deduced from the study that 63% of the employees were able to spend more time with their families during the lockdown thus improving the quality of their lives.
- A smaller percentage, 37% felt that they were unable to effectively demarcate time for their families as there was no definite time to log off from the office and hence there weren't able to spend as much time with their families as they did prior to lockdown.

18. Tables showing if the employees felt pressurised to work long hours:
19.

Age of the person	Gender	No	Maybe	Yes	Grand Total
20 to 30 years	Female	5	4	8	17
	Male	7	4	13	24
20 to 30 years Total		12	8	21	41
30 to 40 years	Female	4	3	2	9
	Male	6	4	6	16
30 to 40 years Total		10	7	8	25
Above 40 years	Female	1	1	2	4
	Male	2	1	2	5
Above 40 years Total		3	2	4	9
Grand Total		25	17	33	75
Percentage		33%	23%	44%	

Gender	No	Maybe	Yes	Grand Total
Female	10	8	12	30
Percentage	33%	27%	40%	
Male	15	9	21	45
Percentage	33%	20%	47%	100%
Grand Total	25	17	33	75

Interpretation:

The survey outlined that while a slightly larger percentage of employees, 44%, though felt pressurised to work for longer hours since they were working from homes were also found self motivated. 33% felt no such pressure from their bosses and a 23% of the respondents were unsure.

20. Table showing by gender whether the associates were able to balance their official and domestic needs

Gender	No	Mostly no	Mostly yes	Yes	Grand Total
Female	3	7	12	8	30
Percentage	10%	23%	40%	27%	100%
Male	7	9	8	21	45
Percentage	16%	20%	18%	47%	100%
Grand Total	10	16	20	29	75

Interpretation:

The data here has been categorised only by gender to view the perception of the genders with regards to maintaining a balance between work life and domestic needs.

During lockdown, almost 67% women were able to maintain a balance between their official work and domestic needs while amongst men 65% of men felt that they were in a better position to maintain domestic & official work.

21. Table showing whether associates would like to continue working from home in the future.

Age of the person	Gender	No	Yes
20 to 30 years	Female	6	11
	Male	11	13
20 to 30 years Total		17	24
30 to 40 years	Female	1	8
	Male	7	9
30 to 40 years Total		8	17
Above 40 years	Female	1	3
	Male	2	3
Above 40 years Total		3	6
Grand Total		28	47
Percentage		37%	63%

Interpretation:

The majority of the respondents, 63% have expressed that they would like to continue working from home even in the future, as opposed to 37% who preferred not to do so.

Conclusion

In the survey, it is observed that most of the companies having been prepared for a situation of a lockdown had provided their employees the required gadgets to work from home. Though most of the employees were working for longer hours while working from home and felt pressurised to do so, they also felt they were more productive while working from home as their breaks were minimized and travel time was completely put to productive use. Most of the employees though previously were unable to spend time with their families now during the lockdown and work from home period were able to spend time with their families and get more involved in each other's lives. In spite of there being issues with connectivity and ergonomics, most employees have expressed that "working from home" would be their preferred mode of working in the future. The pandemic has opened up new methods of working for the associates who being more or less tech savvy were able to adapt to these new methods with ease. New avenues for achieving team dynamics and communication are now opening up to make best of this situation which in the opinion of experts is here to stay.

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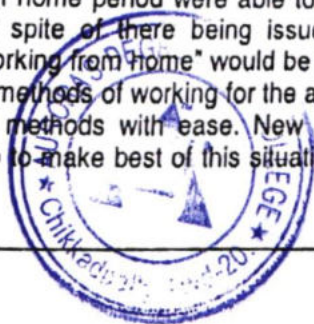
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Impact of COVID 19 on Primary School Students in India

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Abstract

The COVID-19 pandemic, also known as the Coronavirus Pandemic, is an ongoing global pandemic. COVID-19 pandemic is a major health crisis. Many countries including India have decided to close schools, colleges and universities to control the spread of infection. Schools have been closed for almost 6 months and it had a great impact on primary school students, especially the mental and physical health conditions of the students. Primary education is also called elementary education, where children between the ages of about four and eight i.e., for children in kindergarten through third standard learn, grow & develop their social, emotional, cultural, cognitive and physical skills according to the best of their abilities. We call school as a second home, as children play and learn new things with different set of people. Going to school stands as a best public policy tool available to raise social skills. Short time spent in school can be even bring lot of changes with respect to children's social life and learning, and at the same time short period of missed school will have consequences for skill and growth. Most of the Educational Institutions are introducing Online Classes even for the primary students; this might affect the kids in the future. This paper aims to study the impact of COVID-19 on school going primary students and their behavioral and physical changes. The study is based on primary data. A structured questionnaire is prepared and circulated among the teachers and parents, the author attempts to conclude the study by providing possible solution for the problems faced by parents and teachers of primary school children.

Keywords: Primary Students, skills, health conditions, and online classes.

Introduction

Today, the COVID-19 pandemic has brought life around the world to a virtual standstill. The pandemic is expected to have a huge impact on global education and has disrupted the world economy. 'Novel Coronavirus' or COVID-19 is a severe respiratory infection caused by the virus. It was first identified in December 2019 in Wuhan, Hubei province, China. COVID-19 is declared as a global pandemic by WHO after it spread to different countries. COVID-19 is the major pandemic to affect the world after Spanish Flu pandemic, 1919. It is unprecedented that most of the countries have opted for lockdown, where most of the public and private sectors have stopped their production and operations. According to UNESCO Institute for Statistics, the COVID-19 pandemic has led to the closure of schools in 188 countries, affecting more than 1.5 billion students and 63 million primary and secondary teachers worldwide. The pandemic had a significant impact on Primary schools across India. As per UNESCO statistics data, the pandemic has interrupted the education of 153,231,845 primary students. Most of the Educational Institutions in India have introduced online classes even for primary students. Online classes might be the need of the hour, but it will also involve more screen time for students, which might have negative impact.

Working parents need to monitor their children daily and it involves spending their office time as well with children. Parents need to be vigil as their children will be using internet to attend the online classes. Parents who do not have knowledge of operating a laptop or a Smartphone face problems to access online classes and they might need help from school management or others.

Student School Life during Pre- COVID Pandemic

Before the pandemic, students usually wake up and finish breakfast early. Schools normally start between 8 and 9. As school is considered as second home for students, they spend around 7 to 8 hours of a day in the school. Students use to have regular school study and physical activities. They had a regular interaction with teachers, playtime with friends, and enhancement of creative craft skills. After coming from school, children have their evening snacks and involve in one or the other sports like playing cricket, basketball, football or cycling etc, refresh and immediately complete their homework or revise whatever they learnt at school. They had enough sleep by going early to bed after completing their dinner. All the above had been the routine work

of the children before the pandemic struck. The kids were well-disciplined and organized at their regular activities.

Student School Life during COVID Pandemic

In order to cover the academic loss many educational institutions have introduced online classes for primary students, but it will also have an adverse effect on their mental and physical health. As children are exposed to screen time of about 3-4 hours, this will have an impact on their eyes and it might lead to several health issues like headache, obesity, increased anxiety, strain on eyes etc. The ward's behavior will also change as it is not a classroom teaching, they won't concentrate as teacher do not monitor them physically. The school timings are set with little breaks in between, whereas online classes do not have breaks in between as they are continuous and pre-scheduled. This pandemic has brought new set of problems for students as they are at home with little exposure to school environment and more exposure to TV, Smartphone and playing video games. In order to follow the motto "Stay home - Stay Safe", children are not allowed to visit a playground because of pandemic. This change has inculcated a set of habits in children like irregular food intake, sleep-time and play-time. The teacher-parent interactions was mostly one-to-one before the pandemic hit us, whereas now the parent-teacher meetings are done through Google Meet or Zoom meetings to maintain social distancing. Schools are also encouraging the parents to make their child study through online books. The role of ICT has also increased in this pandemic. A regular class-room oriented environment with black board and chalk method of teaching were used by teachers which helped the children in grasping the subjects where as in virtual class rooms, subject is shared to students via videos, PPT's and PDF's. For example teachers used to draw and teach the children which enhance the kid's creativity and improved their learning abilities, where as in virtual class rooms videos are being shared. By introduction of online classes, teachers are also forced to learn about nuances of teaching online to students. It will be a different scenario for teachers as they will not be able to teach students physically, they might not have a complete control on the students. Teachers need to get acclimatized to teach students online as it is a temporary solution in this COVID outbreak. They need to have a laptop or a Smartphone with uninterrupted internet connection to teach kids online. Teachers with less computer knowledge or Smartphone usage might face problems in conducting online classes. Online classes may be the way forward for primary school students as there is no vaccine available for the COVID-19 virus.

Objectives

1. To study the impact of COVID-19 on school going primary students.
2. To analyze if there are any behavioural and physical changes because of online classes.

Research Methodology

The analysis has been done through appropriate tools and techniques on MS-Excel

Sources of Data

The primary data had been collated through a survey which had appropriate questionnaire for this research paper. Secondary data is collected through websites.

Data Analysis

1. Table showing the profile of the respondents by age group:

Age Groups	Female	Male	Grand Total
20-30 years	7	3	10
31-40 years	34	11	45
41 years & above	7	8	15
Grand Total	48	22	70
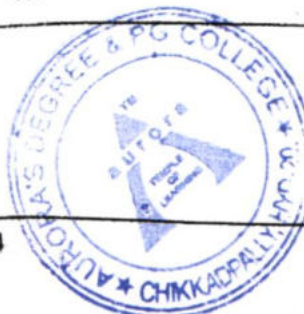
2. Table showing the qualification of the respondents by age and gender:

| Age | Gender | Qualification | | | Grand Total | % |
		Graduate	Post-Graduate	Others		
20-30 years	Female		7		7	10%
	Male	1	2		3	4%
31-40 years	Female	5	28	1	34	49%
	Male		1	10	11	16%
41 years & above	Female	1	5	1	7	10%
	Male		3	5	8	11%
Grand Total		7	46	17	70	100%

Interpretation: Most of the parents are post graduate and female respondents who fall under 31-40 years of age.

3. Table showing total number of children respondents and total number of children attending online classes:

Respondent Age	Total number of children	Total number of children attending online classes	Percentage%
20-30 years	20	15	14%
31-40 years	87	69	65%
41 years & above	29	23	21%
Grand Total	136	107	100%

Interpretation: It has been observed that 100% students are attending online classes.

4. Table showing total number of respondents to have purchased the gadgets for attending online classes.

	Total Number of children attending online classes	Total Number of respondents purchased gadgets	Percentage
Yes	63	34	54%
No	44	36	82%
Grand Total	107	70	

Interpretation: Overall 54% of the respondents have purchased the gadgets for attending online classes and around 82% of the respondents say that they have enough gadgets.Table showing parents managing the child's online classes and their regular work

| Balance of regular work during child's online classes | Working parent | | Grand Total | Percentage |
	Yes	No		
Able to balance	16	7	23	33%
Little difficult	12	9	21	30%
Under Guardian/Siblings'/Relatives Supervision	5	0	5	7%
More difficult to balance	17	4	21	30%
Grand Total	50	20	70	100

Interpretation: It has been observed that most of the working parents are facing difficulty in balancing their professional work and child's online classes. Especially parents with 2 or more kids are facing difficulties. Around 33% of the parents were able to balance the work. Around 7 % of working parent's children are being supervised by siblings, guardian and relatives.

5. Table showing that both Working and Non-working parents are able to monitor child regularly or not.

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Working parent	Monitoring child regularly during online classes			
	Yes	No	Sometimes	Grand Total
	12	5	3	20
No				
Percentage %	60%	25%	15%	100
	19	4	27	50
Yes				
Percentage %	38%	8%	54%	100
Grand Total	31	9	30	70

Interpretation: The data here has been categorized based on working and non working parent, regards with monitoring child regularly during online classes. It has been observed that being a non-working parent, around 60% of respondents were able to monitor the child regularly , 15% of respondents were able to monitor occasionally and 25% of respondents were not able to monitor. 38% working parents were able to monitor the child regularly, 54% were monitoring occasionally and 8% were not able to monitor.

6. Table showing whether child is missing physical activities.

is child is missing physical activities	Total	Percentage
Yes	61	87%
No	5	7%
Sometimes	4	6%
Grand Total	70	100

Interpretation: From the above data it has been observed that 87% of the parents say that child is missing physical activities, whereas 6% says that sometimes the child is missing physical activities and 7% says that their children are not missing physical activities.

7.Below table show the amount of time the child uses the gadgets excluding online classes and whether their eyes get strained or not.

Does child's eyes are getting strained due to online classes	Gadget usage timings excluding online classes				
	1-2 hours	2-3 hours	3 hours and more	Grand Total	Percentage
Yes	19	29	12	60	86%
No	1	1	1	3	4%
Sometimes	4	1	2	7	10%
Grand Total	24	31	15	70	100%
Percentage %	34%	45%	21%	100%	

Interpretation: The majority of the respondents, 86% have expressed that kids eyes are being strained whereas 4% of the respondents say that eyes are not much stressed and 10% have expressed that sometimes their children eyes are very much stressed due to online classes.
Majority of the respondents, 45% have expressed that their children use gadgets for around 2-3 hours daily excluding online classes and around 34% have expressed that children use gadgets for about 1-2 hours daily excluding online classes and around 21% expressed that children use gadgets for 3 or more hours in a day.

8. Table shows that child is missing discipline and school etiquettes

	Does child is missing discipline and school etiquettes because of online classes	Percentage %
Yes	41	58%
No	11	16%
Most of the times	18	26%
Grand Total	70	100%

Interpretation: Of the total number of respondents, 58% of parents have noticed discipline and school etiquettes are missing in child, whereas 26% of the respondents say that most of the times discipline and etiquettes are missing and 16% says that discipline and etiquettes are not missing.

9. Table shows whether the child is missing socialization or not.

Child is missing socialization		Percentage %
Yes	65	93%
No	5	7%
Grand Total	70	100%

Interpretation: Of the total respondents, 93% of the parents have expressed that child is missing Socialization and 7% of the parents expressed that socialization is not missed.

10. Table shows whether respondents are satisfied or not with Online classes.

Satisfaction Level		Percentage %
Satisfied	12	17%
Partly satisfied	10	14%
Neutral	43	62%
Fully Satisfied	1	1%
Not Satisfied	4	6%
Grand Total	70	100%

Interpretation:
Of total respondents 62% respondents are neither fully satisfied nor dissatisfied with online classes. 17% respondents are satisfied and 14% respondents are partly satisfied. 6% respondents are not satisfied and only 1% respondents are fully satisfied.

Observations
From the study the following points have been observed:
1. 100% students are attending online classes because every parent has different view towards online classes. Few respondents express that "Learning is always better than being idle".
2. Working parents are spending even their office hours to make their child to attend online classes and help the child in learning.
3. Parents state that 70% of child's learning and activity completion responsibility is dependent on them and only 30% of learning is happening online.
4. The elementary students are unable to sit for longer time at one place and concentrate due to restlessness.
5. Kindergarten kids mostly communicate with their teachers for every small thing, now during online sessions they are not allowed to speak during the class because of time constraint and network issues.
6. The Playgroup school students are getting tired and strained by watching the screen for hours without break; this is because they need to stay online to attend multiple classes.
7. Parents with two or more kids are facing little difficulties in making the kids attend online classes especially working parents.
8. Kids are missing their regular physical activities and social skills.
9. The parents are worried about their child's exposure to radiation of laptop or smart phones, as most of the children are using gadgets for minimum of 2-3 hours in a day, apart from attending online sessions.

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10. The wards are getting addicted to screen as the homework and activities are also sent through gadgets only.

11. The parents with 2 or more children are facing few problems as one child will have online classes and the other will be disturbing by making noise or by playing. With this the learner is unable to pay full attention towards class.

12. Parents state that school etiquettes and discipline etc are affecting in grooming the child.

13. Physical activities and playing indoor and outdoor game which was part of routine schedule has been affected, and kids stick to only indoor games.

14. Teachers are also trying to get attention of the kids, but children can only concentrate for less amount of time.Apart from the parent's point of view, teachers are also trying to bring up the new strategies of making the kids learn by reducing online session hours, so that there are no adverse effects on the kids health. Most of the parents are neither fully satisfied nor dissatisfied with online classes, as the impact is on child's physical and behavioral patterns and online classes is considered to be a temporary solution.

Conclusion

From this study, it has been concluded that the children, parents and teachers are getting stressed out due to extra screen time in front of electronic gadgets.

Parents are in the view that their child is missing the classroom teaching and the socialization. They are also worried that if the child is getting used to online sessions continuously where visualization is attractive with colorful videos and images then he/she may lack interest on physical interactive classes.

Discipline and etiquettes which are taught at school is different from the things taught at home.

Online classes are a way forward till we get vaccine for COVID-19. Authorities and school management are trying to work on the aspects like eliminating online session for kindergarten students and also reduce online session timings for primary school students, so that the health is not affected in future and "Stay Healthy" motto is followed.

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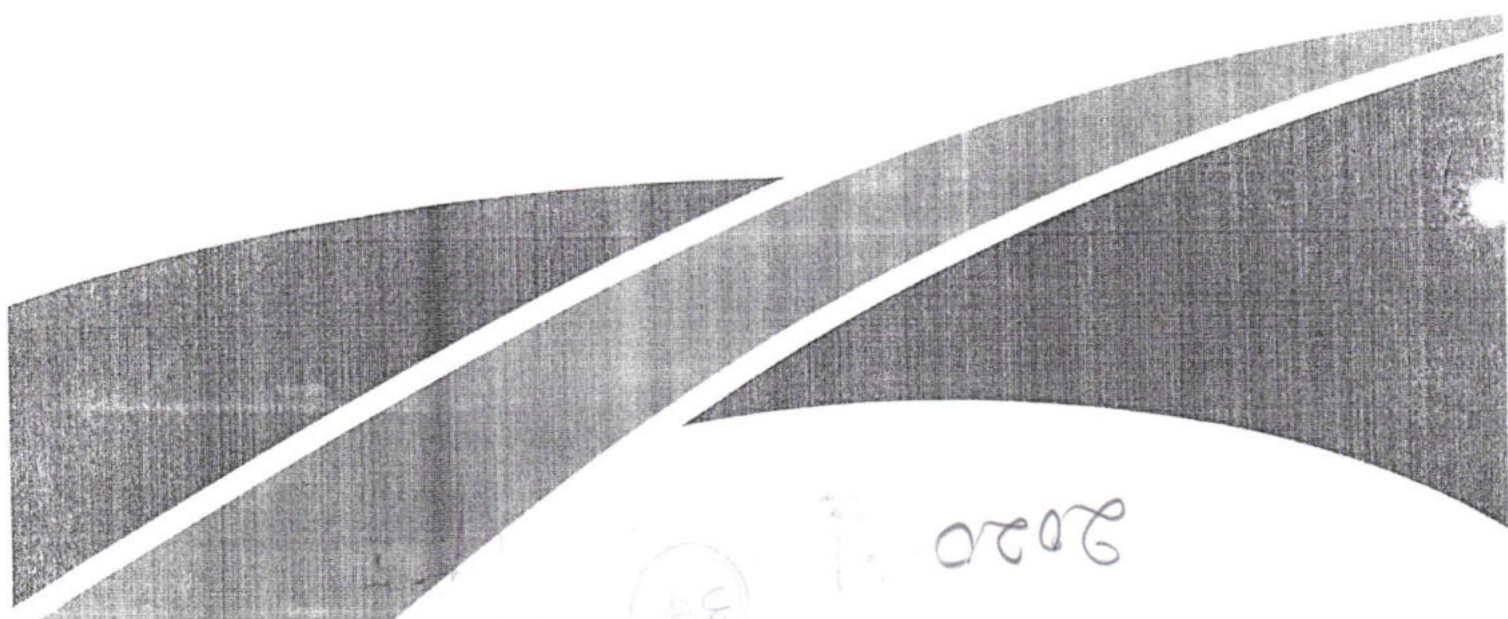
EXPONENTIAL TRANSITION OF MANAGEMENT PRACTICES AND IMPLICATIONS FOR SECTORIAL PROSPERITY

DR. N. SANTOSH RANGANATH & PROF. KOPPALA VENUGOPAL

CONTENTS

MANAGEMENT PRACTICES DURING CORONAVIRUS OUTBREAK

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Abstract: Recent COVID-19 model studies predict that school closures alone will prevent only 2-4% of deaths, much less than other community-based interventions. Policymakers need to know the same evidence when considering COVID-19 school closures and those combinations of anti-social measures should be considered. Some less disruptive social interventions in schools require further consideration if public service prevention policies are implemented over a long period of time. A systematic review of the flu outbreak suggests that school closures are likely to have a significant impact if the virus has a low prevalence, especially if the rates of infection and transmission are higher in children than in adults. Although children are more likely to be infected at the same rate as adults, they are more likely to have mild or non-mild forms of the disease and are less likely to spread the virus through coughing or sneezing. Identify critical activities that need to be strengthened Identify staff, goods and equipment necessary to maintain critical operations. Consider how you can deal with employee unemployment to minimize your impact on critical work. Provide clear frameworks for orders, delegations and order of succession. Explore the need to accumulate stockpiles of tools, materials and equipment. Identify units, departments or services that can be reduced or closed. Provide and train other critical vacancy staff. Establish guidelines for prioritizing access to essential services. Train staff to prevent and control occupational infections and communicate important safety messages. Consider and explore ways to reduce social unrest (e.g. telecommuting or working from home and reducing the number of visible and moving meetings). Consider the need for family support and child care for key employees. Consider the need for psychosocial support services and help staff remain successful.

Key words: Community-based interventions, COVID-19, Infection and transmission.

Introduction:

International standards and their use in risk management are responsible for the declaration of a pandemic based risk assessment of the emerging flu virus. This is based on special tests and may be used to communicate the need for joint international actions, or regulatory bodies and / or legal or contractual agreements or a declaration of intent. This persistence is based on a "global scale" of cases that, over time, are based on continuous risk assessment and are consistent with the full continuity of disaster risk management.

Interpandemic Phase: This is the time between the flu epidemic.

Awareness Phase: This is the stage at which the flu caused by a specific type of undiagnosed is diagnosed in humans. Increased monitoring and risk assessment, at local, national and international levels, is the case

Influenza Risk Management Guide: features of this section. If the risk assessment shows that the new virus is not developing into a pandemic, an increase in the number of jobs targeted at those in the apartheid category is possible.

Epidemic: This is a time of global epidemic of human flu caused by a new subspecies based on global attention. Movement between intermediate penetration stages, warnings and epidemics may occur sooner or later as shown in global risk assessments, particularly based on virological, epidemiological and clinical data.

Transformation phase: As the assessed global risk decreases, a decrease in global activity may occur, and a decrease in response activities or the movement of repatriation actions may be appropriate, depending on their risk assessment.

Leadership should be based on strong political will and engagement with all stakeholders and sectors through good co-operation and control of mechanisms between the Department of Health, national public health authorities and non-health sectors. The roles of emergency management, responsibilities and mechanisms also need to be clarified, informed and evaluated, in particular the care of accountability and decision-making roles. Our view as international experts on institutional reforms is that while everything is crucial in shifting institutional care to the family, these changes need to be carefully planned and controlled, with effective and continuous family planning, strengthening, monitoring and other support provided to ensure child interests are maintained. We are deeply concerned that the best interests of children may not be realized by liberating them back to families and communities. We are deeply concerned about the physical, emotional and social vulnerability of children, the lack of antibodies that affect them on COVID-19, and those who return home without the knowledge or resources to support children with disabilities or those affected by COVID-19. We fear that the process of unplanned migration could lead to unexpected stress, exacerbate health problems and lack of education

Objective:

The main objective of the present study is, institutions that continue to operate must follow the public health guidelines and have the guidance and support they need to ensure the safety and security of children and caregivers. This support includes educating staff, parents, caregivers, and children on the use and importance of physical abstinence measures, signs of infection, and appropriate hygiene practices. Only important staff members should be allowed to enter the facilities and visitors (including volunteers) should be allowed. In national flu risk management, government is a natural leader of co-ordination efforts and communication efforts. The national government must help other people and the private sector.

Background:

A highly contagious epidemic virus in a clinic can lead to an unprecedented number of people with serious or serious illnesses, some of whom will die without effective treatment or adequate clinical management. However, the severity or violence of the virus will depend on the presence of medical conditions that place people at a critical stage, as well as age. Infection may be worse in some parts of the world than others and definitions of high-risk groups will be part of this indicator.

Policymakers and researchers should also look at other interventions in social institutions that are more disruptive than full school closures and that could have a significant impact on maintaining control of the epidemic. Although no solid evidence can be found on the effectiveness of these practices, they can be used with very little disruption, financial cost, or injury. Modeling and testing courses are urgently needed to guide school re-opening policy once the epidemic is under control. One way school closure works during an outbreak would be to force parents to work from home and thus reduce work-related contacts. However, the review also noted the negative effects of school closures, including economic damage to working parents, health care workers, and other key employees forced to work in child care, and in the community due to loss of parental product, transfer from children to grandparents at risk, loss of education, injury The well-being of children especially among high-risk students, and the problems of healthy eating especially for children who are cooked free food at school are an important source of food. Isolation from society itself brings many forms of psychological harm. A quick review found evidence that, during unplanned school closures, children's activities and communication had decreased but did not end, with further evidence that this was especially the case between older children and those whose parents did not agree with the closure.

There are many other community awareness activities available in schools that are less powerful than full closures, although these have received little attention. Potential practices include the suspension of affected classrooms or groups of the year, or altering the structure of the school organization to reduce student congestion (e.g., closing playgrounds, cancelling unnecessary activities and meetings, keeping students in classes or classes regularly, increasing space between students in classes, reducing school week and surprisingly start school and lunch or break in groups or cla_____ The review concluded that fewer studies were

conducted but that a small number of modeling studies supported the use of other strategies during the flu outbreak. We are concerned that children may be abandoned or separated from their families due to COVID-19 and the increase in poverty, death, poor health, family stress, domestic violence, and other reasons. As the epidemic subsides, we urge donors to focus on supporting family and community programs and services for children, including those who find themselves orphaned or homeless after the epidemic. By doing so, we can strengthen families and communities; to prevent the division of families, and the establishment of new institutions. Institutions are very expensive and can be dangerous to the well-being of children. Children can best benefit from family reunification, adoption, family care, parental care, kafalah, and other family care models. Support should be provided to those who already provide family-based care, including the elderly or vulnerable, and those who provide family-based care from emergency law enforcement to prevent an increase in the number of children placed in institutions during and after the epidemic. There is an opportunity to help institutions close properly or to support access to community services aimed at strengthening families. The study found that health workers face significant challenges in balancing work and family responsibilities, especially with regard to childcare needs when schools are closed and childcare services are not available. The study concluded that there is a need for adequate resources to protect the families of health care workers in the event of an outbreak in order to retain more staff.

In national flu risk management, government is a natural leader of co-ordination efforts and communication efforts. The national government must assist other public and private organizations and organizations by providing guidance, strategic planning and appropriate legislative and regulatory changes at all levels and sectors to facilitate effective response to the epidemic. These efforts are supported by WHO and other United Nations organizations under the IHR (2005). As part of their capacity building activities under the IHR (2005), governments around the world have been reviewing and reviewing their national laws and regulations to ensure they fully comply with their obligations. These activities include sectorial co-operation and ERMH at all levels of government.

Transport Ministers should plan to reduce the risk of infection and staff shortages on important transport, airports and seaports, as well as in loading and unloading areas, in order to provide continuous supply of medicines and food. Ways of communication and training of public transport users should be considered in advance. Finance ministers should plan to keep important cash, debt, banking, payments, international transfers, salaries, pensions and legal services where there is a high level of work; the severity of the system at risk of disease should be assessed. Financial planning at the national level of disaster management is also the responsibility of the national emergency committee and the Department of Finance and emergency funding mechanisms should be evaluated before the epidemic. The Ministers of Justice should consider how they can keep up with all the important legal and administrative functions during the epidemic. Measures should also be taken to reduce the spread of the disease to prisons and other institutions under their jurisdiction. Infection control and risk reduction programs in institutions

The Flu Risk Management Guide should be evaluated in conjunction with the Department of Health's programs to ensure that messaging is compliant and that public health policies are adhered to. Defence ministers should consider which military equipment could be disposed of in the event of an outbreak, according to the Department of Health's recommendations and risk assessment. Education Ministers should play a key role in monitoring and reducing the risk of flu in communities. Absenteeism employment in schools may be used as a representative indication of public referral. Coordinating school monitoring programs with the Department of Health is therefore important to ensure that interventions in schools, including closures, are aligned with public health policies. Energy Ministers must ensure that key energy providers in the energy sector have well-developed and well-planned systems in place. Different power supply systems, in the event of a major disruption, should be evaluated. Communications Ministers should be responsible for ensuring that communication channels remain open in times of crisis As the official partner of the Department of Health in disseminating information, the Department of Communications must play a key role in the development of a national communication system for the whole government. Ministers of Agriculture and Animal Health should play a key role in monitoring and monitoring general flu viruses as well as preparedness, prevention, risk
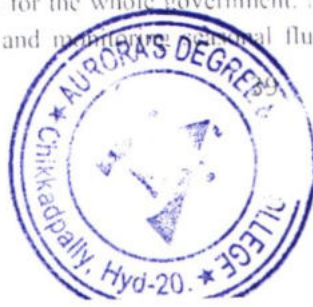
assessment and risk reduction measures to reduce human exposure to flu viruses to the animal and animal interface. In addition to leading the health sector response, Health Ministers should provide strategic planning and technological integration in the development of other sectors, provide public education and other communication messages and provide advice on reducing the risk of infection to key employees.

The role of business:

In many countries, essential services are provided through a mix of public and private providers. It is therefore important that, together with government agencies, private essential assets and service providers practice risk management. Although there are differences between countries, the most important services are: health, security, law and order, finance, transportation, telecommunications, energy, food and water. Government and private providers of these essential services are dependent on and rely on the goods and services of other sectors to sustain their operations. Disease programs should look at potential failures caused by dependence on other factors. This includes the failure of individual businesses or small business numbers representing sole providers of a good product or service. Dependence needs to be identified by each key service provider. Problems that need to be clarified in the dependency diagnostic process include: essential goods and services required for the organization to provide its essential services; the main reliance on each good or critical service; the impact of the loss or reduction of any critical goods or services on customers / beneficiaries; critical work groups; the impact of the loss or reduction of the availability of critical work groups; and possibly points of failure.

The healthcare sector is constantly facing some of the biggest challenges during the epidemic. Health care facilities rely on goods and services provided by the following categories: the transportation of goods, personnel and patients; telecommunications to support patient care, provide orthopaedic surgery and maintain business processing; power centre capacity, clinical and safety programs; water for health care facilities, medical services and sanitation services; pharmaceutical manufacturing, including dietary, in the treatment of patients; and finance to ensure the purchase of goods. On-going business plans for continuity should be tailored to a wide range of conditions ranging from certain delays / disruptions to major disruptions of essential services, and associated action plans.

Business continuity plans should be based on clear thinking that reflects the limits of the epidemic and its potential impacts. Public health authorities should liaise with the thinking and planning of other sectors of the community. No matter what type of organization, business continuity plans should include the following actions: However, even in very close cases, it is unlikely that this approach will be possible if a large amount of resources (antiretroviral drugs, local cordon, and health care workers) need to be combined. Data from theoretical modeling studies are based on the use of a number of neuraminidase inhibitors within the defined "content" area with a limited range of motion (geographical cordon) and targeted at 500,000 people.

However, measures associated with content such as social exclusion, hand / respiratory hygiene, and prudent use of antimicrobials may be effective in mitigating the impact of new flu outbreaks in each country. These measures are likely to be effective and are best supported by data that are shown to be effective when used in specific (minor) situations, e.g. closed or closed homes and facilities. While there is no evidence of a comprehensive population impact, these measures could reduce the spread and the overall impact of the epidemic and could be considered part of a national preparedness plan, depending on the resources available.

Conclusion:

College managements has introduced a class suspension rather than a school closure, which has been simplified by keeping homeroom class students and head teacher and having other teachers regularly walk between classes. Studies show that this approach was an effective means of social mobilization for these outbreaks while minimizing social disruption. Significantly, whether a school is officially closed or other deviation policies, illegal student and staff (or due to illness or surveillance) can be very high during the epidemic. Unemployment can lead to forced school closures. Expulsion from school - where all students, except the most vulnerable and children in health care and other key staff remain at home but the school remains open - has been suggested as a
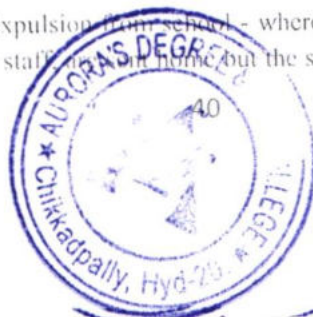
stronger intervention than school closure, although there is no evidence to support its separate use for full closure.

Environmental risk management is the responsibility of the entire government. All departments must co-operate with the Department of Health within the national coordination process to ensure a consistent approach to business planning and planning. Plans involving a variety of conditions should be developed based on risk-based assumptions made by the Department of Health and should be assessed for compliance. In addition, risk management processes must take place at national, ground, local and community levels; the central government must state what level is responsible for certain functions. Central government should also provide guidance to local authorities on planning preparedness; to conduct training to ensure effective distribution at all levels, and build and implement programs to test programs and promote community mobilization. In all government, the roles, responsibilities, guidelines and chains of order must be clearly marked. Standard operating procedures can help generate common understanding and systematic implementation. The study concluded that the social distance action package was effective in reducing the final size and incidence of outbreaks while delaying the maximum number.

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Quality Education for all During the Covid-19 Crisis

Kumari Shalini A* & Navneetha N**

The infection that gave off an impression of being the worldwide pandemic is known as covid-19, showed up toward the year's end 2019 which is connected to the group of infections as Severe Acute Respiratory Syndrome (SARS) and a few sorts of basic virus. The flare-up of this sickness (COVID-19) has been announced as a Public Health Emergency and the infection has now spreading to numerous nations and the domains. The primary framework that got affected by this is the instruction framework. The security of kids and instructive offices is especially important. Not just this yet in addition higher possibilities are there they it might get communicated effectively. The advocates of information mining contend that training creates developing volumes of information, so this information needs to get handled to improve instruction. In any case, cure must be taken to secure understudies and staff may who have been presented to this infection. Subsequently here in this article we center around the instruction framework development during covid-19 and the best measures to be taken to give the quality training to all the understudies.

Introduction

Consistently the long stretch of walk is the pinnacle season of directing the assessments. The understudies have the weight of studies. Because of the pandemic the circumstance has changed where we saw that all the training System has gone for the disconnection state. It is essential to recall that COVID-19 doesn't separate between outskirts, ethnicities, incapacity status, age or sex. The current pandemic isn't just influencing the wellbeing of the different residents on the planet yet its preventing different enterprises and shaking them to their underlying foundations. The national lockdown has carried everybody to the stop emergency. Here the training of the understudies too, with

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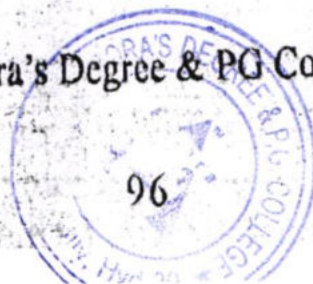
...being closed and their prospectuses abandoned. ...taken by schools can forestall the section and spread of ...understudies and staff who may have been presented ...while limiting disturbance and shielding understudies ...from separation. The educational reform in India in the ...seems to be a live example of how need truly is the ...invention or reinvention, in the current scenario. Allowing ...culture, the pandemic is already steering the sector forward with technological innovation and advancements.

Education System

In current state, whole world is facing the problem of this pandemic in different aspects. The various industries that got affected by this are Retail, Import & Export, Education System, Social gatherings, Restaurants and so on. But the most affected among it is the Educational System. This system is the one where we find the mass gathering of the kids and teenagers where we find the higher risk for them by getting affected. Not only this but also higher chances are there that it may get transmitted easily among children. Therefore before the lockdown got imposed in our country firstly the Education system has closed all the universities and schools because there is the high risk.

Therefore as the lockdown has been imposed few of the schools and colleges had to think about the completion of the exams whereas the remaining had to focus on completion of the syllabus as it was the end of the academic year. So, in this way the education system has came into focus in going for digitization in the process of completion of the syllabus.

Digitised Education System

The online training mode has been guaranteeing that understudies endure no loss of studies and their advancement is being followed at the same time with ideal assessment process. It is most likely a first for India to direct try different things with the training framework and make a model move to the virtual world, by mixing homerooms ducating with web based learning component.

Collaborating instruction with innovation and shaping a cooperative chnique to step ahead while giving on the web talks will likewise npower the understudies to adapt imaginatively. Boosting aintenance of the prospectus by utilizing imaginative innovation, the lleges are additionally captivating understudies to learn by decision d not simply by their physical nearness in a homeroom. Moreover,
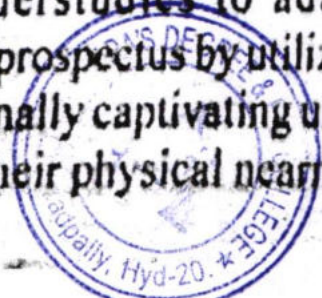
giving AI-empowered learning by colleges as they offer various courses in relationship with different joint efforts is just making the nation imagine another tomorrow dependent on instructive changes. For example, clinical understudies can settle on intelligent meetings to talk about explicit contextual investigations, building competitors could dig into the profundities of natural designing and city arranging alongside the tutors playing recordings and leading on the web unsettled meetings for law aficionados and substantially more.

Training sessions should keep on being inviting, deferential, comprehensive, and strong situations to everybody. Having data and realities about COVID-19 will help lessen understudies' feelings of trepidation and nerves around the infection and bolster their capacity to adapt to any optional effects in their lives. This direction gives key messages and contemplations to drawing in school heads, instructors and staff, guardians, parental figures and network individuals, just as youngsters themselves.

As a result of the training framework getting virtual, we have seen different high points and low points in the nature of instruction. Prior the educators were utilized to the manual instructing yet now the virtual training has been bestowed in the educational plan according to the rules given by the legislature.

Therefore the guidelines are been shown below in 1.1

Calendar of academic activities

School Education commissioner Ch Veerabhadrudu released a calendar of activities to be followed during the 2020-21 academic year

THREE GROUPS	ONLINE CLASSES
Hi-tech: Students having online facilities education facilities such as computer and smartphone	Online education is not permitted for pre primary students
	Classes 1 to 8: 30 to 45 minutes per day in two sessions a day
	Classes 9 and 10: Four sessions below 45 minutes a day
Low-tech: Students having radio or TV Doordarshan)"	**EXAMINATION** No exams for Classes 1 to 8 students and valuation should be conducted on the project work done by the students
No-tech: Students who have no computer, mobile phone, radio, and TV (Doordarshan)	For Classes 9 and 10 students, internal assessments can be conducted as per the NCERT guidelines
	Teachers having health complications and staying in containment zones are exempt

Fig. 1.1: Academic activities
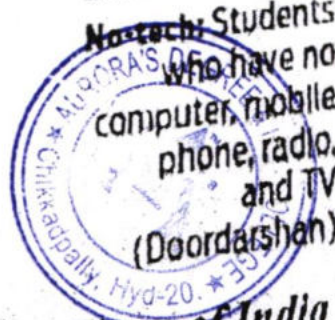
HIGHER EDUCATION IN PANDEMIC ERA

by

Dr. Mangal Singh & Dinesh Kumar

Title of the Book
Biotechnology for Sustainable Development

Therapeutic Strategies for the Treatment of Adenosine Deaminase (ADA) Deficiency: Are We There?

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Abstract:
Gene therapy is the process of introducing normal genes into the cells in place of missing or defective ones in order to correct genetic disorders. Somatic gene therapy can be used to treat single gene disorders. Adenosine deaminase (ADA) deficiency is a metabolic disorder caused due to deficiency in the enzyme, adenosine deaminase resulting in immune deficiency. The gene that codes for the adenosine deaminase is encoded on chromosome 20 and is involved in purine metabolism. In humans, the primary function of adenosine deaminase is to develop and maintain the immune system. It accounts for about 15% of all cases of severe combined immunodeficiency (SCID). Presently, enzyme replacement therapy is used to treat ADA deficiency but it is not a cure for the disorder as infusion is lifelong. Gene therapy can be a better approach to treat ADA deficiency.

Key words: Gene therapy, somatic gene therapy, Adenosine deaminase (ADA) deficiency, enzyme replacement therapy.

Introduction

Gene therapy is the process of introducing normal genes into the cells in place of missing or defective ones in order to correct genetic disorders. Gene therapy can be categorized into two types: Somatic cell gene therapy and Germline gene therapy. Somatic gene therapy involves the transfer of genes of interest or functional genes into any somatic cell. As the modification is limited to somatic cells, they cannot be

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Title of the Book
Biotechnology for Sustainable Development

Role of Long Non-Coding RNA H19 In Chronic Myeloid Leukaemia (CML)

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Abstract:
Chronic Myeloid Leukaemia (CML) is a haematological malignancy most often seen in Asia, with an incidence of 1-2 in 100,000 of general population. It is predominantly seen in men and all age groups are susceptible. It is associated with the Philadelphia chromosome, in which a reciprocal translocation [t (9;22) (q34; q11)] generates a fusion protein due to formation of BCR-ABL oncogene. This BCR-ABL fusion protein deregulates the tyrosine kinase activity which is central in pathogenesis of CML. The TKIs imatinib, bosutinib and nilotinib target BCR-ABL and can induce complete responses in majority of patients but cannot eradicate the disease because of the acquired drug resistance or residual disease persistence. There is a need to identify the predictive prognostic markers of disease to get better targets for therapy. H19 is a long non-coding RNA that functions as a tumour suppressor. The gene is located on imprinted region of chromosome 11, locus 11p15.5 near insulin like growth factor 2 i.e. IGF2 gene. Evidence has demonstrated that H19 lncRNA is abnormally expressed in many cancers such as breast cancer, hepatocellular, oesophageal, bladder cancers. Therefore, it can be suggested, exploring the role of lncRNA H19 in CML can help identify markers and better targets for treatment.

Introduction

Chronic myeloid leukaemia (CML) is a myeloproliferative disorder resulting from the neoplastic transformation of primitive hematopoietic stem cells. It is monoclonal in origin, affecting the myeloid, monocytic, erythroid, B-cell and sometimes T-cell lineages. CML is characterized by presence of

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EMERGING STRATEGIES FOR SUSTAINABLE DEVELOPMENT
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15. A STUDY ON ROLE OF MATHEMATICS IN UNDERSTANDING GREEN ECONOMY: A PATHWAY TO SUSTAINABLE DEVELOPMENT

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Abstract

An economy which obtains and accounts for the relation between economy, society and environment contributing reduced waste, decreased pollution, efficient usage of resources, materials and energy for consumption durin, production processes for invigorating and expanding economies by creating employment opportunities along wit proper income distribution encouraging sustainable trade is "Green economy". Management of ecosystems c environment and services it provides cannot be ignored. An interdisciplinary approach in research b, accommodating innovative ideas for generating technology by continuous enhancement of knowledge is essentia for evolution of green economy. There is a huge economic crisis in almost two hundred countries in the world today due to the measures introduced for containing the Covid-19 pandemic. The green economy puts forward a powerfu, solution to this economic uncertainty. For making the economies stronger the energy demands will increase leading to high carbon dioxide and other green house emissions. In order to protect environment from emissions apart from meeting these high energy demands the concept of environment tax plays a vital and critical role in green economic policy. The mathematical modeling is an indispensible tool for sustainable development. Mathematical modeling plays a powerful role in understanding, predicting and controlling sustainable development process. The sustainability of earth depends on the interdisciplinary approach in which mathematics has a very firm responsibility in addressing the challenges in promoting green economy. In this paper we study and review some mathematical models which help in introduction of environmental tax as a control parameter apart from few other mathematical models involved in creating and supporting efficient green economic development for the advantage of mankind. offer

Keywords: Green economy, Sustainability and Mathematical Modelling.

Introduction

In the past twenty years the economic growth in various countries has reduced poverty and improved standard of living. The socio-economic growth is achieved by loosing and risking resources of environment. Resource depletion and pollution caused due to industrialization resulted in unsustainable economic growth. The increased environmental risk and resource constraints are key factors which contributed to the ideaa of green growth and green economy. There is a need for developing theoretical and methodological basis of green economy. Green economy has turned out to be an indispensible way for developing countries to make sure that the future is safe for mankind.

Green Economy:

The mankind has misused ecosystem more hastily and more comprehensively over the past century than in any other period of time in human history. These developments have been mostly obsessed to meet the growing demands for basic needs and the outcome is conventional one way linear economic model "resource – product – waste" and may perhaps head towards depletion of natural resources and damaging the environment with irreversible changes in it. Today, civilization, industry and policy makers
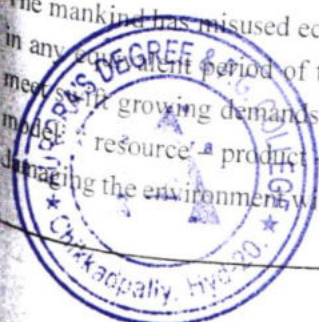
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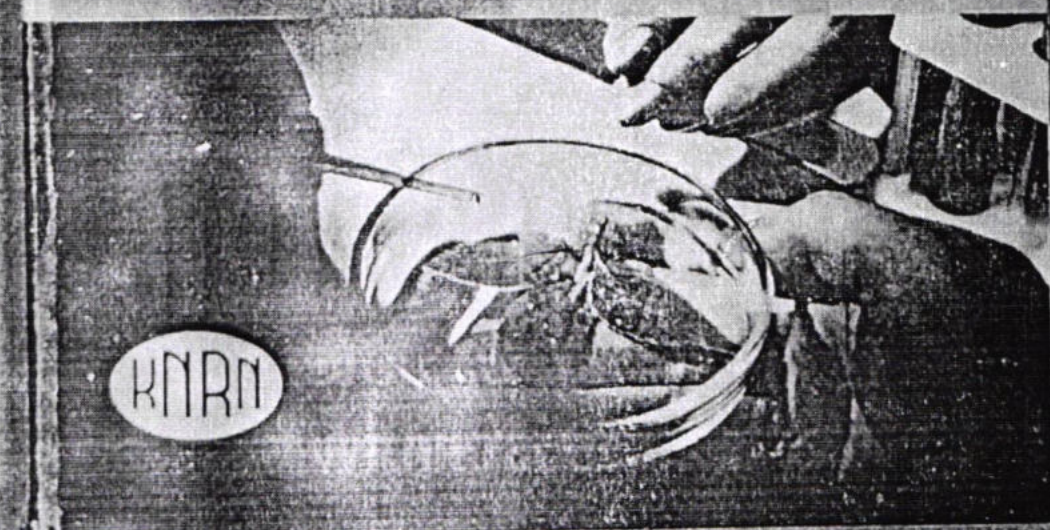
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हिन्दी साहित्य और नारी के रूप

संपादक
डॉ. अनीता एस. बेलगांवकर
डॉ. महादेश आर अंची

डॉ. अनीता एस. बेलगांवकर

जन्म : 18.04.1978
जन्म स्थान : गुरुपा (कर्नाटक)
अध्यापन : एम.ई.एस. आर्ट्स एंड साइन्स कॉलेज सिरसि (उत्तर कन्नड) कर्नाटक
शिक्षा : एम.ए., पी-एच.डी. (हिन्दी)
पद : सहायक प्राध्यापिका, विभागाध्यक्षा हिन्दी विभाग
सरकारी प्रथम श्रेणी महाविद्यालय सिरसी (उत्तर कन्नड) कर्नाटक

प्रकाशित : 1. आंचलिक उपन्यासों में रामबिलास शर्मा और राजनीतिक चेतना, 2. तुलसीदास सरल दोहावाली (कन्नड), 3. विस्तीरतर सरल दोहावाली (कन्नड), 4. चन्नवक कन्नड कविता संग्रह, 5. संत तथा गरुण साहित्य की प्रासंगिकता (उप-संपादक), राष्ट्रीय एवं अंतराष्ट्रीय सेमिनार में शोधलेख प्रस्तुति : 50

पुरस्कार : 1. अमृता प्रीतम पचाई, 2. महादेवी वर्मा पुरस्कार, 3. साहित्य शिखर सम्मान अवार्ड, 4. साहित्य विरेशणी राष्ट्रीय अवार्ड, 5. चेंक पृथ्वीलोजनोबल येलप्पा अवार्ड

संपर्क : 'नरेंद्र निलय' 1 कास अंचलिगि, गांधी नगर सिर्सि, जिला-उत्तर कन्नड, कर्नाटक
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शिक्षा : एम. ए., पीएच. डी., बी एस., पी. जी. डी. सी.
प्रकाशन : बेलगांव विश्वविद्यालय हिन्दी सेवा शिक्षण सहिती-हुबली, पत्रिका के संपादक, संत तथा गरुण साहित्य की प्रासंगिकता(उप-संपादक), राष्ट्रीय एवं अंतराष्ट्रीय सेमिनार में शोधलेख प्रस्तुति-70

पुरस्कार : डॉ. रामकुमार वर्मा जी के पुरस्कार, भारत गौरव शिखर सम्मान, भारतरत्न चटर्जी के राष्ट्रीय पुरस्कार

पद : सहायक प्राध्यापक, विभागाध्यक्ष, हिन्दी विभाग
शिवदत्तेगि प्रथम श्रेणी महाविद्यालय दंडेळ्ळि, जिला-सर्वेगी

मोबाईल : 9481523327

माँ के चरणों में
सादर समर्पित

भारत के निर्माण और उन
योगदान हर क्षेत्र में अग्रणी
स्वतंत्रता संग्राम में झांसी व
अवंती बाई, झलकारी
वीरांगनाओं ने स्वतंत्रता प्रा
जनजागृति लाने के लिए
न्योछावर कर दिए इसी क्रॅ
डॉ. लक्ष्मी सहगल अंत रिष्
सुनीता विलियम्स, खेल में
कर्णम मल्लेश्वरी साधना ।
में चर्चेदी पाल साहित्य
चौहान, महादेवी वर्मा, राज
सुषमा स्वराज, उमा
अनुकरणीय सफलताएं अं

आधुनिकता हिन्दी साहित्य में-नारी विमर्श

—डॉ. जिन्हर विरहर

नारीवाद या नारी-विमर्श (फेमिनिज्म/फेमिनिस्ट डिस्कोर्स) का प्रारंभ कब हुआ, इसके संबंध में विद्वानों में सुनिश्चित एकमतता नहीं है। कुछ लोगों के अनुसार इसका प्रारंभ उन्नीसवीं शताब्दी में हुआ, जब पश्चिम में स्त्रियों के मताधिकार और पाश्चात्य संस्कृति में स्त्रियों के योगदान पर चर्चा होने लगी थी। लेकिन वास्तविकता यह है कि स्त्री-विमर्श बीसवीं शताब्दी की देन है। बीसवीं शताब्दी में भी कुछ लोग इसका प्रारंभ फ्रांसीसी लेखक सिमोन द बुआ की पुस्तक 'द सेकंड सेक्स' (1949) के प्रकाशन वर्ष से मानते हैं और कुछ मेरी एलमन की पुस्तक 'थिंकिंग एबाउट वीमन' (1968) के प्रकाशन वर्ष से। वर्जीनिया वुल्फ कहें : 1929) में लिखा था : "हाइदलाल के पास से गुजरते हुए किसी भी स्त्री को अपने स्वीस का बोध होते ही अपनी चेतना में अचानक उत्पन्न होने वाली दरार को ले कर आश्चर्य होता है कि मानव सभ्यता की सहज उत्तराधिकारिणी होने पर वह इसके बाहर, इससे परकीय और इसकी आलोचक कैसे हो गयी है।" वर्जीनिया वुल्फ की इस पुस्तक ने यूरोप और अमरीका के स्त्री-विमर्श को ही नहीं, भारतीय स्त्री-विमर्श को भी प्रभावित किया है। हिंदी की चर्चित नारीवादी लेखिका प्रभा खेतान(उपनिवेश में स्त्री, 2003) भी इस पुस्तक से प्रभावित हुई हैं और सिमोन दि बुआ की पुस्तक 'द सेकंड सेक्स' से भी। यूरोप और अमरीका में नारीवाद ने बीसवीं शताब्दी के अंतिम दशकों में खूब जोर पकड़ा और मोनिक विटिंग, कार्ल मिलेट, जूलिया क्रिस्तेवा, हेलेव सिक्सेस, एलेन शोवाल्टर, एड्रिना कार्टर, मेरी जैकोबेस आदि अनेक नारीवादी लेखिकाएं अंत में जोर पकड़ा है और अनेक हिंदी में नारी-विमर्श ने बीसवीं शताब्दी की पुस्तकें प्रकाशित हुई। लेखिकाएं उसमें शामिल हुई हैं। हिंदी में नारी-विमर्श की दृष्टि से कुछ महत्वपूर्ण

वह स्त्रियों की आत्माभिव्यक्ति का सबसे प्राचीन रूप है।

समग्र भारतीय साहित्य में व्यक्त स्त्री-विमर्श साहित्य की लेखिकाओं को एक भाषा मिली है, जिसके द्वारा लिंग केन्द्रित व्यवस्था को वह नकार रही है तथा साहित्य के द्वारा अपने आप को पुन: स्थापित करने का सफल प्रयास कर रही है। पितृसत्ता युग रहेगी? की चीख से वह जटिल स्त्रियों से शंका की नजर से देख रही हैं। कब तक का नया सौंदर्यशास्त्र निर्माण कर रही है। अपने होने

संदर्भ : पुस्तक का नाम : 'साहित्य और मानवीय संवेदना',
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पृ. सं. 166, 167, 168, 169, 170

एसिस्टेंट प्रोफेसर, (हिन्दी)
पंडित नरेन्द्र प्रान्त महाविद्यालय,
नारायण गुडा, हैदराबाद,
तेलंगाणा-29 (राज्य)
दूरभाष : 09848285647

भारत के निर्माण में योगदान हर क्षेत्र में ः स्वतंत्रता संग्राम में ः आदिवासी बाई, झल षीरागमन्त्रों ने स्वतंत्र जनजातुति लाने के योगदान कर दिए इन डॉ. लक्ष्मी सहगल जो सुनीता विलियम्स, ये कल्पना मल्लेश्वरी सा में बच्छेंदी पाल स सोहल, महादेवी वर्मां सुषमा स्वराज, ; अभूतपूर्व सफलता

भारत के विभिन्न और उत्कर्ष योगदान हर क्षेत्र में अग्रणी जो स्वतंत्रता संग्राम में झांसी की अवंती बाई, झलकारी बाई केसरबाई ने स्वतंत्रता प्राप्ति जनक्रान्ति लाने के लिए अ न्यौछावर कर दिए इसी कड़ी में डॉ. लक्ष्मी सहगल जो रिश्ते में : सुनीता विलियम्स, खेल में पी.टी. कर्णम मल्लेश्वरी साधना महेवा में बछेंद्री पाल साहित्य में चोलन, महादेवी वर्मा, राजनीति सुषमा स्वराज, उमा भारती अनुकरणीय सफलताएं अर्जित कं

: समाज और साहित्य (क्षमा शर्मा, 2002), औरत के लिए औरत (नासिरा शर्मा, 2003), खुली खिड़कियां (मैत्रेयी पुष्पा, 2002), उपनिवेश में स्त्री (प्रभा खेतान, 2003), हिंदी साहित्य का आधा इतिहास (सुमन राजे, 2003) इत्यादि। इनके अतिरिक्त हिंदी की अनेक लेखिकाएं नारीवादी होने का दावा कर रही हैं और नारीवादी साहित्य के सृजन में संलग्न हैं।

असल में हुआ यह है कि आधुनिक काल में आर्थिक राजनीतिक क्षेत्र में जो तीव्र परिवर्तन हुए हैं, उन्होंने समाज की स्थिरता को भंग किया है और पारंपरिक मूल्य व्यवस्था विखंडित हुई है। इसके कारण समाज के बदलते छोटे-छोटे सामाजिक समूहों और व्यक्तियों का महत्व बढ़ा है और उन्होंने अपनी स्वतंत्रता, अलग पहचान और मूल्य को मनवाने का प्रयत्न किया है। पश्चिम में नारीवाद के अतिरिक्त समलैंगिकों, अश्वेतों तथा हाशिये पर पड़े अन्य वर्गों ने अपनी अलग पहचान बनाने के प्रयत्न किये, जिसके परिणामस्वरूप वहां अनेक नयी सैद्धांतिकियां अस्तित्व में आयी हैं। हिंदी में नारीवाद के अतिरिक्त दलित-विमर्श ने ही प्रमुखता पायी है।

नारी-विमर्श हो या दलित-विमर्श, सैद्धांतिकी के स्तर पर अभी कहलपोह की ही अवस्था है। राजनीति, समाजशास्त्र, मनोविज्ञान, जीवविज्ञान आदि के क्षेत्र में स्त्री-विमर्श संबंधी सैद्धांतिकी निर्माणावस्था में है। साहित्य के क्षेत्र में उसके मुख्य सरोकार पारंपरिक पाठ पद्धति के स्थान पर नयी पाठ-पद्धति की खोज और पाठ -पद्धति की राजनीति में हस्तक्षेप है। पाठ-पद्धति से परिवर्तन हमारी विश्वदृष्टि और हमारे अनुभव को बदल सकता है। स्त्री-विमर्श से संबद्ध साहित्यिक सैद्धांतिकी मोटे तौर पर निम्नलिखित स्थापनाओं को आधार बना कर चली है : साहित्यिक शब्द और सांसारिक यथार्थ परस्पर संबद्ध हैं। साहित्य देनंदिन जीवन के यथार्थ को नहीं करता है। वह यथार्थ का प्रतिबिंब होता है, वह यथार्थ का सृजन करता है और वह यथार्थ के विकल्प भी प्रस्तुत करता है। पाठ (टेक्स्ट) विशिष्ट यथार्थ को प्रतिबिंबित करता है और जाना है, इसलिए अपने विशिष्ट इतिहास और उत्पादन-पद्धति को प्रतिबिंबित करता है। के संबंध में इस अत्यधिक रूढ़ स्थापना का ही नया रूप है कि 'साहित्य समाज का

पुस्तकें इस प्रकार हैं : बाधाओं के बावजूद नयी औरतें (उषा महाजन, 2001), स्त्री-सरोकार (आशारानी व्होरा, 2002), हम सभ्य औरतें (मनिषा, 2002), स्त्री-विमर्श

दर्पण है।' यह स्थापना मार्क्सवाद और एतिहासिक भौतिकवाद से भी जा जुड़ जाती है।

स्त्री-विमर्श की दूसरी साहित्यिक स्थापना यह है कि कृति का पाठ और उसमें अभिव्यंजन विश्व के बीच के संबंध अनिवार्यत: राजनीतिक होते हैं, क्योंकि व्यापक अर्थ में वे सत्ता शक्ति से संबंध होते हैं। पाठ मान्य व्यवहार और विश्वास अर्थात विशेष मूल्य व्यवस्था का प्रतिनिधित्व करने का दावा करता हुआ अवपीड़क हो सकता है। किसी विशिष्ट देशकाल के रहन-सहन, आचरण सोच आदि के विकल्प प्रस्तुत करके वह दमनकर्ता भी बन सकता है। इससे यह सिद्धार्थ निकलता है कि यदि साहित्य जीवन और जगत से संबद्ध है तथा उसका प्रतिबिंब है, तो वह जीवन और जगत को बदलने में भी समर्थ है। इसलिए स्त्री-विमर्शवादियों का कहना है कि पाठ और पठन की एक राजनीति है। इसलिए साहित्यिक पाठ को विशिष्ट ढंग से पढ़ना चाहिए और पढ़ने के विशिष्ट ढंग को ध्यान में रख कर लिखना चाहिए। किसी विशिष्ट देशकाल के विशेष परिप्रेक्ष्य में और एक इससे बढ़त फर्क पड़ता है। जिन कृतियों को किसी विशेष परिप्रेक्ष्य में और किसी विशेष ढंग से पढ़ा गया है, यदि उन्हीं कृतियों को किसी अन्य परिप्रेक्ष्य में और किसी अन्य ढंग से पढ़ा जाये तो पहले से भिन्न निष्कर्ष निकलेंगे। इन्हीं चीजों को ध्यान में रख कर स्त्री-विमर्शवादी अपने को स्त्री पर केंद्रित करते हैं। यह स्त्री-केंद्रण बहुत अर्थपूर्ण है। जातिवाचक संज्ञा के रूप में जब 'स्त्री' शब्द का प्रयोग किया जाता है, तब उसमें बहुत सी संभावनाएं अंतर्निहित होती हैं। स्त्री एक जैसी नहीं होती। हर स्त्री एक व्यक्ति के रूप में एक विशिष्ट इकाई होती है। फिर प्रत्येक स्त्री जीवन के विभिन्न मोड़ों पर और अलग-अलग होती है।

हिंदी में नारीवाद की जो सुगबुगाहट शुरू हुई है, वह नि:संदेह पश्चिम से प्रभावित है। इसलिए कई बार पश्चिमी नारीवादियों की स्थापनाओं की अनर्गल रूप से उसमें स्त्री जीवन के यथार्थ को अपनी पुस्तक 'उपनिवेश में स्त्री : मुक्ति कामना की दस वार्ताएं' में पश्चिम में नारीवाद को ले कर चलने वाली गतिविधियों का विस्तार हवाला दिया और स्वतंत्रता की बात की है। 'स्त्री के सारतत्व' पर विचार पर नारी की स्थापना.और स्वतंत्रता की ने स्त्री की विशिष्टता को स्थापित किया प्रकरण में उन्होंने व्यक्तिगत रूप से स्त्री की विशिष्टता स्त्री होना स्थापित करती है। अत: स्त्री के नाम पर समाज करते हुए उन्होंने प्रतिपादित स्त्री होना स्थापित करती है। आर्थिक-हीनी

हिन्दी साहित्य में चेतना युक्त नारी

—डॉ. टी. सुनीता

नारी अपने संपूर्ण जीवन में एक समर्पिता की भूमिका अदा करती रही है। इसी कारणवश पुरुष समाज उसे शरीर से कोमल और मन से दुर्बल की उपाधि देता आया है। इसके फलस्वरूप वह शारीरिक और मानसिक रूप से हार का शिकार होती गई। परंतु उसकी निर्णीमोहिता और दयालुता ने उसे देवी के पद पर आसीन कर दिया है। यह धारणा मान्यता बना दी है कि जिस स्थान पर नारी उपस्थित रहेगी वहाँ देवताओं का वास रहेगा।

मनुस्मृति में कहा गया है कि-

'यत्र नार्यस्तु पूज्यन्ते, रमन्ते तत्र देवताः।'

यत्रेतास्तु न पूज्यन्ते, सर्वास्तत्र फलाः क्रियाः।''

सृष्टि के आरंभ से ही स्त्री पुरुष की रीढ़ की हड्डी बनी हुई है। उसी ने पुरुष का अंकुरण जन्म पोषण आदि दिया। 'नारी अधिक संजगता, अधिक ममता, त्याग, वात्सल्य, कल्याण, कोमलता एवं मधुरता से पुरुष की कठोरता एवं रक्षता को झेलती रही है। नारी का मानसिक विकास पुरुष के मानसिक विकास से अधिक द्रुत गति से होता है। उसका स्वभाव अधिक कोमल और प्रेम, शुणादि भाव अधिक तीव्र तथा स्थायी होते हैं.... इन दोनों प्रवृत्तियों में उतना ही अंतर है, जितना विद्युत और अग्नि में। एक से शक्ति उत्पन्न की जा सकती है.... परंतु व्यास नहीं बुझाई जा सकती।''

आधुनिक समाज में नारी माँ होने के साथ-साथ स्वतंत्रतापूर्वक नौकरी, व्यवसाय कर रही है। घर में अपनी संतान की देखरेख के लिए यह महिलाएँ अदा करती हैं। उसे अपने साथ है। आयाएँ भी उस बालक की दूसरी माँ की भूमिका अदा करती हैं। कई धनिक उच्चवर्ग के रखती हैं, दूध पिलाती हैं और उसकी देखरेख कर लेती हैं।

उसके स्त्री होने के आचरण को अच्छा या बुरा कहने का अधिकार नहीं रखता और न ही पूर्वनिर्धारित ढंग से किसी भी भूमिका को उस पर आरोपित कर सकता है" (पृ. 130)। प्रभा खेतान घोषित नारीवादी है और अपनी चुनौती नारीवादी प्रतिबद्धता के कारण वे 'मैं' और 'लेखिका' आंदोलनों से भी तनाई चुनौती मिली है, विशेषकर 'लेखिका' स्त्रियों से सत्ता को दुनोती देना इसलिए भी संभव था, क्योंकि पुरुष पर है। उनकी तरफ से निर्भरता न होने की वजह से बाहरी व्यक्ति की उनकी भावात्मक और यौन निर्भरता देना इसलिए भी पितृसत्ता का हैसियत से वे सत्ता की चालों को ज्यादा समझ पाती हैं। प्रतिक्रिया में पितृसत्ता अनोन-नाग, पारिवारिक मूल्यों के विघटन का विघ्वना-विलाप तथा बार-बार राष्ट्रभक्ति की दुहाई के राजनीतिक रालावों की जर्जर समझती हैं (पृष्ठ, 69-70)।

पश्चिम में भी नारीवादी साहित्यशास्त्र रचने की प्रेरणा पुरुषों से ही मिली है। फ्रांसीसी नारीवादी आलोचक संरचनावाद, उत्तरसंरचनावाद, विखंडन, लेकां के द्वारा प्रतिपादित सिद्धांतों की नयी व्याख्या, मार्क्स की स्थापनाओं की पुनर्व्याख्या आदि से प्रभावित हुए हैं। फ्रांसीसी तथा अमेरिका नारीवादियों ने साहित्यिक भाषा का विशेष रूप से विवेचन किया है और अपने निर्बर्ग निकालते हैं, जिसका सार जूलिया क्रिस्तेवा के इस वाक्य में अंतर्निहित है : "पितृसत्तात्मक भाषिक संरचना में 'स्त्रीत्व' ही वह सब-कुछ है, जिसे दबाया गया है।" इस 'स्त्रीत्व' को उभारना, पितृसत्तात्मक भाषिक संरचना को बदलना का पुनर्पाठ तथा उपपाठों का पुनरावेक्षार ही साहित्यिक क्षेत्र में स्त्री-विमर्श का मुख्य लक्ष्य है।

जीवन और साहित्य दोनों के क्षेत्र में स्त्री-विमर्श नयी उभरती हुई दृष्टि है। यह साहित्य-सृजन और उसके विवेचन मूल्यांकन को किस निःसंदेह विचारोत्तक है। यह साहित्य-सृजन और उसके विवेचन मूल्यांकन को किस सीमा तक और किस रूप में प्रभावित करती है या बदलती है, यह देखने के लिए प्रतीक्षा करनी होगी।

संदर्भ :
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2. ए स्म ऑफ वन ओन, 1912 बुक
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CONTENTS

WOMAN, THE MULTI TASKER

R. Heena
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A woman plays a vital role in home and as well as at work place .This aspects is regarded important since ancient times. In the modern period transformations came about in their lives and work.

Women play a big role at home for the development of her family .Women contribution and responsibility towards her family at home such as good wife, good mother, child development, health care and well being, diet and nutrition, cleanliness, maintaince and so forth.

As a wife – women is mans helpmate, partner and comrade. She sacrifices her personal pleasure and ambitions, sets standard of morality, and relieves stress and strain .Tension of husband, maintenance peace and order in the household. She is the source of inspiration to man for high endeavor and worth achievement in life. She is the symbol of purity, faithfulness and submission and devotion to her husband.

As a mother- woman is the first teacher of the child .She is primarily responsible for the child's education, habit and health. She is thus responsible for the maintenance of utmost discipline in the family .as a mother she is the family health officer, she is very much concerned about the physical well being of every member of the family, she organized the home and its activities in such a way so that each member of the family has proper food, adequate sleep and sufficient recreation. She made the home a place of quite comfortable and appropriate setting for the children trough her talent, besides she cultivates taste in interior design and arrangement, so that the home becomes an inviting, restful and cheerful place.

TYPES OF HOUSEHOLD RESPONSIBILITIES

Cleaning and washing is the one of the important responsibility of the women ,which the individuals are required to perform on a daily basis it is referred to as cleaning the floor ,furniture, equipment, machinery tools ,appliances and so forth .In order to perform this task in an effective manner ,washing is primarily concern with the washing of clothes.

Preparation of meals it is the major responsibility of women to take care of the health care needs and requirement of their family members and themselves. it has been studied that women ,primarily get engaged in the preparation of meals .

Purchase of items from the market or online is an indispensable household responsibility the purchase that are to be made by individuals, usually depends upon the numbers of

family members within the house and the extent to which they make use of various items .purchases of electronics etc..

Health care women are primarily vested with the job responsibility of taking care of the needs and requirements of the family members. They need to make provision of knowledge as well as assist them or motivate them to get engaged in various activities that would promote their health care and well being.

WOMEN ROLE AT WORKPLACE

Women's state heavily depends on the employment; working women tend to look at their employment positively. Employment naturally raises her status enhances of her sense of self worth, and provides her greater psychological well –being.

While women are succeeding in a number of professions, working women helps to sustain the family financially and have become influential and successful it is stated that "working women in today's world is miracle because women have to juggle their duties as multiple roles and their presence in working field is significant.

Conclusion

The society should discard their old mindset that women should stay at home instead of working ,women are capable of successfully achieving what they can do besides, it is a right for women to work and earn money .although women play multiple roles of being mother ,wife, daughter, sister .women are still able to manage their domestic duties and parenting hence, it is time that everyone should give support and respect to women work .Womens discrimination should be exterminated to ensure they achieve their rights in home and workplace ..
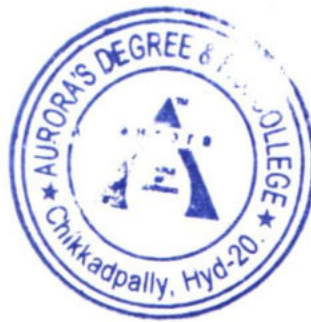
Role of Woman in Contemporary Society

M. Kalyani

Assistant Professor

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The contribution of women to a society's smooth transition from preliterate to literate, from a relatively autonomous community to a member of a nation enmeshed in a world economy, has received too little attention from social scientists and policy makers. When the economy and political organization of a society change, families who can adjust to the new conditions will fare the best. Inasmuch as women the world over are the primary caretakers of young children, they play an important role in facilitating or hindering changes in family life.

How difficult is it for families to adjust to these new institutions? There are two major consequences that affect women - the loss of child labour and the need to make changes to help children master new skills. Working in a village in Kenya that is undergoing rapid social change, I have been able to observe the consequences of the introduction of schools and some of the adjustments women have made.

Before the families decided that education was essential, mothers who were not able to hire help kept some children at home to care for infants and toddlers during the hours that they worked in the fields and performed chores outside the homestead? As in other societies in the Third World, children six through 10 were most frequently in charge of younger siblings. Older children could be called upon to do agricultural work and relieve the women of some of their heavy workload. However, once free education was introduced, and once it became obvious to the families that subsistence agriculture and cash cropping on small holdings was no longer viable, that literacy and school diplomas or even university degrees were essential for success in the modern world, most fathers and mothers decided that all children should attend school.

When the six-year-olds were no longer available during school hours, four- and five-year-old children were pressed into service as child nurses. These children are less capable of playing a consistent caretaking role. To add to the problems of the mothers, as the classrooms became crowded and the administration sought techniques for choosing between the applicants, they began to favour children who had attended nursery schools. Mothers are eager that their children should have the best opportunities, responded by enrolling their five-year-old. Now during the school hours they had only four-year-olds at home to supervise younger siblings while they hurried to take animals to the pasture, carry water from the town well, or get wood for the cooking fire. If they went to the garden during school hours, infants and toddlers accompanied them and the four-year-old carried the infant strapped on its back while the mother worked.

Schooling not only requires a major change in the family's daily routines and the division of labour, it also leads to major changes in the socialization of children. The teaching of signs and symbols requires radically different techniques of instruction. Skills essential in subsistence agriculture are learned primarily by imitation. Rewards are not necessary. The child nurse whose infant charge does not cry has learned by experience what is required for competent caretaking. There is intrinsic reinforcement in keeping the infant contented. It is unpleasant to care for an unhappy baby. Similarly a young child can tell when it has mastered the art of keeping a cooking fire going, shelling peas, or digging potatoes. Occasionally the child may ask for help or information but for young children direct instruction is rare. Parents in this village, and in many Third World countries, do not approve of praising children. They believe that praise makes a child proud. Pride leads to sibling rivalry - competition between siblings and half siblings or cousins for the approval of adults. A proud child may be disrespectful of elders.

Learning to read and write symbols, however, requires feedback from the teacher. A child does not know that it has read a word correctly unless someone comments on the performance. Assuming that parents accept the value of education, how long does it take them to recognize that a different type of instruction is required? Some mothers spontaneously begin to praise their children. Sitting in a homestead one noon I observed a small boy return from school with his state. His illiterate mother asked to see the state. She looked at the markings and asked her son what they were. He told her the names of the letters. The mother studied the letters with interest and commented with obvious admiration, "That is very good." This mother was not consciously changing her teaching style: her praise was genuine appreciation of her son's new knowledge. In general, however, mothers with four or more years of schooling were more apt to praise their children than mothers with no education or only a few years of classroom instruction. The mothers who had spent more time in school seemed to model their behaviour on that of their own teachers.

When asked what characteristics they desired for their children, mothers agreed that they valued generosity, good-heartedness, responsibility, obedience, and respect for one's elders. When asked what characteristics they thought made a child good at school, mothers agreed that cleverness, curiosity, boldness and obedience were important traits. Boldness gave the child courage to speak up in class. Obedience in the classroom was described as "keeping one's ears open." Mothers commented that cleverness often made a child proud and disrespectful of its elders. Similarly, a bold child might talk back to its parents. On the other hand, some parents believed that it was necessary for children to have these characteristics in the "new" world.

The mothers who valued education not only praised their children more often than more traditional mothers; they also allowed their children to ask more questions, even to interrupt- the conversation of adults. They assigned them fewer chores, allowing them to
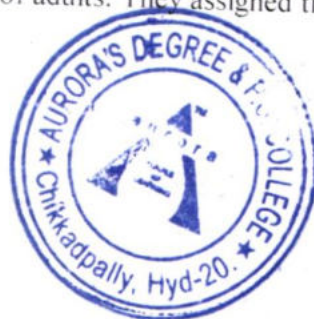
plead the necessity of doing homework for school. Homes of these women were more child-oriented, most notably the households of professional parents in Nairobi. It was often impossible to have a coherent conversation with the mothers if the children were in the house, a far cry from the traditional household where children were expected to be silent in the presence of visitors, to speak only when spoken to.

The educated mothers who spend more time with their children than the fathers are carrying the major responsibility for encouraging the children to study. The women are aware that their comfort in old age depends in large part on the generosity of their children. If their children are equipped to get white collar jobs they will be better able later to care for their parents. It seems that mothers are more aware of the need to change their socialization techniques than the fathers.

Women Empowerment in Digital India

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ABSTRACT

Introduction: Digitalization may be a positive move for an Indian woman. Now they're more liberated, strong, empowered, and contributing to the development of the nation. Let or its health, education, or industry of any kind, women are leading in many parts of it. Structural discrimination against women makes them particularly vulnerable and reinforces the necessity to develop alternative social protection mechanisms. Digital literacy is required for girls to process the right access to education, the right access to employment, and the right access to equitable resources. Besides this empowers them with the right decision-making power, to fight against societal discrimination, this supports them to measure in an exceedingly violence-free domestic surroundings with a property Mobile technology can play the lead role to produce information and digital authorization to rural people. Conclusion: It will be often complete that ladies are sceptre through the help of knowledge technology. It's modified their position from the past. The event of data Technology has enabled the ladies section to participate in each and every walk of life. It's empowered women by enhancing their knowledge, skills, and income. Flexi timings and work on home with the web has enabled additional women to hitch the labour force. Thus Information Technology has played a greater role in women's empowerment. The women need to build for themselves a new identity and a more honourable place in to sweep across political, economic, social and geographical barriers.

Keywords: Digitalization, Women Empowerment, Education and Health.

Introduction

Women play a crucial role in the growth of the economy of any country. Over the years, Indian women have made a substantial impact by achieving success across various sectors in India as well as overseas.The biggest problem afflicting the Indian women today is a severe lack of safety – both social and contextual. On one hand, even theeconomically better-placed women are facing harassment in public, and on the other hand, the rural women are being constantlyexploited – economically and otherwise. Given the situation, half of the population in this country is living in constant fear ofpersecution and harassment.

A substantial shortage of communication is one of the primary reasons for thebackwardness of women in our country.One of the most important factors in
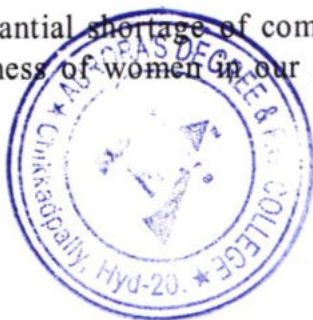
theempowerment of women is awareness. If women are not aware of their rights, they will never be able to come out of the current statusquo.Digital India initiative could play a significant role in this process. It could set up a publicly accessible forum that could educatewomen about their rights and opportunities. The forum could also provide legal and financial assistance to deprived women. Such an ambitious drive would require large-scale awareness drives almost in the form of a revolution. Subjectto the fact that a significant section of the marginalized women live in the villages, such a plan would also require the development ofexisting technological infrastructure.

Objective

One of the primary objectives of the Digital India initiative is the establishment of universal mobile connectivity.

Background

The Bengaluru fiasco on the 2017 New Year's Eve is a stark rejoinder on the actual condition of women in India.According to the 2011 IndianCensus, the sex ratio stands at a poor 940 per 1,000 males (Sex Ratio in India, 2015). The United Nations Development Programme'sGender Inequality Index (GII) calculates the human development costs of gender inequality.

A steeper GII value — 0.563 for India —indicates a rather considerable disparity between men and women. Let us look at the percentage of womenrepresentatives in the legislative bodies. It is a matter of concern that even a so-called regressive country like Afghanistan fares better than India in the given parameter.

THE POSSIBLE ROLES FOR WOMEN IN THE CHANGED SCENARIO

Women empowerment is a multipronged issue and needs a deeper insight. Of late, the government's push for a digitally empoweredcountry could effectively become one of the better ways to ensure women empowerment at the grassroots. Technological penetrationrequires infrastructural developments and an increased use of awareness drives. While illiteracy amongst women continues to be aroadblock, a careful planning and meticulous implementation could really hold the key. As part of its initiative to boost the DigitalIndia initiative, Tata Trusts launched an initiative in 2015 to provide increased internet access to women. The trust hadcollaborated with Google and Intel to help women find a livelihood. The scheme was launched for women who do not necessarilyhave a formal livelihood.

INITIATIVE AND ENTREPRENEURIAL OPPORTUNITIES FOR WOMEN

The Common Service Centres and Post Offices in the form of Multi-Service Centres could be of significant help in the process. The conduction of any business starts from acquiring the requisite amount of skills. Initially, the governmentcould play the role of the catalyst in providing online training. It needs to be mentioned here that Indian women excel at varioustraditional crafts. These crafts have huge potentials. However, the shortage of a

proper marketing platform is one of the reasons whythese crafts are not getting the kind of publicity they should. The Digital India initiative could be of significant help in this regard.

THE SPREAD OF LITERACY

According to the 2011 Indian Census, the literacy figure in India was 74.04 percent. While the male literacy figure stood at 82.14percent, the female literacy figure was a dismal 65.46 percent (Literacy in India, 2015). This says a lot about the comparativebackwardness of women in India. With adult education being one of the declared objectives of the government education policy, thereshould be a special emphasis on educating the adult women. The Digital India initiative could become the game changer. Withthe online medium being a far more encompassing platform and the propagation of information a much easier task, the spread ofeducation could be actually accomplished by enhancing the internet penetration. With 'Ensuring Information for All' being one of thedeclared objectives of the mission, it would be an easier job to ensure adult literacy and more particularly women adult literacy.

In many cases, the women in the family find it difficult to reach the places of education. However, if mobile connectivity and internetpenetration are enhanced, there will be no reason for the womenfolk to go out of their houses. They would be able to receive therequisite education sitting from the comforts of their homes. This would ensure higher enrolment. In addition, education through thedigital medium is much more effective due to its multimedia nature. It has been proven beyond doubt that the visual medium is muchmore effective than the auditory medium in spreading awareness.

The "Digital India" Programme initiated by the Prime Minister Mr.NarendraModi on July 1, 2015 is emerging as a movement for social and economic empowerment while delivering its core mandate of digital access and connectivity for each and every Indian with a focus on "Women Empowerment." The Honourable Prime minister of India MrModi's words, "I see technology as a means to empower and as a tool that bridges the distance between hope and opportunity. Digital India is an enterprise for India's transformation on a scale that is, perhaps, unmatched in human history. Digital India is our dream for the nation. When I say 'Digital India' it is not meant for the rich, but for those who are poor. Women must also be made partners in economic development. I have seen that women are very good at adapting to latest technology. We should link women and technology up-gradation." Status of Women empowerment in India Several instances exist across the country showing that women are not just resilient and optimistic, even in the wake of struggles they are true entrepreneurs with a spirit of prudent innovation. They can inspire families and communities to join and become part of the change that has been set to motion. Many of the successful ones were young mothers or single women hardly having anything for a start-up investment. But their infectious passion got their families and especially the men in the household to step forward and support them. However, their number is insignificantly small in comparison to the great population of India.

Digital India is likely to emphasize on the following key aspects.

Knowledge Sharing: Digitalization of Libraries and many services now young India is able to ponder on the resources which were not available to them earlier, especially being a girl of rural background with limited access to urban areas and available facilities.

IT Jobs and Work from Home: Information technology services are now shifting to tier 2-3 cities and providing good job opportunity, it is impacting low expenditure on their budget because of low salary structure in these cities.

Online Business Boom: Now due to nuclear family concept and absence of adequate child care centers urban women are tend to leave the job after motherhood. It is not only loss of their earning capacity but a great loss to nation where skilled manpower is still a wide search by all. Now to tape potentiality of their skill many women are entering into online business and sales.

Communication and Networking: It gave women freedom of expression of thoughts and empowered them for their rights. Now with the available information they know about their rights, they can seek help from many government institutions, NGO's in case of need. Digitalization is a positive move for Indian woman. Now they are more liberated, strong, empowered and contributing in the development of nation.

Conclusion

The government is also trying to create jobs for youths by providing Information Technology. If this initiative takes into special account the financial needs of women in the villages, it could go a longway in ensuring gender empowerment. As they say, financial inclusion is one of the primary preconditions for social inclusion andresultant empowerment.

In accordance with government perspectives, the campaign would significantly boost indigenous businesses. If that were the case,women would be the biggest beneficiaries given the soft skills possessed by the average Indian women.Domestic violence and social exploitation could be checked to a significant degree through the Digital India initiative. Legal counselscould be provided to women who need them the most. Most importantly, the Digital India initiative could provide a significant boostto the spread of education among Indian women.It has already been pointed out earlier how education through the usage of the internet actually becomes a non-obtrusive exercise.

A large number of women are now in the fore front leading large corporate houses and banking institutes with an extremely successful track record. For more women to be a part of the workforce, it is essential to appropriately empower them by promoting skill development for facilitating high productivity, increased employment opportunities and providing avenues for economic freedom.

AADYAA

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Pancha Kanya - Pillars of Chaste Feminine Divinity

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Introduction

In Ancient Indian culture, the women held a revered place. They had equal rights with the men. They were highly qualified in different branches of learning and arts. They took part in the activities of their husbands, right from the domestic works to the battle field. Manu attaches great importance to the women in Manu dharma shastra as...

"YATRA NAARYASTHU POOJYANTE RAMANTHE TATRA DEVATAAH l

YATRETAASTHU NA POOJYANTE SARVAATTHA PHALAAH KRIYAAH ll"

"The Gods help with blessings where women are worshipped. But their curse falls upon the house, where women are dishonored."

Indian culture is one of the most ancient and traditional culture. The status of womanhood reached its peaks in Vedic times and even in Sanskrit literature. In Sanskrit treatises, two prominent aspects of respect to women as mother and wife are glorified. Women have taken many central roles in Hindu Dharma, as birth givers, nurturers and propagators of knowledge.

The world started with Adi Shakti the one true pure form of energy, and femininity has evolved since. Hindus worship Adi Shakti, Devi and idolize her presence. One of such group of amazing femininity is the Panchakanya. Panchakanya is a group of five iconic heroines of Hindu epics. The word panchakanya literally means five kanyas. Kanya may be translated as girl, daughter, maiden or virgin. There is a famous sloka on Panchakanyaas...

Ahalyâdraupadîsîtâtârâmandodarîtathâd

pañcakanyâ%smarennityaCmahâpâtakanâúinîme

Ahalya, Draupadi, Sita (Kunti), Tara and Mandodari are said to be Panchkanyas, The Five Pillars of Chaste Feminine Divinity. Daily remembering these five great maidens Will destroy the greatest sins. Ramayana portrays Ahalya, Tara, Mandodari, and Sita, while Draupadi and Kunti from the Mahabharata. Sita and Kunti are often replaced by each other according to people's belief. These 5 women are considered as the group of Eternal Virgins despite being married. Panchakanya are the ones who owned their virginity and could revive it. This power of owing to their Chastity among them was majorly the result of leading a pious, rightful and responsible life in thought, in word and in action thereby the purest and

most sincere way of conduct even in the most challenging of times. So pure that even through the fire they could pass unharmed. Such exemplary lives have only been portrayed by five women and hence they are remembered for it.It is believed that the nature manifests itself in five forms likeeearth, water, fire, wind, and sky. Each Kanya is born of one of these elements, and these five elements of nature formed the essence of their character.

In this paper, aneffort is done to show that the women were attributed highest position in Hindu scriptures and their roleas a mother and wife is very crucial in nurturing the inherited values passed on to us since timeimmemorial. Now let us have a look at the panchakanyas and the way how they led their life..

Ahalya

Ahalya is the wife of Gautama Maharshi. The Bala Kanda of the Ramayana mentions that Brahma moulds Ahalyaout of pure creative energy. Brahma created Ahalya as the most beautiful woman in order to break the pride of Urvashi, the foremost celestial nymph. Brahma places her in the care of Gautama until she reaches her youth. When that time arrives, the sage Gautama returns Ahalya to Brahma, who, impressed by Gautama's sexual restraint and asceticism, bestows her upon him. There is another version thatAhalya is created from the ashes of the sacrificial fire by the Saptarishi (seven seers) and gifted to the sage Gautama.

The king of the gods, Indra, was infatuated with the beauty of Ahalya and comes disguised as Gautama when the sage was away. Ahalya falls prey to Indra's trickery and does not recognize him. Gautama then curses Ahalya to remain invisible to all beings for thousands of years, fast by subsisting only on-air, suffer and sleep-in ashes and be tormented by guilt. Nevertheless, he assures her that her sin will be expiated once she extends her hospitality to Rama, who will visit the ashram. Thereafter, Gautama went to Himalayas to practice asceticism. Indra was cursed to be castrated or be covered by a thousand valve that ultimately turn into a thousand eyes. Ayodhya prince Rama, Lakshmana and their guru, the sage Vishwamitra passes through Gautama's ashram while traveling to King Janaka's court in Mithila. As they near the ashram, Vishwamitra recounts the tale of Ahalya's curse and instructs Rama to save Ahalya. Ahalya is said to have been touched by Rama's feet and rises from her stone state to human form as she got relieved from the curse.Ahalya is often regarded as the leader of the panchakanya due to the "nobility of her character, her extraordinary beauty and the fact of her being chronologically the first kanya". It may be noted that Ahalya was not sealed as a tainted woman by either her husband or Lord Rama. Look at the state of the present-day innocent rape victims.

Draupadi

Draupadi was the daughter of Drupada, the king of PanchalaNagaram.She was born along with her brother, Dhrishtadyumna, from a yagna kundaorganized by King Drupada.She was a tragic heroine, one of the central characters and the common wife of the Pandavas in the Hindu epic, Mahabharata. She is described to be the most beautiful woman of her time
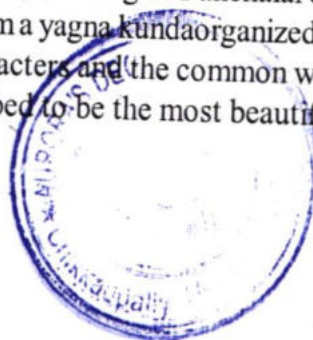
and was prophesied to bring a major change in the future. She was famously outspoken and independent, and she condemned those who maltreated her family. In some places she is revered as a goddess in her own right.Arjuna, one of the five Pandavas, won her in swayamvaram with a great archery feet and hand in marriage. she married all five brothers, panchapandavasbecause of her mother-in-law's misunderstanding that Arjuna won "something". After facing problems created by her polyandry, she became the empress of Indraprastha. She had five sons, one from each Pandava, who were collectively addressed as the Upapandavas.

Yudhishthira, the emperor of Indraprastha, performed the Rajasuya Yajna, he was invited to play a gambling game in Hastinapura. After he lost Draupadi in the game, Dushasana tried to disrobe Draupadi but Krishna saved her.

Draupadi went for an exile of 13 years along with her husbands in a forest. For the last year, in whichall pandavas and Draupadi required to go, incognito. Draupadi disguised herself as a maid and served Sudeshna, the queen of Matsyakingdom. Kichaka, the brother of Sudeshna and the general of the kingdom, tried to love her, but he was killed by Bhima. After the Kurukshetra War, the revenge for her humiliation was taken by Bhima and Sahadeva. she lost her father, brothers and her five children in the battle. At the end of the epic, Pandavas and Draupadi retired to Himalayas and walked to heaven.Here, Draupadi's pious behaviour, endurance and selflessness admired by all

Sita

Sita was the adopted daughter of Janaka, the king of MithilaNagaram.Sita was the wife of Sri Rama, the incarnation lordSrimahaVishnu.Rama won Sita in the swayamvaram. she joined Rama was sentenced to a fourteen-year exile along with his brother Lakshmana, despite Rama's wish for her to remain was in exile for thirteen years in his father's kingdom, Ayodhya, ButSita did not accept and wants to go along with Rama to forest.

In the forest, the demon, Surpanaka , wants to marry Rama , its failed. Sita got kidnapped by Ravana, king of Lanka nagaramand imprisoned Sita in a garden within the golden city of Lanka. Eventually, she was rescued by Rama, who killsRavana in the war. Rama asked Sita to undergo an Agni Pariksha (trial by fire) to prove her chastity, and both return with Lakshmana to Ayodhya, where Rama was crowned King. When a dhobi casted doubts on her chastity, Rama had no choice but to exile his pregnant wife to the forest to please his citizens. Sita gave birth to twins Lava and Kusha in the hermitage of the sage, Valmiki, who protected her. Her sons grew and reunited with Rama, Sita chose to return to the womb of her mother, Bhûmi, the Earth goddess.

Sita is equilibrium of womanhood. Her affection, love,loyalty, sensitivity, decision making, determination, strength on multi levels, thoughtfulness, broadness of mind to understand other person all these qualities the nature's gift to womanhood is reflected in her life and behaviour. She was the energy manifestation of earth element. Adversities, problems that a woman faces she faced them with dignity. So Sita is easier to relate with everyone and

every relation she lived with its grandeur. Birth to exit the life Sita lived needs strength of character, power, bravery, patience, forgiveness, empathy and every other character stick that an ideal princess, queen, mother needs.

She is the best example to follow for all the women whose husbands take the wrong path, be it women, wine or wealth. One may or may not succeed. Still, one should not give up doing the right thing.

Tara

Tara was the Queen of Kishkindha and wife of monkey king, Vali. After Vali is presumed dead in a battle with a demon, his brother Sugriva becomes the king and appropriates Tara; however, Vali returns and regains Tara and exiles his brother, accusing him of treachery and also appropriates Sugriva's wife Ruma.

When Sugriva challenged Vali to a duelfight , Tara advised Vali not to accept because of the former's alliance with Rama, but Vali does not heed her and deceptively dies from Rama's arrow shot by Sugriva. In his dying breath, Vali reconciles with Sugriva and instructs him to follow Tara's wise counsel in all matters. While in most vernacular versions, Tara casts a curse on Rama by the power of her chastity, in some versions, Rama enlightens Tara. Sugriva returns to the throne, but spends his time carousing often with now his current chief queen Tara and fails to act on his promise to assist Rama in recovering his kidnapped wife, Sita. Tara was then instrumental in tactfully reconciling Rama with Sugriva after pacifying Lakshmana, Rama's brother, who was about to destroy Kishkinda in retribution for Sugriva's perceived treachery. Tara was the most intelligent of the five kanyas. Taraspeeks in the most diplomatic way. Ramayana admires her for intelligence, loyalty and courage.

Mandodari

The last of the Panchakanyas is Mandodari. Mandodari is the daughter of Mayasura, the king of the Asuras. He rescued a beautiful girl child from the well. Mayasuraand his wifeHema, adopted and named her Mandodari. She was taught the aspects of architecture by King Mayasura. He taught Mandodari about the various landforms of Bharatavarsham which were Swarga (heavenly plateaus), Bhoomi (plains) and Patala (underworld). OnceRavana, the king of rakshasas comes to the house of Mayasura and falls in love with Mandodari and then married Mandodari. Meghanada (Indrajit), Atikaya and Akshayakumara are the sons of Ravanasura and Mandodari.

It is a very easy to be a devoted wife (Pativratha) if one has a good husband. What should a woman do if the man takes the wrong path, especially regarding women? Ravana was known to satisfy his lust with any woman he wanted to. It must have been very sad to Mandodari, even in those days when women accepted polygamy.

Valmiki's Ramayana describes Mandodari as a very beautiful, pious and noblewoman whose appearance once led even Hanuman to mistake her for Sita. She was known to be extremely patient with Ravana's attitude towards women, but always questioning his actions

and rebuking his choices. Mandodari's purpose in the epic Ramayana is to show how even though she stood behind Ravana because of duty, she did not condone his actions or go along with them. When Ravana kidnapped Sita, Mandodari was the first one to tell him that he must repent and take Sita back to Rama, or will face terrible consequences so, as a chaste women she had given all possible advices to her husband in terrific situations too..

Kunthi

In some conditions Kunthi is also in the Panchakanya instead of Sita. Kunthi was the daughter of the Yadava king Shurasena and was adopted by the childless Kuntibhoja, king of Kunti Kingdom. Kunthi did many services to Durvasamaharshi, as a result he had given a boon to her.SageDurvasa granted her a mantra by which she could summon a god and have a child by him. She tests the boon on the sun god, Surya, resulting in a son named Karna, whom she abandons in a panic. Kunthi chose Pandu as her husband in her swayamvara. Pandu was cursed by a sage that sleeping with a woman will result in his immediate death. Kunthi uses Durvasa's boon to mother. Yudhishthira from Dharma Raja, then Bhima from Vayu, and thirdly Arjuna from Indra. Her co-wife, Madri, bore the twins, Nakula and Sahadeva, from the Ashwins. After the deaths of Pandu and Madri, Kunthi returned to Hastinapur and takes care of the five Pandavas.Kunti befriended Vidura, stepbrother of Pandu and the advisor of the king. She prevented Bhima from killing the Rakshasa,Hidimbi, and told him to marry her, they beget a son named Ghatotkacha. Though she did order Bhima to kill Rakshasa, Bakasura, and instructed her children to take care of the common people. When Arjuna won Draupadi, its Kunthi , who informed informedthat the brothers to share her. When Pandavas are sent to 12-year exile when defeated in a game of dice by the Kauravas, Kunti stayed in Vidura's refuge. When an epic war between Pandavas and Kauaravas is to ensue, Kunti revealed to Karna - now a Kaurava general - about being his mother and got him to promise her that he would not kill any other Pandava, except Arjuna. After the war, in which the Kauravas and Karna were killed, Kunti with the parents of Kauravas left for the forest and spent rest of her life in prayer. She was killed in a forest fire and attained heaven

Thus, all the five women, titled PanchaKanyas, led extraordinary lives and faced the situations rather than running away or succumbing. These five women reflect different aspects of divinity.Remind them of the power they symbolized.Hence remembering them always is good.These panchakanyas storyis not just about, what happened to them and how these women dealt with it but more like what the today' s women must learnt from them is very important.

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2. Festivals

The western culture is affecting on the Indian festivals from numerous points of view as well. All Indians extraordinarily praise their celebrations consistently and appreciate them in particular. Today, expansive quantities of individuals in India are not praising their own celebrations like Holi or Diwali; however, they are commending a greater amount of western cultures like Christmas or Halloween. Likewise, in the Indian religion, no kid or young lady are permitted to date each other be that as it may, today in India, numerous youths are infringing upon these laws and are observing Valentine's Day and are not ready of their religion and this is diminishing the estimation of the Indian religion for them.

3. Foods

The Indian plate has invited numerous western foods (e.g. pizza, burgers, steak tacos and so forth.), and Indian foods like Golgapa, curry and so on., are as a rule less well known in India, however are getting to be distinctly regular in Europe while the western foods are becoming more grounded and are turning out to be more mainstream in India. Western foods contain excessive fat and this brings about the stoutness rate in India to increment. In the Indian religion, you are not permitted to eat pork or meat in any case, since the western foods have kicked in, numerous Indians are no longer regarding their religion and are eating things against their religion. This is bringing about the estimation of the Indian religion to diminish and is changing many individuals' ways of life. Today in India, there are more western restaurants like KFC or Mac Donald's contrasted with the Indian restaurants.

4. Languages

In country like India, there are many languages spoken. There are so many people with different mother tongues are seen in our country. Of course, to get a good job, you should know the basic language (English) or other extra ones. Such a variety of individuals today are concentrating on these languages and are disregarding their mother tongue hence, this is making their religion less important.

5. People and their Lifestyles

The impact of westernization has brought so many changes in the lifestyle of the consumers. Most things have changed like regard to the youthful ones and senior citizens, significance of a family, marriage making, clothing, festivals, foods, names, languages and not withstanding getting a plastic surgery to look more western. Individuals are changing themselves and are attempting to adjust like western people. Westernization is likewise diminishing the fairness of ways of life in India. In the Indian culture, so as to visit a sanctuary, you should have the correct garments in spite of the fact that, it is stunning to see that today; there are numerous youngsters who are dressing as present day individuals' e.g. upscale hair styles, pants, tee shirts and so
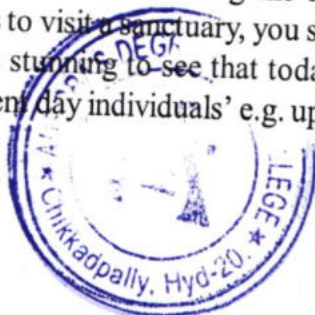
forth. When entering a sanctuary. In the Indian culture, individuals had regard for the youthful and senior citizens be that as it may, since the western culture has arrived, the regard had gone and now the practices of many people have changed.

Impacts of westernization – Positive Results

➢ **Modernization**

The impact of west has affected the people of India in negative way such has likewise impacted India from numerous points of view as well. For instance, it is making India more modern. The Indian culture is an exceptionally old culture and is remaining the same be that as it may, now the western culture is transforming it to wind up more modern. Today, the western media is currently making many individuals in India particularly young people dressing all the more currently like pants, tee shirts and so on. Modernization has additionally empowered to build the economic growth of India.

➢ **Public Health**

The western impact has influenced and brought many positive changes in the health of the people. Numerous western doctors have moved into India and have made prescriptions which have diminished sicknesses, diseases in large parts in light of the fact that human services has become accessible.

➢ **Labour**

The presence of western traders in India has expanded the requests for goods and services in India. Hence, most of the Indian labours have changed themselves and utilized all the changes. These craftsman's and experts have developed in numbers and now the Indian work drive and get to be more skilled and handy.

➢ **Education**

Westernization has additionally profited ranges of instruction in India. At the point when the British involved India, they manufacture many schools all through the nation and this

➢ **Films and movies**

Westernization has got media too India. For instance, in America, India now has a renowned film making media called "Bollywood" which originated from Hollywood in America. Bollywood's movies now customarily highlight India, its culture, tradition and religion. Bollywood is presently tranquil famous in India and many individuals think about it. So, media in India has additionally enhanced due toward the western culture.

So is westernization something worth being thankful for or a terrible thing?

Westernization has brought many negative effects on India anyway; it has brought many advantages also in spite of the fact that, there are more preferences of

westernization compared to the disadvantages. Still, India ought to deal with this globalization in light of the fact that later on, it will change India and annihilate its religion, culture and custom.

"Civilization is what we have, culture is what we are" Sarvepalli Radhakrishnan. India is a country with a remarkable character among the world countries. Since any country will have a solitary convention and culture however we are the country with different customs and multicultural. The things which delineate Indian culture are its Dance and Music, Literature of India and many more. Because of globalization, a few things invested into India from the western world. These things acquired an extraordinary change certain normal angles like sustenance propensities and dress wear. Obviously wearing the dress which we feel good may not be an offense but rather disregarding the things like conventional wear on celebrations and propitious events ought to be considered with genuine consideration. Aside from these two, we are disregarding numerous things which were once considered as novel gifts of India.

Movie—India had diverse styles of dances like Bharatanatyam, Kathakali, Odissi, Kuchapudi, and Manipuri etc. Certain individuals considered these as their calling and used to acquire their living by giving exhibitions in assembly rooms. Comparative is the situation with music.

Music—no chance sub-par compared to western music India has its own vocal and instrumental music. The vocal incorporates Carnatic and Hindustani styles. The instrumental incorporates veena (frequently eluded as relationship to goddess Saraswati), tambala, mridangam and shehnai. Nowadays the educators of these instruments are stating that the instrument veena isn't drawing in more understudies since understudies are feeling it is excessively heavy in making it impossible to send from different places.

➢ Technology

Technological changes are showing good results. In this competitive world in order to with stand themselves in the market with lot of competitors the business man or the industrialists are going for the latest equipments or implementing the changed version of technology. They are able to meet the mindset of the customers. It is having a positive impact on the society.

➢ Banking and Insurance

Banking is a sector which has been introduced by the government to mobilise savings among the people. Majority of them are going for the concept of savings. People have an idea that if they save today it is useful for them in the future. At the same time we have insurance for both living as well as for the trade.

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Findings as listed below :

➤ There is a lot of change in the consumption of the food amongst the youth which is not seen in the elder people.

➤ To most of the extent people are trying to wear clothes as per their choices because they say they are comfortable in the latest fashions like jeans, skrits t- shirts etc.

➤ Majority of the youth is showing interest in the nuclear families rather than joint families.

➤ Technology is improving for a good reason.

➤ Education system is suffering with a change from Gurukuls to b schools and AC Class rooms.

➤ Most of the youth prefer for allopathy instead of ayurvedic, unani and homeopathy.

➤ The value system is deteriorating in the youth because of the way they are bought up.

➤ Child caring is from crutches but it is not under the supervision of parents or grandparents.

➤ Youth are tending to speak other languages instead of their mother tongue.

➤ Least preference is given to the culture.

➤ Social media is having a negative impact on the youth.

➤ There is a lot of change in the marriage system because of which most of the couples are going for divorces.

➤ The life style and spending pattern has changed because at present youth doesn't know the value of money.

➤ The commitment levels are very less because they want money on the day one they complete their education.

➤ The concepts of old age homes are increasing because there is no bounding relation between children and the parents.

➤ **Conclusion**

Too much of change is observed on variety items that have been selected for the study. Change for a good cause is always accepted but the changes showing a negative impact may spoil or affect the society.

POSITION OF WOMEN – ANCIENT SOCIETY TO MODERN SOCIETY

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Abstract

The main aim of the paper is to understand the position of women from ancient society to modern society. For ages, women have had played a key role in the reforming of society. In Vedas, Scriptures, Upanishads too the rights of the women were mentioned. Women in Puranas, Epics, Vedas (Rishikas) have earned a high position and esteemed power in their endeavors. Women from times have exhibited their capability and potential as multi taskers, in all fields of work, let it be house chores, business, politics, education, science, law, and sports. Education to the girl child and women can bring in a great and prospective change in and to the society.

Keywords: Ancient society, Modern society, women, prospective society, girl child, Puranas, epics, business, education

"The hand that rocks the cradle rules the world." — Albert Einstein, renowned theoretical physicist

Albert Einstein said, "The woman who follows the crowd will usually go no further than the crowd. The woman who walks alone is likely to find herself in places no one has ever been before".

Women can be defined as will powered, observant, motivational, and empowered, and noble. Apart from these words fall short in describing the capabilities and power of a woman. Women in past as well as in the present are astute, who always had a clever solution to problems based on their sharp perception.

Celebrating Women's Day is the most amazing thing God has created for the welfare of the world. In the past, it was always that men dominated women despite of their intellectuality. Though women had the potential to drive society towards a better future, women were dominated and not provided proper and complete education. Women, despite of many hurdles, ran the family and always stood by both the family and society with great insights into the problems and way of life.

Society is incomplete without a woman. Women have always been the chief support in the distinguished society. Women from ancient times have been provided opportunities in

attaining high spiritual and intellectual standards. Scriptures like Rig Veda and Upanishads have mentioned several sage seers like Gargi and Maitreyi. Women were given freedom in family matters and were treated as 'Arthanginis', which means better half.

It can be observed in ancient times, where Upanishads include a conversation between Yajnavalkya and one of his two wives Maitreyi over the division of property at a decision by the sage in the renunciation of the world.

Though male children were preferred over daughters, they were never ill-treated. They too received education to an extent like boys. Women like Lopamudra, Ghosa, and many figures among the women who studied the Vedic Literature and authored Vedic hymns. From ages, if the timeline is observed, women were given a choice of getting married, and if willing used to get married after the completion of their education which can be observed even in the present women of the society.

Apart from education and marriage, women also enjoyed economic and occupational freedom, which is prevalent even in the present times. In Rig Veda, it is mentioned that the daughter retained her right of inheritance and also could take the place of the son. As declared by the Supreme Court recently that the daughters too had equaled rights in the inheritance of the property. In Smritis too it was mentioned that women were permitted to have their property which in turn was coined as 'Stridhan'.

During the medieval period, the ownership of women's share of the property (Stridhan) was questioned. Few women like Prabhavati Gupta, daughter of King Samudra Gupta rebelled and held the property of her. Apart from the financial inheritance of the property, women engaged themselves in teaching and working in the production like spinning and weaving of clothes etc, and also helped in farming.

Not only but also in various historical aspects, women of Epic also have been portrayed and given great respect. Women like Kaikeyi, Sita, Rukmini, Savitri, Draupadi, Satyabhama, and many others stood examples for the expressions of courage, strong will power, valor, dutifulness, womanhood, and attitude of behavior towards husband. Women in Dharmasastras and Puranas were portrayed as deprived of formal education and freedom of women was also syncopated. Manu mentioned that "women have to be under father during childhood, in youth under the husband, and old age under her son". At no time shall she deserve freedom.

Keenly if observed, of the 407 sages of Rigveda, 21 of them are women and many significant hymns have been composed by women. Several mantras from Yajurveda, like Shukla Yajurveda (5.17) were recited by women. The recitation of Samaveda was often accompanied by the playing of instruments by women. It is nothing in exaggeration to say that the existence of Gods and Goddesses portray an example of fact that both males and females having equal responsibilities in the reflection in life and on society. Hence it can be very well symbolized to the two wheels of the chariot which are life and living. In other Vedas too there is a mention of the equality of women in all fields.
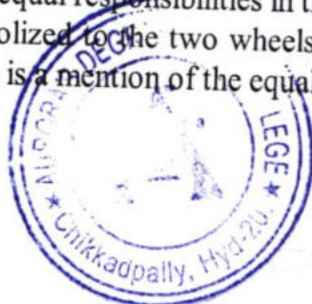
The two verses cited in the hymn 179 of Rig Veda are examples that portrait Lopamudra as one of the greatest philosophers of Vedic times and depict that women had an equal right to education. A drastic change in the acceptance and participation of women in society and government can be observed through the timeline.

In contrast and with few similarities to the ancient women a massive drive in the change concerning to the women in all ways of life can be noticed and observed. Women then and now had always a vision and mission. The women in modern society have moved forward, where they have stopped being slaves or mellowed women, but proved themselves at a stage equal and more powerful than men in all areas and sectors.

Women in the present society have transformed themselves and set an example in proving that women are no more under the shadows of men. Despite of many changes and striving through times, still in many phases women are being treated inferior to men regardless of education and profession. Despite of great progress in society, though not as much as in the past, still a prevalence of gender inequality in the workplace and other areas can be observed. The probable reason for a huge gap in the thought of men and society still is the lack of proper education about problems between men and women.

The roles of women in society are primarily associated with the social, political, economic, cultural and, religious spheres. It is not to hyperbole and state that there has been a huge transformation in the role played by women when compared to the past in all spheres where they have exemplified themselves by generating awareness to the society by their participation in various fields the society, overcoming the barriers encountered.

In modern society, women have proved to be self-sufficient, financially independent and, also have achieved success in every field, whether in sports, academics, law, sports, business, education, or politics. Despite of all such achievements and high place attained in all the varied fields, it is accurate and right to say that women were and are a loving wife, an adorable sibling, a caring mother, and a responsible daughter carrying out their responsibilities and duties.

It can be said that women in modern society along with the house chores have been successful in multitasking and are more focused and are much capable of unique decision making, withstanding the hurdles of power, handling tough situations both at home and workplace. Women also have accelerated themselves from housewives to CEO with a gradual acceleration in the latest technology.

Last but not least, it can be said that empowering and respecting women can help the society to grow, develop and, redesign into a better nation.
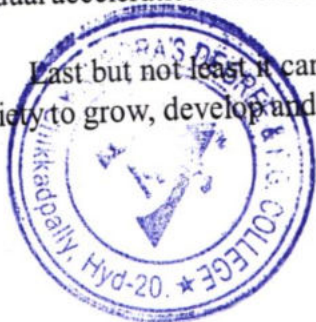
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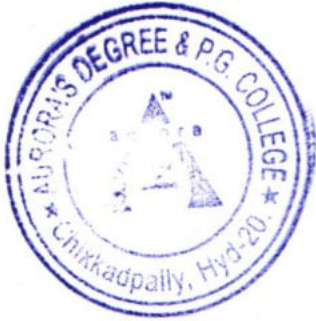
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CONTENT

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Chapter – 4

MULTI-DIMENSIONAL VISUAL STIMULI OF FACE

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Abstract:

The human face provides us with valuable information about the identity of an individual and about their sex, race, appearance, age, and current mood. Models of face recognition, encompass the broad range of tasks and include pre-processing steps aimed toward aligning facial images. Categorization and facial expression analysis models are implemented generally with deep network algorithms that learn the mapping between faces represented in their coordinates in the space and a category or an encoding. Over the past few decades, interest in theories and algorithms for face recognition has been growing rapidly. Video surveillance, criminal identification, building access control, and automated and autonomous vehicles are just a couple of samples of concrete applications that are gaining attraction among industries. Various techniques are being developed including local, holistic, and hybrid approaches which give a face image description using only a couple of face image features or the entire countenance.

Key words : Face recognition, facial expression analysis, network algorithms and 3D modelling

. . . .

Introduction

Faces are multi-dimensional visual stimuli, providing a broad range of data to an observer. This information is often organized into two major categories: face traits and face states. Face traits refer to the visual information in the face that is relatively permanent and stable. These traits include: faceness (face or non-face); species (e.g. humans or dogs); gender (male or female); race (e.g. Chinese or Caucasian); aesthetics (attractive or unattractive); age (old or young); and identity (e.g. John or Mary). Face states refer to dynamic and transient facial cues. Face state information is employed to process speech, emotional expressions, attention, and intentions. With reference to featural face processing, the developmental story is that

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featural processing of faces because at birth, a few days, new borns and young infants attending more to the outer region, rather than internal face features (eyes, nose, and mouth). The latter begins about 2-3 months aged. New-born recognition of the maternal face often disrupted by removing the hairline, suggesting that primitive facial identity is processed on both the inner and outer facial features, with the outer contour dominating initially.

Facial recognition may be a way of recognizing a person's face through technology. A face recognition system uses biometrics to map facial features from a photograph or video. It compares the information with a database of known faces to seek out a match. Facial recognition can help verify personal identity, but it also raises privacy issues. Many scientists and engineers around the world have focused on establishing increasingly robust and accurate algorithms and methods for these sorts of systems and their application in lifestyle. All kinds of security systems must protect all personal data. The foremost commonly used type for recognition is the password. However, through the event of data technologies and security algorithms, many systems are starting to use many biometric factors for recognition task. These biometric factors make it possible to spot people's identity by their physiological or behavioural characteristics. They also provide several advantages, for instance, the presence of an individual ahead of the sensor is sufficient, and there is no more need to remember several passwords or confidential codes anymore. In this context, many recognition systems based on different biometric factors such as iris, fingerprints, voice, and face have been developed in recent years.

Systems that identify people supported their biological characteristics are very attractive because they are easy to use. The face consists of various structures and characteristics. For this reason, in recent years, it has become one among the foremost widely used biometric identification systems, given its potential in many applications and fields (surveillance, home security, border control, and so on). Facial recognition system as an ID identifier is already being offered to consumers outside of phones, including at airport check-ins, sports stadiums, and concerts. Additionally, this system does not require the intervention of individuals to work, which makes it possible to spot people only from images obtained from the camera. In addition, many biometric systems that are developed using different types of search provide good identification accuracy. However, it
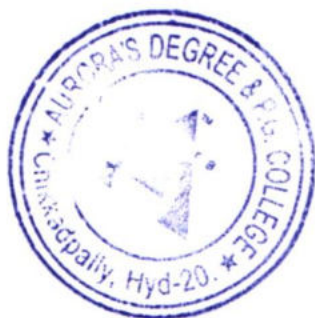
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might be interesting to discover new biometric systems for face recognition so as to succeed in real time constraints.

There are many computer vision approaches proposed to deal with face detection or recognition tasks with high robustness and discrimination likelocal, subspace, and hybrid approaches. However, several issues still need to be addressed owing to various challenges such as head orientation, lighting conditions, and facial expression. The foremost interesting techniques are developed to face all these challenges, and thus develop reliable face recognition systems. Nevertheless, they require high processing time, high memory consumption, and are relatively complex. Rapid advances in technologies likedigital cameras, portable devices, and increased demand for security make the face recognition system one among the first biometric technologies.Different types of sensors, including RGB, depth, EEG, thermal, and wearable inertial sensors, are used to obtain data.

These sensors may provide extra information and help the face recognition systems to spot face images in both static images and video sequences. Moreover, three categories of sensors that may improve the reliability and the accuracy of a face recognition system by tackling the challenges include illumination variation, head pose, and facial expression in pure image/video processing. The primary group is non-visual sensors, like audio, depth, and EEG sensors, which provide extra information in addition to the visual dimension and improve the recognition reliability, for instance, in illumination variation and position shift situation. The second is detailed face sensors, which detect a small dynamic change of a face component, such as eye-trackers, which may help differentiate the background noise and the face images. The last is target-focused sensors, such as infrared thermal sensors, which mayfacilitate the face recognition systems to filter useless visual contents and may help to balance illumination variation.

Three basic steps are used to develop a strong face recognition system: (1) face detection, (2) feature extraction, and (3) face recognition. The face detection step is employed to detect and locate the human face image obtained by the system. The feature extraction step is employed to extract the feature vectors for any human face located in the first step. Finally, the face recognition step includes the features extracted from the human face so as to match it with all template face databases to decide the human face identity(Figure 1

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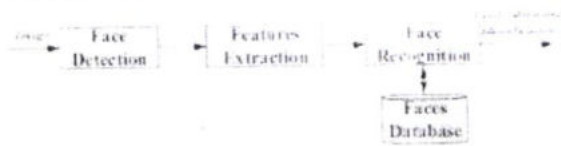
Figure1: Face recognition structure

OBJECTIVE:

The objective of developing biometric applications, like facial recognition, has recently become important in smart cities. The main
• objective of these approaches is to get distinctive features. Generally, these approaches are often divided into two categories. (1) local appearance-based techniques are used to extract local features, while the face image is divided into small regions. (2) Key points based techniques are used to detect the points of interest within the face image, after which the features localized on these points are extracted.

Background

In citizens it's the loss of the main which is better for recognition of faces. The neurons of the temporal lobe respond to certain features of the face and store them eventually resulting in face identification. In machine learning system, the machines are often fed an enormous bank of images which the system absorbs and stores. When a face is to be matched, it tries matching it with the stored images using face recognition algorithm.

So how does facial recognition work? Technologies vary, but here are the essential steps:

Step 1 : An image of your face is captured from a photograph or video. Your face might appear alone or in a crowd. Your image may show you looking straight ahead or nearly in profile.

Step 2 : Facial recognition software reads the geometry of your face. Key factors include the space between your eyes and therefore the distance from forehead to chin. The software identifies facial landmarks. one system identifies 68 of them that are key to distinguishing your face. The result: your facial signature.

Step 3 : Your facial signature a mathematical formula is compared to a database of known faces.

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Step 4   A determination is made. Your face print may match that of a picture during a facial recognition system database.

The **face detection** process is an essential step as it detects and locates human faces in images and videos. The **face capture** process transforms analogue information (a face) into a set of digital information (data) based on the person's facial features. The **face match** process verifies if two faces belong to the same person. Today it's considered to be the most natural of all biometric measurements. And for a good reason we recognize ourselves not by looking at our fingerprints or irises, for example, but by looking at our faces. Biometrics are used to identify and authenticate a person using a set of recognizable and verifiable data unique and specific to that person. In the case of facial biometrics, a 2D or 3D sensor "captures" a face. It then transforms it into digital data by applying an **algorithm** before comparing the image captured to those held in a database. These automated systems can be used to identify or check the identity of individuals in just a few seconds based on their **facial features**: spacing of the eyes, bridge of the nose, the contour of the lips, ears, chin, etc. Of course, other signatures via the human body also exist, such as fingerprints, iris scans, voice recognition, digitization of veins in the palm, and behavioral measurements.

Facial emotion detection and recognition: Emotion recognition (from real-time or static images) is the process of mapping facial expressions to **identify emotions** such as disgust, joy, anger, surprise, fear, or sadness on a human face with image processing software. Its popularity comes from the vast areas of potential applications. It's different from facial recognition which goal is to identify a person, not an emotion. Face expression may be represented by geometric or appearance features, parameters extracted from transformed images such as Eigen faces, dynamic models, and 3D models.

Local Appearance-Based Techniques : It is a geometrical technique, also called feature or analytic technique. In this case, the face image is represented by a set of distinctive vectors with low dimensions or small regions (patches). Local appearance-based techniques focus on critical points of the face such as the nose, mouth, and eyes to generate more details. Also, it takes into account the particularity of the face as a natural form to identify and use a reduced number of parameters. In addition, these techniques describe the local features through pixel orientations, histograms, geometric properties, and

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correlation planesoptimized 3D modelling under different illumination conditions, which allows reconstructing faces in different poses. In particular, to deform the synthetic model, an active shape model for detecting a set of key points on the face is proposed in Figure 2

Figure 2. (a) Creation of the 3D face of a person; (b) results of the detection of 27 landmarks of a face using the active shape model; (c) results of the detection of 26 landmarks of a face

The top application categories where facial recognition is being used are:

1. Find missing children and disoriented adults
2. Identify and find exploited children
3. Identify and track criminals
4. Support and accelerate investigations
5. Health
6. Marketing and retail
7. Fraud Detection for Passports and Visas
8. Security - law enforcement

Conclusion

The benefits of facial recognition systems for policing are evident: detection and prevention of crime. Facial recognition is used when issuing identity documents and most often combined with other biometric technologies such as fingerprints. Facial recognition uses algorithms that match physical characteristics against photos or videos

of people's faces. If used correctly and proportionately, facial recognition can help safeguard the public and improve national security on several fronts. Face recognition system is a popular study task in the field of image processing and computer vision, owing to its potentially enormous application as well as its theoretical value. This system is widely deployed in many real world applications such as security, surveillance, homeland security, access control, image search, human-machine, and entertainment. However, these applications pose different challenges such as lighting conditions and facial expressions. This paper highlights the recent research on the 2D or 3D face recognition system, focusing mainly on approaches based on local, holistic (subspace) and hybrid features. A comparative study between these approaches in terms of processing time, complexity, discrimination and robustness is conducted. It was concluded that local feature techniques are the best choice concerning recognition rate, rotation translation invariance and accuracy. We hope that this survey paper will further encourage researchers in this field to participate and pay more attention to the use of local techniques in face recognition systems.

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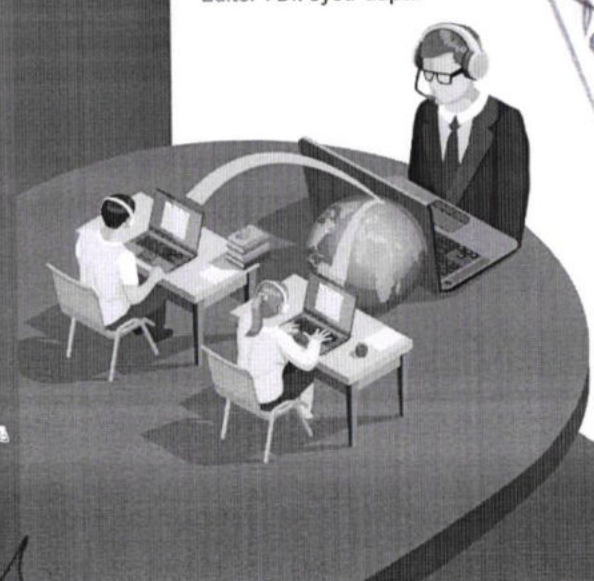
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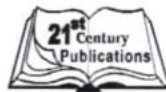
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"Quality is never an accident; it is always the result of intelligent effort" — *John Ruskin*

It gives me an immense pleasure in bringing out this manuscript on The Evolution of Virtual Teaching in Education. This manuscript brings forth the need for evolutionary changes in educational technology and pedagogy leading to revolutionary transformation of education.

For such a nice piece of work incorporated in it, I congratulate all the authors from Panjab University, Guru Nanak Dev University, University of Mumbai, Dibrugarh University, Osmania University and Karpagam Academy of Higher Education from Coimbatore who have contributed their original piece of work in the forms of chapters. The significant contributions of all contributors are acknowledged and well appreciated.

Dr. Jyoti Gupta

PREFACE

A virtual learning environment creates an environment designed to facilitate teachers' management of educational courses, especially a system using both computer hardware and software, which involves distance learning. As teachers and learners will become more technology savvy and as more people will seek learning at their convenience and comfort, the demand for online education in India might rise to strengthen its digital learning infrastructure.

Online education is becoming need of the hour. In today's virtual classrooms, teachers play an essential role in supporting student success and they require a slightly different skill set. Online teachers need to be tech savvy and comfortable with the latest tools and technology. A good teacher must always be ready to keep learning as technology evolves.

Despite the numerous initiatives undertaken by the governmental authorities, e-education continues to pose some challenges. With digital learning, the education sector in India may undergo a positive transformation and likely to see an evolution.

Dr. Jyoti Gupta

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COMPUTATIONAL MODELING AND DATA ANALYSIS IN COVID-19 RESEARCH

Edited by

Chhabi Rani Panigrahi
Bibudhendu Pati
Mamata Rath
Rajkumar Buyya

Computational Modeling and Data Analysis in COVID-19 Research

Book Title

Edited by Chhabi Rani Panigrahi,
Bibudhendu Pati, Mamata Rath
and Rajkumar Buyya

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Contents

Preface

This book covers recent researches on the COVID-19 pandemic. It includes the implementation, analysis, usage, and proposed ideas and models with architecture to handle the COVID-19 outbreak. The chapters are written by leading international researchers from industry, academia, government, and private research institutions, and this book offers a broad view of important developments in COVID-19 research. This book presents:

- An extensive survey on machine learning implementations in COVID-19.
- Recent research results on the proposed topic using emerging technologies such as artificial intelligence, machine learning, data analytics, drone technologies, image processing, IoT, and cloud computing technology.
- A study of mathematical and computational models in the context of COVID-19.

This book will help to expand the reader's knowledge in the application of artificial intelligence to handle the COVID-19 pandemic and to continue their further research in this area.

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friendship and India–International cooperation. He served as the founding Editor-in-Chief of the IEEE Transactions on Cloud Computing. He is currently serving as Co-Editor-in-Chief for the journal *Software: Practice and Experience*, which was established around 50 years ago. For further information on Dr. Buyya, please visit his cyberhome: www.buyya.com

10 A Study on Mathematical and Computational Models in the Context of COVID-19

Dr. Meera Joshi

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10 A Study on Mathematical and Computational Models in the Context of COVID-19

Dr. Meera Joshi

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10.1 INTRODUCTION

The outburst of the COVID-19 pandemic was reported for the first time in December 2019 in the city of Wuhan in China. The COVID-19 ⟨…⟩ the virus, has affected the whole world. Every facet of human life has changed in a shorter span of time than one could ⟨…⟩ hurled at us every day in aspects of the economy, health, and social sectors of society. There is a critical need to ⟨…⟩ Challenges ⟨…⟩ the spread of the pandemic by taking various measures and decisions. In a severe pandemic such as COVID-19, to make a proper ⟨…⟩ economic and medical plan, it is very important to understand the magnitude and propagation of the disease. It is imperative to ⟨…⟩ scientific process which presents the progression of the pandemic and identifies the spread pattern, in order to make decisions ⟨…⟩ to ⟨…⟩ measures and to distribute resources in an optimal manner. The only procedure which is very economical, apart from being highly ⟨…⟩ in nature, is constructing a mathematical model consisting of equations which is analogous to reality. Such a model provides an indispensable framework based on facts and figures, leading to a concrete and practical solution for any type of situation, even one such as the present pandemic scenario of COVID-19. Mathematical models are created in order to meet the abstract, precise, and significant needs of a complex problem. The goal of mathematical modeling is to deduce the structural and functional properties related to understanding the issues of handling difficult real-life situations. The core activity involved in building this type of model is making a set of

basic assumptions about the process by identifying the vital features which impact the phenomenon, and without causing any modifications to the real situation, so that the actual essence of it is preserved. The construction of the model must be refined and vigorous to achieve an evocative conclusion. Though models have limitations, we can rely upon them, as the predictions that emerge from solving a mathematical model are immensely accurate in terms of precision to real situations.

10.1.1 CLASSIFICATION OF MATHEMATICAL MODELS

A mathematical model is a brief comprehension of real situations in life. While studying mathematical models, it is essential to know the classification of the various types of models. Classification of models is required to decide some of the characteristics of their structure. Depending on the type of prediction of outcome, mathematical models are classified as deterministic models, and non-deterministic or stochastic models. In deterministic models, randomness is not considered in the preparation of the mathematical formulation of future circumstances, and the model will generate the same results from given initial conditions every time. A non-deterministic or stochastic model has an inbuilt randomness to it and different outputs can be acquired for the same problem (France and Thornley, 1984). In this chapter, some classical and important types of mathematical frameworks in the context of COVID-19 are studied.

हिंदी साहित्य एवं मानवीय मूल्य

संपादक
डॉ. गणेशचंद्र शिंदे
डॉ. संदीप एस. पाईकराव
डॉ. साईनाथ ग. शाहू

हिंदी दलित कहानियों में बदलते मानवीय मूल्य

डॉ. शिवहर विरादर
असिस्टेंट प्रोफेसर हिंदी,
अरोरा डिग्री कॉलेज, चिक्कड पल्ली,
हैदराबाद, तेलंगाना

जब मनुष्य दूसरों पर राज करने और उसे अपना दास बनाने लगा उसी दिन से शायद पिछड़ी जातियों का जन्म भी हुआ होगा। समाज के विकास की द्वंद्वात्मक भौतिकवाद व्याख्या के अनुसार यह मानव सभ्यता का आदिम साम्य के युग से दास युग की ओर प्रस्थान था अस्पृश्यता, जातीयता, दैन्य जीवन में सामाजिक, आर्थिक, सांस्कृतिक, अन्याय का नाश करने वाला ही दलित साहित्य है। ओमप्रकाश वाल्मीकि जी का कहना है कि, 'व्यथित को मुक्त करने वाला साहित्य ही दलित साहित्य है?'

आधुनिक हिंदी दलित कहानियों में बदलते मूल्य, दलित कहानीकारों ने कहानियों के माध्यम से सामाजिक परिवर्तन लाने का आह्वान करते हैं। अतः दलितों के समान में आए बदलाव, उनके विद्रोह, आक्रोश को निम्नलिखित कहानियों के माध्यम से दिखाना ही मेरे प्रबन्ध का उद्देश्य है। बुद्ध शरणं हंस दलित साहित्य आंदोलन के एक सशक्त रचनाकार माने जाते हैं। उनकी कहानी 'बुद्ध शरणं गच्छामि' ब्राह्मणवाद के विरोध का एक साश्वत उदाहरणमानी जाती है। जगजीवन नगर मुहल्ले में कोई सुधार के काम नहीं हुए इस विचार पर मुहल्ले के कुछ प्रमुखों के विचार-विमर्श के साथ कहानी आगे बढ़ती है। कुंदन और कमली और लोगों के प्रयास से अंबेडकर भवन में सभा संपन्न हो जाती है। इस सभा में दुर्गा देवी मंदिर में जो ब्राह्मण पर उन्हें हटाने के बदले विद्यालय खोलने का निर्णय होता है। कुंदन कहता है कि उपाय आसान है, 'असहयोग' हम मंदिर और ब्राह्मण दोनों का असहयोग करेंगे, विरोध नहीं करेंगे। विरोध से बात बिगड़ती है, असहयोग से बनती है।' उस दिन से मंदिर में मुल्लेवाले जाना बंद कर देते हैं। इससे पंडित धीरुपुर परेशान होकर मंदिर बंद कर देता है। दुर्गा मंदिर पर नवयुवक कब्जा करके वहां 'रविदास शिक्षा सदन' का बोर्ड लटकाते हैं। अपने समाज के नेताओं की तस्वीर रंगाते हैं।

'माता का भार' कहानी में भी लेखक बुद्ध शरणं हंस ने दलितों द्वारा परंपरा थोड़ी है। इस कहानी में ब्राह्मणों के गांव कमलापुर के हुच्चा मिश्र की गाय मर जाती है। उसे उठाकर फेंकने के लिए सुखदेव ठोल जहाँ चमार रहते हैं के युवक मना कर देते हैं। उसी टोला के कमल ने अंग्रेजी में बी.ए. पास किया है। कमल कमलापुर के ब्राह्मणों को समझता है कि हम लोगों ने यह सब परंपरागत काम छोड़ दिए हैं। ब्राह्मण सब मरी गाय कोगढ़े में डालते हैं। गाय के साथ-साथ ब्राह्मणवाद दफन हो गया।

ओमप्रकाश वाल्मीकि जी की कहानी 'घुसपैठिये' दलित युवकों के संघर्ष और सवर्णों के प्रति विद्रोह की कहानी है। इस कहानी में भारतीय समाज के अंतर्गत शिक्षा के क्षेत्र में होनेवाले अन्याय का चित्रण किया गया है। दलित छात्रों के लिए प्रयुक्त आरक्षण में ही उच्च वर्ग के छात्रों का प्रवेश होना आदि बातें इस कहानी में प्रयुक्त की गयी हैं। इस कहानी का प्रमुख पात्र है, राकेश दलित होने के कारण महाविद्यालय के मेरा में उसे अलग बैठना पड़ता है। उसे हीन भावना से देखा जाता है। इन सभी अन्यायों का विरोध करनेवालों को रैगिंग का नाम लेकर चुप कराया जाता है। राकेश एक दफ्तर में काम करने लगता है। दलित होने के नाते दलितों के प्रति सहानुभूति प्रकट करता है और उनकी सहायता करता रहता है। एक दिन उसे पता चलता है कि सोनिका और सुनीता की मृत्यु हो गई है। परन्तु असल में उन दोनों की हत्या हुई थी, लेकिन सवर्ण लोगों ने सुनीता का नाम देकर इस हादसे को छिपा दिया दलित छात्र और राकेश मिलकर इसका विरोध करते हैं। इस कहानी के माध्यम से लेखक ने दलितों के अंदर जगी हुई विद्रोह भावना को दर्शाया है और अपने हक के लिए संघर्ष भी दिखाया है।

वाल्मीकि जी द्वारा लिखित कहानी 'मैं ब्राह्मण नहीं हूँ' में नयी पीढ़ी द्वारा छुआ-छूत के बंधनों को तोड़ा गया है। इस कहानी में मोहनलाल शर्मा और गुलजारी लाल शर्मा पड़ोसी होने के नाते अच्छे मित्र बन जाते हैं। इसी मित्रता की आगे बढ़ते हुए मोहन लाल के बेटे अमित का गुलजारी लाल की बेटी के साथ विवाह तय हो जाता है। बीच में अचानक गुलजारी लाल के ब्राह्मण न होने का पता चलता है। तो दोनों बनाए हुए संबंध को तोड़ना चाहते हैं। लेकिन अमित इस बात से विचलित नहीं होता क्योंकि वह आधुनिक युग का खुले विचारों वाला युवक है जिसके कारण इन दोनों को शादी से कोई समस्या नहीं है। इस कहानी के कहानीकार ने यह सच कह दिया है कि छुआ-छूत के बंधनों को तोड़ना मात्र नई पीढ़ी के हाथ में है।

सुशीला टाकभौरे जी कही कहानी 'सिलिया' में छुआ-छूत, असमानता की भावना आदि समस्याओं को उठाया गया है। यह कहानी एक दलित कन्या सिलिया की है जो आत्मविश्वास के साथ पढ़ाई कर अपने समाज को सुधारना चाहती है। वह अपने समाज को उन्नति की ओर ले जानेके लिए प्रयत्नशील है, वह समाज से जातिभेद मिटाना चाहती है। इस प्रकार इस कहानी में छुआछूत और असमानता का चित्रण कर शिक्षा का महत्व बतावया है। अच्छे भी हैं, जो दलितों की सहायता के लिए प्रेरणा देते... सुशीला टाकभौरे की एक अन्य कहानी 'संघर्ष' में शंकर नामचौक के दलित

होने के कारण बहुत संघर्ष करना पड़ता है। गाँव के कुछ लोग उनको अछूत मानते हैं, वह उसे अच्छा नहीं लगता शंकर के भिन्न उसके घर के अंदर जाने और अपने घरों से भर भगाते हैं। इस आसमान के बदले में वह जान-बूझकर उन लोगों के घर के अंदर प्रवेश करता है। हुआ-छूत मानने वाले लड़कों से बदला लेना चाहते हैं। राह में चलते समय शंकर अपने अपने सवर्ण मित्रों को अपनी टांग अड़ाकर गिराकर मन ही मन खुश हो जाता है।

ओमप्रकाश वाल्मीकि द्वारा लिखित कहानी 'शवयात्रा' में सुरजा के द्वारा पक्का मकान बनाना गाँव के प्रधान बलराम सिंह को अच्छा नहीं लगता। उनका कहना था कि, "ऊंटी में चार पैसे आ आ गए तो अपनी औकात भूल गए। बल्हारों को यहाँ इसीलिए नहीं बसाया था कि हमारी छाती पर हवेली खड़ी करेंगे।... सिर उठा के खड़ा होने की कोशिश करेंगे तो गाँव से बाहर कर देंगे। बलराम सिंह का एक-एक शब्द तीर की तरह सुरजा पर लगा था। सवर्णों की इस अमानुषीय व्यवहार पर सुरजा को गुस्सा आ गया। उसने अपने बेटे से कहा, "तू सच कहता था करलू गाँव रहने लायक ना है।" आगे चलकर उसमें आत्मविश्वास जागा, "ना बेटे, मकान तो ईंट बनके रहेगा, जान दे दूंगा पर गाँव छोड़के न जाऊंगा। अब दलितों में सवर्णों के विरुद्ध लड़ने की शक्ति आ गई।

'गोहत्या' कहानी में नई पीढ़ी के लोगों में उभरते विद्रोह का चित्रण मिलता है। इस कहानी में सुदका कई सालों से मुखिया के घर का नौकर था। उसकी शादी के बाद सुदका की दुल्हन के रूप रंग और स्वाभिमानी स्वभाव की चर्चा मुखिया जी के कानों तक पहुंच चुकी थी। वे उसे देखने को आतुर हो उठे थे। मुखिया सुदका से कहता है, "सुदका तेरी लुगाई को आए दो महीने हो गए हैं और वह अभी तक हवेली में नहीं आयी। मुखिया की बात सुनकर सुदका खड़ा हो गया। शब्दों को मुँह में चबाते हुए बोला, "वह हवेली नहीं आएगी।" इस बात से नाराज़ होकर मुखिया डांटने लगा तो कमज़ोर पड़ते साहस को समेट और बोला "मुखिया जी काम करता तो दो मुट्ठी चावल देते हो वह हवेली नहीं आएगी। इस प्रकार सुदका मुखिया के विरुद्ध बोलने का साहस करता है।

'परिवर्तन की बात' कहानी में नई पीढ़ी के दलित युवकों के विद्रोह का चित्रण है जिसमें सामाजिक स्थिति, जाता-पात, छुआ-छूत को माननेवाले सवर्णों के विचारों का डटकर विरोध किया गया है। एक गाँव ठाकुर के कुएँ के पास से गाय तोड़ देती है। रघु मरी गाय उठाने के लिए किसान को बुलाव भेजते हैं लेकिन किसान आने से इनकार कर देता है। वह ठाकुर से कहता है, "ठाकुर मैंने और मेरे मोहल्ले के सभी लोगों ने मरे जानवर उठाना बंद कर दिया है। यह मामला थाने तक पहुंचता है। थानेदार आकर किसना को थाने में बंद करने की धमकी देता है तो किसना बताता है, "क्या आप यह चाहते हैं कि हम जीवन भर गाँव के मरे जानवर ही उठाते रहें। हम दूसरे अन्य कार्य

करके पेट भर लेंगे, लेकिन मरा जानवर हम नहीं उठाएंगे। इस प्रकार नयी पीढ़ी के दलित पुरानी नहीन्नदिता का विद्रोह करते हैं।

उपसंहार : अंत में में केवल यह स्पष्ट करना चाहूंगी जातिप्रथा को जड़ से उखाड़ फेंकना ही हमारे समाज का एकमात्र लक्ष्य होना चाहिए। हम किसी भी पात्र को देखें, चाहे वह 'गोहत्या' का सुदका हो या 'परिवर्तन की बात' का किसान इन्होंने समाज में परिवर्तन लाने की बात कहीं है और सवर्णों का डटकर विरोध किया है। लेकिन अभी भी कई जगहों पर दलितों पर अत्याचार उनके साथ हो रहे शोषण के चित्र नज़र आते हैं और यह तभी बदल सकता है जब आज का शिक्षित वर्ग दलितों का खुलकर स्वागत करें और वैसा ही व्यवहार करें जैसा आम मनुष्य के साथ किया जाता है।

संदर्भ

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2. ओमप्रकाश वाल्मीकि, शवयात्रा
3. डॉ. सुशीला टाकभौरे, संघर्ष
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5. ओमप्रकाश वाल्मीकि, घुसपैठिए
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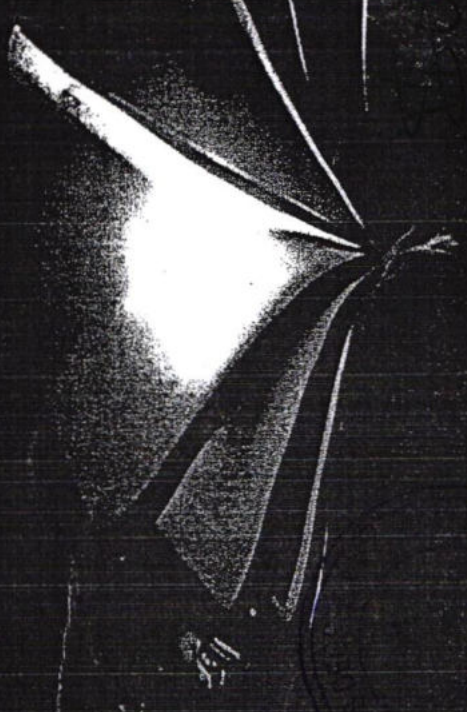7. बुद्ध शरण हंस, बुद्ध शरणं गच्छामि

21वीं सदी में तुलनात्मक साहित्य का महत्व

प्रधान सम्पादक
डॉ. के. माधवी

वी सदी में तुलनात्मक साहित्य का महत्व ● डॉ. के. माधवी

हैदराबाद

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प्रकाशित हिंदी–हिंदी की समस्त प्रतियोगी परीक्षाओं के लिए
र की मंजिलें (काव्य संग्रह)

आधुनिक अरब की एकांकियों में पात्र योजना
हिन्दुनाथ दर्शक के हिंदी नाटकों में यथार्थवादी चेतना
तिम दर्शक, मन्नू, मृच्छ (प्रहसन)
नोरी, मृच्छ के पश्चात मन्नू, मृच्छ (प्रहसन)
र 'वेणु उपन्यास का हिंदी अनुवाद 'सूरा' शीर्षक से
समुक्ता वेणु कहानी संग्रह का हिंदी अनुवाद 'विमुक्ता' शीर्षक से
न–पत्रिकाओं में विभिन्न विषयों पर आलेख प्रकाशित।
ष्ट्रीय–अंतराष्ट्रीय संगोष्ठियों में प्रपत्र वाचन।

पुरस्कार :

तु से हिंदी में अनुवादित विमुक्ता कहानी संग्रह के लिए
काम्मु शिव शंकर रेड्डी स्मारक अनुवाद पुरस्कार प्राप्त

न : तेलुगु, हिंदी और अंग्रेजी।

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समकालीन हिंदी और तेलुगु उपन्यासों में नारी का स्वछन्द रूप

–डॉ राजश्री मोरे

आज नारी वर्ग पर सभी तबके के पुरुष वर्ग की अहम भावना ने अपने पुरुष अहंकार का प्रदर्शन प्रस्तुत किया है। इस प्रकार हम कह सकते हैं कि इस प्रकार की पुरुष भावना ने नारी जाति में आक्रोश को जन्म दिया है। समाज में समता का अवलोकन खंडित हो चुका है। हमारे समाज में शोषण, दमन, अत्याचार जैसी भावनाओं ने घर कर लिया है। इन सब शोषणों से नारी शोषण कुछ भिन्न दिखाई देता है। इसका रूप समझने के लिए हमें साहित्य की ओर दृष्टि दौडानी होगी। नारी समाज का एक अभिन्न अंग अवश्य है परंतु पुरुष समाज इसे स्वीकार करने से इनकार करता है। यही कारण है कि साहित्यकारों को नारी की यह मान्यता पर सोच विचार करने की जरूरत पड़ी है। अतः इसी संदर्भ को लेकर हमने यह शोध प्रपत्र बनाने का प्रयास किया है। इसमें हिंदी और तेलुगु उपन्यासों में चित्र नारी के विभिन्न पहलुओं पर तुलनात्मक चर्चा की गई है। आधुनिक नारीवाद आज के युग की एक जीवंत विचारधारा के रूप में अग्रसर हो रहा है। भारत से पहले पश्चिमी देशों ने इस ओर उन्मुख किया था। नारीवाद के अंतर्गत मार्क्सवाद, उग्र वाद, उदारवाद, आतंकवाद, मनोविश्लेषणवाद जैसी विचारधाराएं पनप रही है। कहने का तात्पर्य है की आज के समय में किसी भी विचारधारा या सिद्धांत को नारीवाद के दृष्टिकोण से अलग हटा कर नहीं देखा जा सकता। धीरे–धीरे स्त्री ने समाज के सभी महत्वपूर्ण अंगों पर अपनी छाप छोड़ना शुर कर दिया है। वह प्रत्येक क्षेत्र में अपना सिक्का जमाने में तत्पर है।इन सभी क्षेत्रों में नारी के विद्रोह की प्रबल छाया दिखाई दे रही है।

सामान्यतौर पर नारी जागरण से किसी भी देश का एक विशेष स्त्री का तबका प्रभावित होता है। परंतु पुरुष में भी यह विशेषता देखी जा सकती है।स्त्री की यह चेतना जन सामान्य में व्याप्त तत्कालीन जीवन में उत्पन्न अप्रत्याशित गतिरोध से जन्मती है। इस संदर्भ में उपन्यास साहित्य मानव जीवन के निकट होने के कारण प्रस्तुत विचारधारा को यथार्थ अभिव्यक्ति प्रदान कर सकता है। इसी अभिव्यक्ति को आज की स्त्री ने अपने हाथ में लिया है। उसने लिखना प्रारंभ

राव विष्णु पराडकर, अनंत गोपाल शेवडे तक हिन्दी में चरना की है। महादेव शास्त्री जोशी का मराठी भारतीय संस्कृति कोश, वोड़कर बाडलिंगे का मराठी साहित्य, शेजवलकर का छत्रपति शिवाजी आदि हिन्दी में अनुवाद हुआ है। इस क्षेत्र में दुर्गा भागवत का लोक साहित्य, शेजवलकर का छत्रपति शिवाजी का जीवन चरित्र उल्लेखनीय है।

दक्षिण की चारों भाषाओं में हिन्दी से सर्वाधिक अनुवाद मलयालम में है। भुवन, वाणी दूष्टा, मलयालम का प्राचीन साहित्य बहुत कम हिन्दी में आया है। लक्ष्मी कविता के क्षेत्र में राष्ट्रतन्त्र की आध्यात्म रामायण का अनुवाद प्रकाशित किया है। कुट्टी देवी, टी. के. गोविंद, टेलिच्ची, विमल केरलीय, आदि के नाम उल्लेखनीय है। स्वातंत्र्योत्तर काल में कुछ कविता संकलन भी प्रकाशित किये गये हैं उनमें पी. नारायण, पं. नारायण देव, स्वर्गीय वासुदेव पिल्ले, एन. चंद्रशेखरन नायर तथा एम. श्रीधर मेनन के नाम उल्लेखनीय है। इसी दिशा में डॉ. एन. रामन नायर तथा डॉ. पी. विजयन के काव्य ग्रंथ क्रमशः नोक-झोंक तथा कथ्य और तथ्य में संकलित व्यंग्य कविताएँ बहुत ही मार्मिक तथा सुंदर दिखाई पड़ती हैं। साथ ही साथ ज्ञानपीठ विजेता श्री शंकर कुरूप की ओट्क्षुषल विशेष उल्लेखनीय है। डॉ. जी. गोपीनाथन की मलयालम की नयी कविताएँ सफल अनूदित रचना है।

गद्य के क्षेत्र में भी कई उल्लेखनीय रचनाएँ तथा लेखक मलयालम में दिखाई पड़ते हैं। कहानीकारों के रूप में के. केशवन नायर, माधव कुरूप, सी. जी. गोपाल कृष्णन माधवी कुट्टी विष्णूर, एन. वेंकटेश्वरन आदि का नाम बड़े आदर के साथ लिया जाता है। इनमें एक सफल हिन्दी अनुवादक हैं। मलयालम से हिन्दी में अनुदित सब से विशिष्ट उपन्यास दादा की डायरी है, जिसका अनुवाद श्री. के. रवि वर्मा ने किया।

राष्ट्रीय एकता के लिए साहित्य एक सशक्त साधन है। इसलिए साहित्य में आदान प्रदान की आवश्यकता है। सब भाषाओं के साहित्य को बटोर कर हिन्दी का भारतीय साहित्य समृद्ध करना है। भारतीय भाषाओं में हिन्दी का विशेष स्थान है। उस विशेष स्थान को कायम रखने के लिए वह अन्य भाषाओं के साहित्य को भी अपने में समालेना चाहिए।

एम.ए.
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मराठी तथा हिन्दी का संत साहित्य
तुलनात्मक अध्ययन

—डॉ. शिवहर किशोर

मराठी तथा हिन्दी का संत काव्य मध्यकाल की देन है। तेरहवीं शताब्दी से लेकर सतरहवीं शताब्दी तक मराठी साहित्य भक्ति एवं काव्य देनों ही दृष्टियों से अद्वितीय है। इन 400 वर्षों में महाराष्ट्र में भक्ति की ऐसी रसमयी धारा प्रवाहित हुई है, जिसमें श्रद्धालु सामान्यजनों ने डूबकी लगाकर आनंद का अनुभव किया। यह संयोग की बात है कि भक्तिभाव की ऐसी ही गंगा सगुण-निर्गुण काव्यधाराओं तक उत्तर भारत में भी भक्तिभाव की ऐसी ही गंगा के काल में 1300ई. से 1700ई. तक का उदय हुआ। इस धारा के कवियों की संख्या सैकड़ों में होती है। यही कालखंड हिन्दी साहित्य में भक्ति-काल के नाम से जाना जाता है। उसमें निर्गुण संतेक विचारों तथा उसके काव्य का विशिष्ट स्थान है। उसकी सीमा परिधि अत्यंत व्यापक है। निर्गुण काव्य और सांप्रदायिक मान्यताओं, अंधविश्वास प्रधान धार्मिक सम्प्रदायों की प्रतिक्रिया के रूप में भक्ति-काल के कवियों का सूक्ष्म चैतन्य पंथ या संप्रदाय विशेष का जन्म देना नहीं तो अपने समय की प्रचलित प्राय: सभी सामाजिक, सांस्कृतिक अपनी प्रतिभा और प्रयोग के सांचे में ढालकर समानता का अनिनव रूप प्रदान किया। वे 'कागज की लेखी नहीं आवश्त की देखी' पर विश्वास करनेवाले थे। इसलिए उन्हें जहाँ कहीं पालन मात्र के दर्शन हुए हैं वहीं पर अपनी निर्भिक वाणी से उसका विरोध करते रहे।

निर्गुण संत कवियों में भी दो वर्ग हैं एक है ज्ञानमार्गी शाखा जिसमें कबीर, रैदास, नानक, दादूदयाल, रज्जबदास, जीवाराम, धरमदास, नलछकदास, पलटूदास, जगजीवन साहब, वरियासाहब आते हैं तो दूसरी प्रेममार्गी शाखा है जिसमें मुस्लिम सूफी संत कवि आते हैं। सूफी कवियों में प्रमुख हैं – दाऊद, कुठ्बन, जायसी और मंझन, उसमान, न्यामत खाँ और जान आदि इन निर्गुण कवियों ने संपूर्ण समाज को एक राह पर लाने के लिए एक ऐसे ब्रह्म की कल्पना प्रदान की जो सभी जातियों एवं धर्मावलंबियों को स्वीकृत है। उन्होंने उसी ब्रह्म को

कभी राम कहा तो कभी रहीम। इन संतों को राम दशरथ पुत्र राम नहीं थे। इनके राम निर्गुण-निराकार एवं रूप-स्वरूप से परे है, दृष्टि और दर्शन से अलक्ष्य है, वाणी और वंचना से ऊपर है। वही अल्लाह है और वही भगवान है।

हिन्दी संत काव्य के समान मराठी संत काव्य में तेरहवीं-चौदहवीं सदी में संत ज्ञानेश्वर, नामदेव, गोरा कुम्हार, नरहरि सोनार, सावता माली, चोखामेला आदि हुए तो सोलहवीं-सत्रहवीं सदी में संत तुकाराम, एकनाथ जैसे संत कवियों ने ईश्वर भक्ति के साथ-साथ समाज सुधार का कार्य भी किया है। हिन्दी में संत कबीर, गोस्वामी तुलसीदास, गुरुनानक, मलूकदास, सूरदास, रैदास, मीराबाई आदि उल्लेखनीय है। हिन्दी संत काव्य परंपरा में जो स्थान कबीर का है वही मराठी संत काव्य में संत तुकाराम का है। इन दोनों का कार्य लगभग समान है। दोनों ही भाषाओं के संतों ने सत्संग पर विशेष बल देते हुए गुरु के महत्त्व को प्रतिपादित किया। मराठी साहित्य में तेरहवीं सदी में संतों का ऐसा महत्त्वपूर्ण समुदाय एकत्रित हुआ था। जिसे 'संतमेला' अथवा 'संतों की टोली' अथवा 'संत समुदाय' कहना उचित होगा। संतश्रेष्ठ श्री ज्ञानदेव (ज्ञानेश्वर) इस समुदाय के केंद्रबिंदु व्यक्तित्व है तो उनके समकालीन कवि-कवयित्री 'संत मंडल' का अभिन्न अंग है। उनके जेष्ठ भ्राता एवं गुरु संत निवृत्तिनाथ तथा छोटे भाई-बहनों में संत सोपानदेव, संत मुक्ताबाई आदि ने मिलकर मंडल के केंद्र को महिमामय बनाया। इसी संत मंडल में भक्ति की साक्षात् प्रतिमाएँ एवं निर्मलबाई आदि है। जनाबाई, संत कान्होपात्रा, संत सोयराबाई, संत महान कवयित्रियाँ आदि भी है।

संत साहित्य भारतीय चिंतन की विभिन्न विचार सरणियों का अपूर्व समुच्चय है। संतों ने अपने चतुर्दिक फैली हुई भाव-सामग्री को ग्रहण कर संत-मत के मधु-कोष का निर्माण किया है। स्वानुभूति और सहजावस्था ही उनके जीवन-दर्शन का मुख्य आधार है। जिस युग में इन्होंने काव्य-रचना की वह भारत के लिए अज्ञान अंधकार और अनैतिकता का अंधकारमय युग था और अधिकार संत कवि अपने युग की जनता के निम्नस्तर से संबंधित थे फिर भी इन्होंने ज्ञान की जो ज्योति प्रज्वलित की वह अद्भुत एवं अपूर्व है। "सुसंस्कृत युग और सुशिक्षित समाज के प्रतिकूल कवियों द्वारा उच्चकोटि की रचनाओं का निर्माण कोई विशेष महत्त्वपूर्ण नहीं पड़ता एवं उदाहरण विश्व इतिहास को जन्म दे देना एक ऐसा प्रशंसनीय एवं सहज वक्तव्य है। इसका प्रमाण पंड

संत कवियों ने साहित्य के एक चरमावस्था में भी पतित दलित आध्यात्मिक विषयों से संपन्न किया है। इसमें उन जन-जीवन में डूबी हुई अनुभूतियों से संपन्न है। इसमें

नि-श्री है। इसने अनेक धार्मिक संप्रदायों के प्रभाव को ग्रहण किया है किंतु इसमें धर्म अथवा साधना की कोई शास्त्रीय व्याख्या नहीं बल्कि जन भाषा में उसका मर्म प्रस्तुत हुआ है। संत काव्य में जन-जीवन के सत्य की अभिव्यक्ति अलंकार विहीन सीधी-सादी भाषा में हुई है। इसकी पद्धति शास्त्रीय और साधना लोकपक्षा तथा काव्य वैभव आदि सभी दृष्टियों से उल्लेखनीय है। यह काव्य शास्त्रत है और इसका संदेश वर्तमान समय में भी प्रासंगिक है।

संत साहित्य मनुष्य-मनुष्य में जाति भेद को मिटाकर समानता का संदेश देता है। संतों के राम-रहीम सभी दृष्टियों से उनका प्रिय भजन — "ईश्वर-अल्ला तेरो नाम, सबको सन्मति दे भगवान।" यह संतवाणी की परंपरा में ही आता है। संत साहित्य उतनाहीं प्राचीन है जितनी-प्राचीन मनुष्य के हृदय की उपासना-प्रवृत्ति है। संत कवियों ने अपने विचारों में निहित सत्य को शाश्वत विश्व-जनित मानते हुए उन्हें दूसरों के हितार्थ प्रकट करना चाहा है।

आज पहलेहीं हमने आधुनिकता का मुखौटा ओढ़ रखा हो किंतु हमारी अवस्था मध्ययुग से भी बदतर है। आज का औसत मनुष्य शंका, उलझन, विषमता बोध, असंगति तथा अनिश्चय की मानसिकता से ग्रसित है। पाश्चात्य संस्कृति का अनुकरण, वैज्ञानिकता, शहरीकरण, बढ़ती हुई आबादी, किन्तु के दुष्परिणाम आदि के कारण मानवीय जीवनमूल्य टूटने लगे हैं और उनमें परिवर्तन होने लगा है। वह नवजीवी रिश्तों को भूलकर राजनीति चल रही है। वैज्ञानिकता ने ली है, धर्म और जाति को आधार बनाकर राजनीति चल रही है। संविधान द्वारा स्थापित धर्मनिरपेक्षता खोखली सिद्ध हो रही है। धर्म को लेकर तो आज हत्याकांड भी हो रहे हैं। समाज-सुधारक अपने-अपने ढंग से सुलझाने रूपी धर्म को को कानून और समाज-सुधारक अपने-अपने ढंग से सुलझाने रूपी धर्म को है। परंतु संत काव्य में प्राचीन काल से सामान्य जन तक पहुँचकर रहे समान मानकर धर्म-भेद का प्रचार-प्रसार किया तथा धर्म को नकार कर धर्मनिरपेक्षता की दिशा में साहसी कदम उठाया है। उनकी समन्वयवादी विचारधारा ने मनुष्य-मनुष्य के बीच निर्माण हुए भेद को समाप्त करने का सफल प्रयास किया। हिन्दी के प्रसिद्ध आलोचक डॉ. गणपतिचंद्र गुप्त के अनुसार — "संतों ने प्रत्येक व्यक्ति को चाहे वह शूद्र हो या ब्राह्मण, हिन्दू हो या मुसलमान, गृहस्थ हो या साधक, मोची, धुनिया, जुलाह हो या लखपति व्यापारी सभी के समानता की घोषणा करके भारतीय सामंतवाद की पुनःप्रतिष्ठा की है।" संत तुकाराम और कबीरदास ने बाह्य आडंबरों और जाति भेद का तीव्र शब्दों में अपने काव्य के माध्यम से विशेष किया तो दूसरी और वाणी से वाणी में उसी बात को प्रकट किया। नागंधारीक सत्य, मीराबाई, संत जनाबाई, कान्होपात्रा आदि ने अपनी मधुर

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संत के मार्ग पर चलनेवाले इन संतों ने आचरण की शुद्धता पर बल दिया। वे संत्सग करते हुए देशभर की यात्रा के आचरण सदाचार की, पवित्र जीवन की शिक्षा देने का कार्य करते रहे। संत समुदाय के संतों का स्वयं अपना जीवन भी त्याग, भक्ति, दया, क्षमा, सदाचार का साक्षात् रूप था। इन संतों में ब्राह्मण, अब्राह्मण, अस्पृश्य जाति के संत भी हैं। जाति एवं कुल के झूठे अभिमान से कोसों दूर यह संत ईश्वरीय आनंद के सामने तथा परस्पर स्नेह के अतिरिक्त किसी बात को महत्वपूर्ण नहीं मानते। यह सभी संत घर-गृहस्थी जन थे, सभी का अपना-अपना व्यवसाय था। किंतु सभी ने हरिभक्ति के प्रति अपना सर्वस्व न्यौछावर कर डाला। सच्ची लगन, अतूट्रिम चितवृत्ति, अटल-श्रद्धा आदि सद्गुणों ने इन्हें सच्चे परमार्थिक सुख की प्राप्ति करा दी जिसके सामने ऐहिक आनंद तुणप्राय है।

अंततः इस कह सकते हैं कि संत साहित्य दुःखदता तथा जटिलता का साहित्य नहीं है वरन् यह मनुष्य की सहजता तथा स्वाभाविक मन: स्थितियों का साहित्य है। इसमें जनसामान्य की आशा-आकांक्षा, सुख: दुःख निहित है। जन-जागरण की चेतना को लेकर स्फुरित हुआ यह साहित्य आशावादी मूल्यों की स्थापना करता है। सामाजिक जड़ता एवं अराजकता से घिरे वर्तमान जटिल परिवेश को बदलने में संत साहित्य अधिक निकट का साहित्य होगा। उससे मानव की क्षुद्रताओं, सीमाओं, स्वार्थपरता, असत्यप्रियता, संकीर्णता, अविवेकिता, कामुकता आदि पर प्रहार हुआ है और मनुष्य की जीवनदायिनी शक्तियों की ओर जनसामान्य का ध्यान आकर्षित किया है। अतः समाज को सशक्त निर्दोष एवं कल्याणकारी मार्ग पर कदम बढ़ाने की चेष्टा संत साहित्य ने की है यह कहना अधिक तर्क संगत होगा।

संदर्भ

सहायक ग्रंथ —

1. सं. डॉ. वसंत धीरसागर – भारतीय भक्ति-काव्य की प्रासंगिकता, पृ.
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ROLE OF PROBIOTICS AND PREBIOTICS IN STRESS REGULATION: A REVIEW

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Abstract

Depression is a highly common mental disorder, which is often multifactorial with genetic, environmental, and psychological causes. Recent advancements in biomedical research have demonstrated a clear correlation between gut dysbiosis (GD) or gut microbial dysbiosis and the development of anxiety or depressive behaviours. The gut microbiome communicates with the brain through the neural, immune, and metabolic pathways, either directly (via vagal nerves) or indirectly. The field of probiotic has been exponentially expanding over the recent decades with more therapeutic-centered research. Probiotics mediated microbiota modulation within the microbiota–gut–brain axis (MGBA) have been proven to be beneficial in various health domains through pre-clinical and clinical studies. The exploration of the therapeutic role and potential of probiotics in major depressive disorder (MDD) is an extremely noteworthy field of research. The possible pathological mechanisms of depression involving inflammation, neurotransmitters, the hypothalamic–pituitary–adrenal (HPA) axis and epigenetic mechanisms potentially benefit from probiotic intervention. The growing interest in the gut microbiota and mechanisms of its interaction with the brain has contributed to the considerable attention given to the potential use of probiotics, prebiotics and postbiotics in the prevention and treatment of depressive disorders.

Keywords: gut dysbiosis, microbiota-gut-brain axis, major depressive disorder, hypothalamic-pituitary-adrenal axis, epigenetic mechanisms

Introduction

Depression is a consequential sickness characterized by long-standing despondency and depressed mood in normal life activities (1). According to the report given by the World Health Organisation, this malady affects more than 300 million population worldwide (1). The main traits of depression include stress, fatigue, joint and muscle ache, headache, exhaustion, back pain, loss of appetite, agitations, isolation and restlessness (2). The ubiquity is more prevalent in women than men (3). The psychological hints include frustration, negative thinking, poor concentration and focus, guilt or hopelessness and in severe cases thoughts of suicide or death. A variety of factors such as genetic, environmental, psychological, and metabolic causes account for the analysis of depression. The common range of age for the outset falls within 15-30 years of age (4).
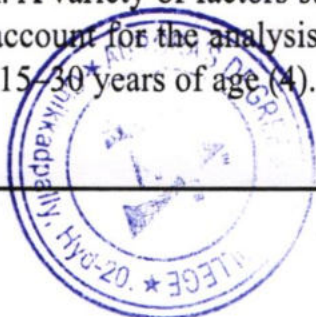
Recent studies have shown a link between depression and Gut Dysbiosis (GD) which can alter the activities of the brain (5). The human microbial ecosystem helps in maintaining the immune, hormonal, gastrointestinal and neural stability. GD can also be defined as an unusual adaptation in the configuration and abundance of Gut Microbiota (GM) which influences the homeostasis. Any alteration in neural transmission can be disrupted by Gut Dysbiosis associated with leakage of gut and inflammation which have a connection with anxiety (6). It is outlined that anxiety causes imbalance in hypothalamus-pituitary-adrenal (HPA) axis which leads to immune responses and Gut Dysbiosis. It is noted that probiotics can improve anxiety and depression by maintaining gut health (7).

Probiotics can be defined as live microbial food appendages that are advantageous to human as well as animal health by balancing the growth of microbes in the intestine. They are non-digestible food supplements that provide several benefits (8). It also shows positive effects to the host by restoring the growth of a restricted number of bacteria in the colon of the intestine which helps in the improvement of the host's health (9). Probiotic dairy products like yogurt are found to be anticarcinogenic, hypocholesterolaemia and act as antagonists against the pathogens. Prebiotics include dietary fibre and fructo oligosaccharides. Food sources of fructo oligosaccharides include honey, beer, onion, banana and oats (10). Fermentation has been shown to involve various kinds of microorganisms like bacteria, yeast, moulds, algae and actinomycetes. Microorganisms used as probiotics mainly include bacterial strains of gram-positive bacteria belonging to the types Lactobacillus, Enterococcus, Pediococcus and Bacillus (11). Other probiotics include yeast belonging to the Saccharomyces cerevisiae species. Among these, species belonging to Lactic acid bacteria have been used frequently in many traditional fermentations of Indian foods. Lactic acid bacteria have been found to enhance food quality, microbiological safety, bio preservation and shelf-life. Different species of Lactic acid bacteria involved in the fermentation process include Lactobacillus acidophilus, Lb. rhamnoses, Lb. casei, Lb. brevis, Lb. plantarum. Bifidobacterium lactis and Lactobacillus acidophilus basic to human nutrition since they are also found in mother's milk.

The health effects exerted by lactic acid bacteria include a drop of pH, thereby initiating food spoilage and the growth of poisonous acid sensitive bacteria. It also kills certain pathogens by degradation of substances like mycotoxins (12). Adherence to human/animal intestinal cells and production of antimicrobial compounds like bacteriocins, fatty acids and diacetyl (13). Enhancement of immunity and improved resistance to infectious illnesses and cancers and better utilisation of calcium, phosphorous and iron (14). It acts as a source of energy in the process of respiration (15). Means of increasing the efficiency of bowel transport in cases of habitual constipation (15).

1. The Gut-Brain axis in Depression

The gut–brain axis has been put forward to be involved in the start of depression (16 et al). The gut–brain axis is a bidirectional transmission web between the gut and the brain which is handled by neuroendocrine and neuroimmune processes. It is arbitrated by various molecules, including short-chain fatty acids, secondary bile acids, GABA neurotransmitters, and tryptophan metabolites, which are obtained from the microbiota (17et al). During the

disruption of microbiota equilibrium, the gut-brain pathways are abnormally regulated and are linked to neuroinflammation and causes changes in the blood–brain barrier (18). These alterations in the microbiota turn out to produce changes in depression which directly affect release of serotonin and dopamine which are known to be neurotransmitters, by influencing the hypothalamus–pituitary–adrenal (HPA) axis as well as stress response which cause an impact in the brain-derived neurotrophic factor (BDNF) by activating the release of inflammatory cytokines (19). Depression is associated with the release of C-reactive protein (CRP) and cytokines such as IL-1, IL-2, IL-6, IFN-γ, and IL-1β (20).

The gut-brain axis also assists in the activation of sympatho-adrenomedullary system which in turn releases catecholamines such as adrenaline and noradrenaline by the adrenal gland. On the other hand, the vagus nerve of the parasympathetic nervous system, acts skilfully to decrease the inflammation in the intestine and to build up the barrier function of the intestine. The afferent fibres of the vagus nerve present in the gut send signals to the brain which in succession adjusts the HPA axis suitably.

2. Probiotic Induced Changes in Intestinal Epithelial Cell- Survival of Cell and Cytokinin Secretion.

Intestinal epithelial cells (IEC) are the first line of defence which act against infective bacteria. They are very well known in establishing extensive communication with both the microbiota and probiotics (21). IECs also behave as primary point of contact between the host and microbes of the intestine. IEC'S are diversified in strengthening the barrier functions, mass production of mucin, activating the antimicrobial and production of heat shock proteins which interact with the harmful entities by inflecting the signalling pathways and assists in the endurance of the cells (22).

The IEC barrier helps in increasing the function by probiotic modulation in the tight junctions in addition to production of mucin. These probiotics ease the communication between the host and a wide variety of cells (21). Probiotics impede with pathogens by enhancing the beta defensin secretion from the IEC's and also IgA antibodies are liberated from the plasma cells by direct blockage of the signalling pathways. The changes in these pathways affects the existence and generation of target cells (23). Probiotics also cause alterations in gut mobility by modifying the pain receptor and also release neurotransmitters. These include the release of hsp-heat shock proteins, IEC- intestine epithelial cells, Ig- immunoglobulins, STAT- signal transducers and activator of transcription and T regulatory cell (23).
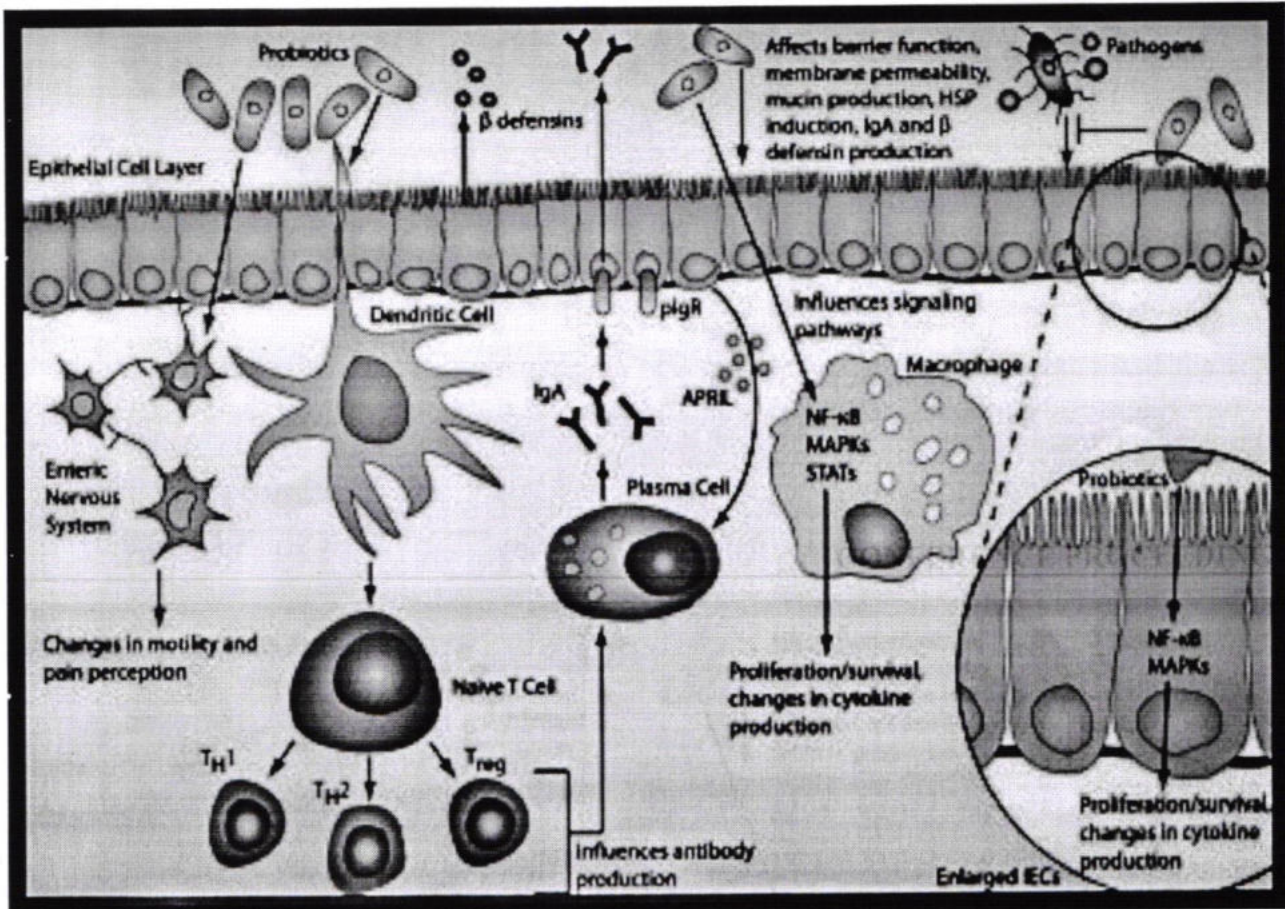
FIGURE-1: Probiotics cause alterations to produce neurotransmitters. IEC- intestinal epithelial cells, APRIL- a proliferation-inducing ligand, MAPK- mitogen-activated protein kinase, Ig- immunoglobulins, hsp- heat shock proteins, STAT- signal transducers and activators of transcription, Treg- T regulatory cell.

3. Introduction of cytoshielding Heat Shock Proteins.

The Heat Shock Proteins (HSP) are originated in response to stress (24). The cells exhibit 'Stress Tolerance' when they are experienced with thermal, oxidative, osmotic and several other stresses (25). The Heat Shock Proteins (HSP) give out security to the slight changes and also pull a stop to the death of the cell (25). Probiotics fabricates the production of cytoshielding Heat Shock Proteins in the intestine. The Heat Shock Proteins predominantly include hsp25 and hsp72 which help in the maintenance of tight junctions which in turn produces barrier functions. The duty of hsp25 is to stabilize actin and hsp72 forbids the cellular protein from denaturation (24).

4. Impact of Probiotics on Antibody Production in the Intestine.

The secretion of dimeric IgA antibody is produced when B cells are differentiated into Plasma cells. IgA antibody is a part of the mucosal-associated immunity and helps the host by binding to the antigens from microorganisms which include bacteria, fungi and viruses (26). The polymeric Ig receptors form a network with the IgA antibody and transfers it to the apical cell surface where it is secreted in the lumen of the intestine. IgA antibody is extensively present in intestine and is more resistant to bacterial proteases (27). Several studies have shown that oral administration of Bifidobacterium bifidum in mice has raised
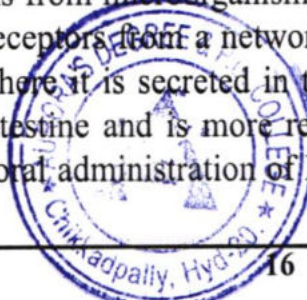
the number of IgA secretive cells present in the spleen (28). Fluctuations in the Ig induction patterns show that different probiotic strains can introduce distinctive systemic T-cell responses.

5. Altered Metabolism of Serotonin and Tryptophan in Depression.

Several microorganisms release neurotransmitters such as acetylcholine, dopamine, GABA, histidine and norepinephrine. The production of these neurotransmitters helps in the regulation of Gut Microbiota (29). Gut Dysbiosis depletes the concentration of tryptophan in the plasma and in turn triggers the Immune System. The 5,6,7,8-Tetrahydrobiopterin is a co-factor of several Amino Acids, which help in the conversion of enzymes in charge for the biosynthesis of neurotransmitters such as 5-HT, tryptophan, dopamine and noradrenaline (30). Decrease in the levels of 5,6,7,8-Tetrahydrobiopterin is caused by Gut Dysbiosis due to low-grade inflammation and thus effects the neurotransmitter production (31). The Gut Microbiota signs up tryptophan metabolism. A clinical study says that TPH2 gene which has a supressed function results in 80% decreased production of 5-HT in the brain. This is connected to mood disorders and psychiatric symptoms such as suicidal thoughts (32). These results specify a complex connection between Gut Dysbiosis and 5-HT in depression.

6. Neuroinflammation in Depression.

Uplifted levels of proinflammatory cytokinin's, such as IL-6, IL-8, C-reactive proteins and IL-1β due to peripheral chronic inflammation and central microglial dysfunction are related with depressive indicators at both the beginning or during increased seriousness of the disease (33). Gut Dysbiosis (GD) arbitrate gut leakage with raised levels of LPS, chronic inflammation and immune dysregulation play a serious role in the onset, severity and resistance to the therapy of depressed victims (34). Gut Microbiota (GM) plays a key role in the onset of depression, through the modulation of microglial-associated immune network in the brain. To carry out the maturation and immunological functions of microglial cells, gut microbial-derived metabolites such as SCAF's are involved (35). Major Depressive Disorder (MDD) is associated with inflammasome which operate the microbial signal via recognition receptors, which in turn advances the release of proinflammatory cytokinin's such as IL-1β, IL-8 and IL-6 (36). Increased levels of cytokinin's can ease up the glucocorticoid resistance and skeptically affect the metabolism and synthesis metabolism and synthesis of 5-HT, dopamine and norepinephrine. Any changes in the microbial functioning caused the onset of depression (37). Reports say that Gut Dysbiosis (GD) encourages the entry of several immune cells, which include CD4+ and CD8+, B cells, T cells, monocytes and neutrophiles in the brain causing neuroinflammation (38). LPS and endotoxins of the bacterial cells also help in restoring the permeability of the intestine and blood-brain barrier, cause alterations in the neurotransmitters, increase in the IgM and IgA antibodies and intensify inflammations in both systemic and central nervous system (CNS) (39). These inflammations are caused by cytokinin release and by the activation of the HPA. These changes lead to enhancement in the levels of the glucocorticoids, cell-mediated immunity, neural apoptosis and decrease in 5-HT levels all of which contribute to the development of depression.
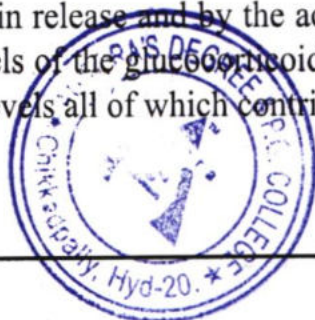
7. The Bidirectional Pathways.

The bidirectional pathway between the brain and the gut when exposed to stress activates the stress response systems. The stress response systems include the HPA axis and sympatho-adrenomedullary system of the autonomic nervous system. These together regulate the intestinal environment by increasing inflammation of the colon through inhibition of the vagus nerve which alters the composition of gut microbiota (GM) (40). Dysbiosis in the gut microbiota (GM), additionally acts on the intestinal barrier as a consequence of reduction in the accessibility of microbiota-produced-short chain fatty acids (SCFA) (41). This leads to the exposure of the circulation of bacteria and their products which in turn activates inflammatory mechanisms, and also shows and increase in the production of the neurotoxic branch of the kynurenine pathway, which raises neuroinflammation inducing depressive and anxiety like behaviour. The vagus nerve acts on the gut-brain to supress inflammation (42). Dysregulation of HPA axis promotes tryptophan metabolism and modulates gut microbiota.
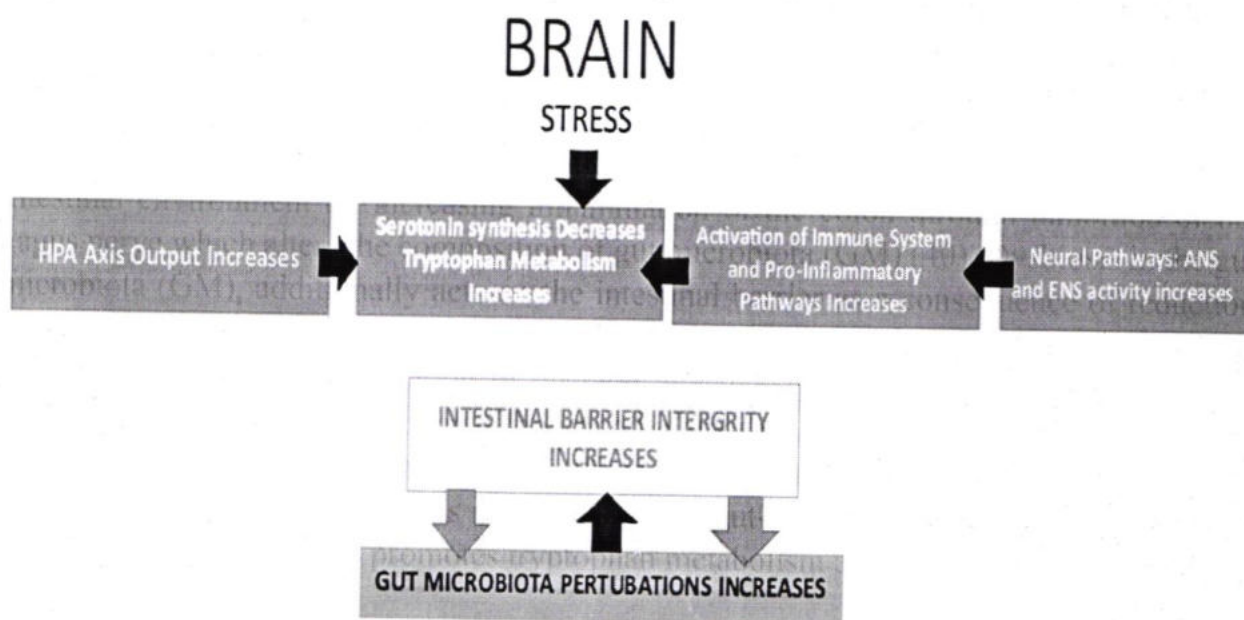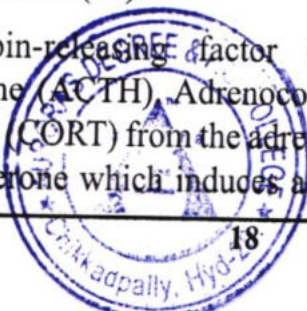

FIGURE-2: An overview of the gut-brain pathway affected by stress. This includes neural pathways, HPA axis, serotonin and tryptophan pathways, immune pathways and gut-microbiota pathways.

8. Brain-to-Gut Pathways.

A major endocrine system-HPA axis involves in the stress response, effects digestion, immune system, mood and behaviour and also controls glucocorticoid production (43). The stress related changes are seen when inflammation is caused in the HPA axis (44). It has been noted that increased stress conditions lead to overproduction of serum corticosterone in male mice, and elevated levels of corticotropin-releasing factors (CRF). In female mice, Chronic Ultra Mild Stress (CUMS) acts similarly in overproduction of serum corticosterone, which accelerates depressive behaviour (45).

Subjection of corticotropin-releasing factor (CRF) to stress induces release of adrenocorticotropin hormone (ACTH). Adrenocorticotropin-releasing hormone stimulates the release of corticosterone (CORT) from the adrenal cortex (46). Chronic stress leads to the elevated levels of corticosterone which induces anxiety like behaviour. The corticotropin-

releasing factor also reaches the circulation where corticotropin-releasing factor (CRF) receptors bind to the mast cells, influencing intestinal inflammation (47).
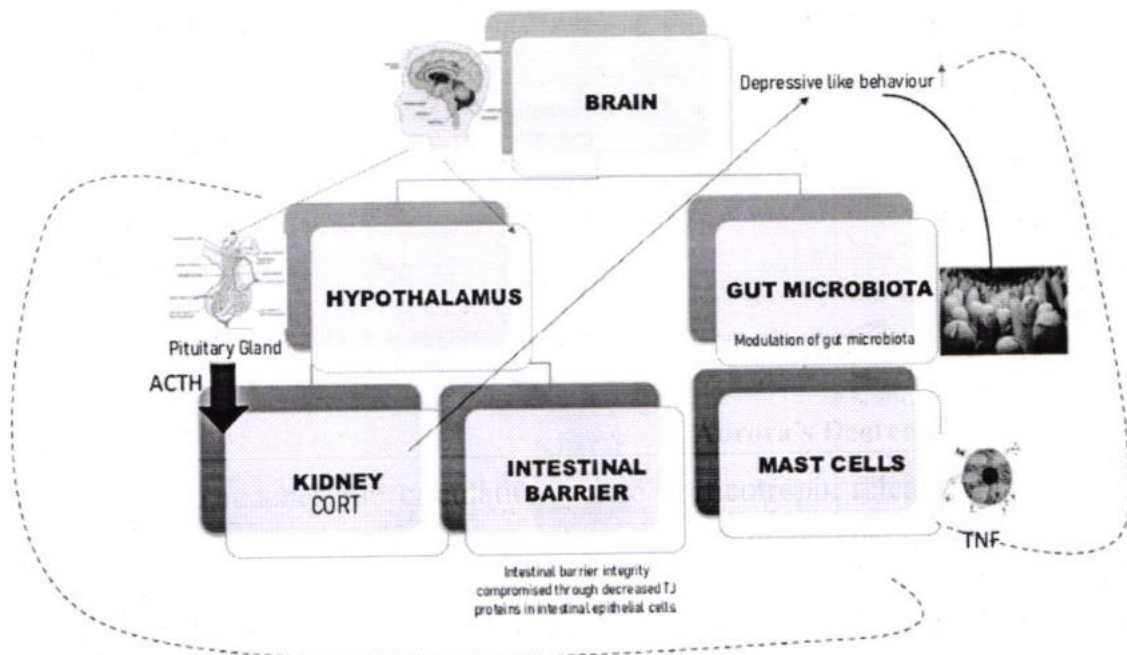

FUGURE-3: The contributions of hypothalamic-pituitary-adrenal (HPA) axis to gut pathology and behaviour in response to chronic stress.

9. Gut-to-Brain Pathways.

Gut Microbiota Dysbiosis in alliance with intestinal barrier integrity causes inflammatory bowel diseases and low-grade colonic inflammation in depressive patients (48). The disturbance in the intestinal barrier integrity caused by the dysfunction of the HPA axis, places the brain and gut at risk, as the immune and inflammatory responses are initiated after lipopolysaccharide endotoxin (LPS) or microbiota are exposed to epithelial cells of intestine and immune cells (49). Furthermore, the microbiota and LPS may enter leaky gut by inducing cytokinin release by dendritic cells and macrophages in blood stream. The cytokinin may migrate to the brain and turn on astrocytes and microglial cells leading to neuroinflammation.

Another condemnatory connection between stress and intestinal barrier involves production of antimicrobial peptides by Paneth Cells. Paneth Cells live in intestinal crypts where they secrete antimicrobial peptides such as α- and β-defensin for the maintenance of intestinal homeostasis. β-defensin peptides serves as an additional barrier which separates epithelial cells from gut microbes (50).

Short Chain Fatty Acid (SCFA) may also play an important role in the maintenance of intestinal barrier integrity (51). Short Chain Fatty Acids (SCFA) are produced by digestion of dietary fibre. Any disturbance in the integrity of the barrier may lower the levels of Short Chain Fatty Acids (SCFA) and inhibits production and release of serotonin (52). It is imminent from the reports that Short Chain Fatty Acids (SCFA) butyrate can directly affect permeability of intestinal walls.

19

FIGURE-4: Regulation of intestinal barrier by chronic stress.

Conclusion

Depression is a psychological disorder which causes alterations in the mood and behaviour, affecting millions of people every year. Depression is frequently associated with psychomotor retardation. Recent studies have shown a corelation between Gut Dysbiosis and depression. The Gut Microbiota is not a passenger organism, it is rather considered as active participants of immunity and physiology. The appearance of role of the gut-brain axis in depression highlights the importance of recognition of bidirectional interaction.

Investigations in the microbial studies include variations seen in communities of microbes and alterations by the introduction of probiotics. We will be able to make clever decisions on how to treat disease with probiotics, only with greater comprehension of specific biological features and also how the host helps in signalling the pathways. Taking the consideration about the findings mentioned in the review, possible alternative approach, such as use of probiotics, prebiotics and diet modifications, naturally derived products appear to be promising. These approaches are found to elevate dopamine, 5-HTand also improved intestinal barrier in the patients. Especially probiotics have shown relatively beneficial outcomes in supressing the depressive disorders.

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CRISPR- A NOVEL APPROACH TOWARDS A FORTIFIED IMMUNE SYSTEM

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Human genome is extremely enigmatic and is known for its intricacy. The high level of its complex nature has indeed provoked several investigators to disclose the hidden insights which till date have been accomplished on a partial basis. Several facts in relation to the human genome has triggered curiosity among scientific demonstrators to further dig in to the roots of these fascinating molecular entities and one such fact that serves as the main basis for this article is the relation between human immunity and its genome through microbial perspective. Prokaryotes are considered as one of the most primitive biological facets that have led to the origin of complex life forms and evolution has made these unicellular contenders as an integral part of several biological forms including human beings.One of the latest and most researched aspects in prokaryotes is certain regions of the genome consisting of interspersed short palindromic sequence that confers resistance against bacteriophages (bacterial viruses) which is a consequence of viral infection. The prime objective of this review is to explore the same from the context of immunity in human beings. The current article attempts to emphasize on the use of CRISPR technology towards the benefit of human beings and its role as apromising tool to counteract clinical manifestation and safeguard the immune system.

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Introduction

Genes and genomes have always been a topic of research interest and the extent of intricacy involved enhances the scope of its study with the intent of disclosing hidden insights. Time has witnessed the progress in genome editing and has validated the importance of biological agents in manifesting the genome to an extent where the rearrangement of these molecular entities offered life saving benefits in the host. Scientific investigators have demonstrated several such techniques that can be used for human benefits and one of those that have been the crux of scientific research is CRISPR technology. CRISPR stands for clustered regularly interspaced short palindromic repeats which is a family of Prokaryotic genome comprising of DNA sequences [Barrangou R (2015)]. These DNA sequences have been found in bacteria and archaea as a consequence of viral infection. Bacteriaphages which are the viruses capable of replicating in bacteria have conferred the prokaryotes with these sequences. The significance of these DNA sequences has known to be affirmative from the view point of fortifying the defense mechanism in bacteria [Redman M, et al, 2016]. These DNA sequences protect the prokaryotes by destroying viral sequences after the infection due to its antiviral or antiphage nature and it accounts to over 50% of bacterial genomes and 90% of archaea genomes. The presence of these DNA sequences in prokaryote has been validated through sequencing [Marraffini, 2008& Hille F, et al, 2018]. Bio-molecules produced from functional DNA plays a vital role in conferring certain traits that is associated with special traits which may not be native to the organism. Some of these traits have been related to the viral DNA sequences that have become a part of a bacteria following infection.

CRISPR associated Protein 9

Cas 9 also called as CRISPR associated protein 9 is an enzyme that employs CRISPR sequences and triggers a series of hierarchical mechanisms that degrades the foreign sequences following any infection including viral encounters [Bak RO, et al , 2018]. The association of Cas 9 enzyme with CRISPR sequence is collectively called as CRISPR-CAS 9 technology that has the ability of gene editing within the organism. This process of gene editing through CRISPR-CAS 9 technology has a wide range of applications in the areas of immunological research, bio-pathological and commercial biotechnology. As a matter of fact, this technology has emerged as a means for counteracting diseases [Hsu PD, et al, 2014]. The development of this technology is very recent and several studies have been demonstrated to substantiate the significance of this technology. Cas 9 is RNA dependent DNA endonucleases capable of degrading clustered regularly interspaced short palindromic sequence due to its specificity and proximity. Several research investigations have validated the prominence of Cas 9 in counteracting the foreign sequences and have led to the onset of adaptive mechanism of defense system in Streptococcus pyogenes[Deltcheva E, et al, 2011 & Jinek M, et al, 2012]. Streptococcus pyogenes makes use of CRISPR to recognize the foreign sequences which in turn triggers the activity of Cas 9 gene responsible for the activation of a cascade of reactions conferring the defense mechanism which is a part of adaptive system. The Cas 9 then starts cleaving the foreign DNA which could be a bacteriophage DNA or a plasmid DNA by unwinding the foreign DNA with the assistance of guide RNA [Heler R, et al, 2015 & Barrangou R, et al, 2007].

This process is on par with the mechanism of RNA interference in eukaryotes which is synonymous and attempts to safeguard the host from any kind of foreign DNA capable of causing clinical manifestation.

Variants of Cas enzyme

Since Cas 9 is an RNA dependent DNA endonucleases, it's recruitment at the specific site is assisted by the guide RNA which supports the employment of Cas 9 at the site of action. Cas 9 action also depends on the extent of complementarity between the guide RNA and the foreign sequence. Several studies have claimed the importance of guide RNA in binding with the foreign DNA followed by the recruitment of Cas 9 which starts degrading the foreign. Cas 9 has the ability of cleaving any sequence that is complementary to guide RNA and scientific investigators have claimed the binding of guide RNA to foreign DNA causing the onset of degradation [**Mali P, et al, 2013**]. The Cas 9 protein in Streptococcuspyogenes has been thoroughly studied to comprehend the CRISPR system through the different components that is responsible for the integrity and configuration of the protein. Initial studies have revealed the existence of four components system comprising of two small molecules of trans activating CRISPR RNA and crRNA which was later re-constructed in to a more ccompact two component system by the fusion of the two smaller molecules giving rise to a single guide RNA which in collaboration with the Cas 9 protein degrades the foreign DNA. This engineering work was performed by Jennifer Doudna and Emmanuelle Charpentier for which they were awarded the prestigious Nobel Prize in 2020 [**Jinek M, et al, 2012**]. After the discovery of CRISPR-CAS 9 technology in Streptococcuspyogenes, several studies have reported a similar kind of system in other organisms including Saccharomyces cerevisiae, candida, nematodes including monkeys and human embryos [**Baltimore D, et al, 2015, Liu JJ, et al, 2016 & Friedland AE, et al, 2013**]. In addition to Cas 9, several other variants of the Cas family have been studied which includes Cas 12 a and Cas 13. Cas 12a which was initially known as cpf1 was studied in the bacterium Francisellanovicida and was characterized as CRISPR/cpf1 system.

Several investigators have claimed and demonstrated the differences of this system from Cas9 including staggered double stranded cuts in contrast to blunt end cuts in case of cas9 [**Zetsche B et al, 2015 & Fonfara I, et al, 2016**]. The mode of action of cas12a slightly differs from that of cas9 as the former rely on T rich sequences providing alternative targeting sites with the assistance of CRISPR RNA (crRNA) in contrast cas9 activity depends on CRISPR RNA and trans-activating crRNA. One of the most unique and striking features of cas12a is its ability to bind to the target sequence after cutting in a non discriminate manner which is commonly referred to as collateral cleavage or trans cleavage. This uniqueness has in turn promoted for the development of various diagnostic technologies [**Broughton JP, et al, 2020 & Nguyen LT, et al, 2020**]. Another variant of cas family that was studied in the bacterium Leptotrichiashahii is cas13. Cas 13 is a nuclease that was formerly known as C2c2 capable of performing cleavage activity. Cas 13 is RNA dependent RNA endonucleases and will selectively cut the single stranded RNA sequence rather than DNA sequence. The activity of Cas 13 is enhanced by Cas 13 specific crRNA sequences which will direct the protein to the target single stranded RNA for degradation. Cas 13 is similar to Cas 12a as it non
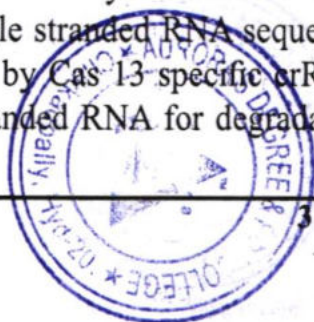
discriminately cuts the single stranded target RNA and remain bound to the target even after the cleavage [Gootenberg JS, *et al*, 2018 & Iwasaki RS, Batey RT, 2020].

The CRISPR assortment comprises of the leader sequence rich in adenine and thymine that are intermittently separated by unique spacer sequence. The CRISPR repeats range from base pairs as few as 23 bp to 55 bp.

CRISPR-Cas System

The size of spacer sequences too range from 32 to 38 bp which collaboratively works towards the degradation of the foreign counterpart and is a part of host immune response against phage infection [Tyson GW, Banfield JF, 2008]. Several studies have validated the presence of Cas genes within the vicinity of CRISPR sequence which in turn triggers the cleavage mechanism. The CRISPR-Cas system is classified in to two classes designated as class 1 and 2 systems respectively which employ Cas protein for the cleavage activity. Class 1 system makes use of multiple Cas proteins for degrading the foreign nucleic acid where as class 2 system employs a single large Cas protein for the cleavage activity [Wright AV, *et al*, 2016]. These two types of classes are further divided in to six systems which are further divided into different subtypes. Each of these subtypes is characterized by their uniqueness from the view point of their mode of action. The classification is based on the Cas protein as several studies have authenticated the involvement of different kinds of Cas proteins in triggering the cleavage mechanism. Involvement of several subunits of Cas protein or a single large protein has been validated through demonstrative studies. Another major factor is the association of Cas protein with the target sequences and its mode of action which is very unique. Certain Cas proteins are directed towards double stranded DNA degradation and are often designated as RNA dependent DNA endonucleases where as certain classes of the Cas protein are very specific towards single stranded RNA sequences and are often referred as RNA dependent RNA endonucleases [Wiedenheft B, *et al*, 2012 & Deng L, *et al*, 2013].

Gene editing through CRISPR technology

Gene editing also known as genome editing is a means that has allowed the scientists to manifest an organism's DNA. It comprise of the technology that employs biological entities including foreign sequences that serve as landmarks which in turn enables the host system to recruit proteins capable of endonuclease activity. Addition, deletion or alteration at desired sites in the genome was made possible through this technology and has led to the development of diagnostic tools. As a matter of fact, genome editing has emerged as a promising remedy for several ailments. CRISPR-Cas9 technology is one of the technologies that has emerged in the recent past and has revolutionized the scientific community. This technology has been widely employed for gene editing and genome manifestation. The technology involves the association of the cluster of short palindromic sequences with specific endonuclease causing the degradation of the foreign nucleic acid [Ormond KE, *et al*, 2017]. CRISPR-Cas9 mechanism is a naturally occurring process in bacteria following a viral invasion. The viral infection confers the bacteria with certain sequences that affirmatively contribute towards the defense mechanism in the organism.
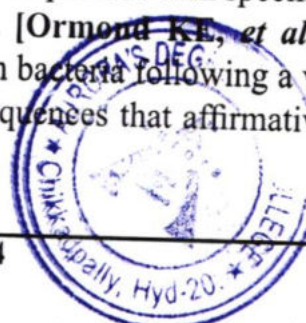
After the viral infection, some of the viral sequences gets integrated in the bacterial genome and causes a certain patter giving rise to unique gene segments called as CRISPR. This offers the bacteria with the ability of recognizing the virus or its close related species during the subsequent encounters which in turn triggers the CRISPR-Cas9 defense system leading to the degradation of the foreign nucleic acid. During the second association with the virus, the bacteria produce the RNA segments responsible for the production of endonucleases capable of cleaving the viral nucleic acid [Gupta RM, Musunuru K, 2014]. Scientific investigators have explored this technology to comprehend the immune defense in the organism and have used it as a means of editing DNA for optimistic outcomes. This technology has indeed led to the discovery of a short piece of RNA known as the guide sequence which attaches itself to the specific target and assists in the cleavage mechanism. The guide sequence also favors the attachment of Cas9 enzyme which degrades the foreign nucleic acid. The guide RNA initially recognizes the target nucleic acid sequence and further provides the room for the attachment of Cas9 enzyme which degrades the intended foreign nucleic acid at specific location. Genome editing through CRISPR technology has been of great research interest and was investigated from the view point of probing possible diagnostic measures for several human clinical manifestations. Ongoing research in various cells lines including animal models has served as a platform for comprehending the significance of CRISPR technology to counteract several gene related disorders. The current clinical aspects involve lab level attempts and clinical trials with the intent of disclosing the affirmative side of CRISPR technology. Scientists are working to figure out the possible measures for single gene associated disorders like hemophilia, cystic fibrosis and sickle cell anemia through genome editing by employing CRISPR technology. Several studies have also disclosed the prominence of this technology in counteracting cancer, HIV infection, heart related ailments and psychological illness [Hsu PD, *et al*, 2014].

Prominence of CRISPR technology in disease models

The therapeutic significance of this technology has been widely validated by several authenticated resources and the role of CRISPR as a vital means of counteracting diseases has been studied over the decade. The curative potential of CRISPR/Cas9 system through animal models has substantiated its extraordinary importance in treating various diseases that were caused due to genetic dysfunction. Studies have exemplified the significance of genome editing in restoring vital genes for compensating genetic manifestation that could have led to dire consequences, if left untreated. Single nucleotide polymorphism has been exploited with the intent of providing a suitable approach through gene editing [Pankowicz FP, *et al*, 2016]. Cystic fibrosis is a genetic consequence that was corrected through CRISPR technology. Cystic fibrosis is due to the homozygous mutation in the CFTR gene that causes severe pulmonary manifestations. CRISPR technology was employed to counteract the genetic consequence where the intestinal stem cells of the patient were corrected through invitro procedures. CRISPR/Cas9 technology has allowed the genome editing of the stem cells and has enhanced the differentiation of these cells in to vital organs with functional form of the CFTR gene. CRISPR technology has been widely employed in case of liver transplant and metabolic diseases associated with the liver [Yin H, *et al*, 2014]. CRISPR technology has also been employed for comprehending metabolic pathways as several studies have

validated the role of this technology is reprogramming various pathways associated with metabolism by amending genes. This technology has been used for down regulating genes that have been associated with clinical manifestation by suppressing gene expression. The promising impact of CRISPR technology has been demonstrated in mice certain genes for the regulation of metabolic pathways. Mutation of 4 hydroxyphenylpyruvatedioxygenase genes has resulted in the increase in tyrosine catabolism which in turn avoids the accumulation of tyrosine and toxic metabolites [Lin SR, *et al*, 2014].

The significance of CRISPR technology in counteracting viral diseases has been widely studied and the affirmative side of the technology as a promising remedy for viral consequences cannot be denied. Viruses are obligatory intracellular parasite and have known for dire clinical consequences. They are known to specifically bind to surface receptors and makes use of the host biological machinery for its sustenance. After entering the host, the viruses are known for transcribing and translation of their bio molecules for the completion of its life cycle [Puschnik AS, et al, 2017]. DNA and retrovirus genomes integrated in to cellular system have further added to the cohesive understanding of CRISPR technology. Viral infection in humans is generally associated with high level of mortality ad mobidity and is also known for rapid transmission of the diseases to the others. The chemokine receptors serve as the vital landmark and co-receptor during HIV infection. Hence it is very obvious that the loss of this receptor prevents the viral infection. CRISPR technology is widely employed to edit the chemokine receptor through gene editing mechanism leading to an altered receptor that doesn't allow the binding of the virus on to the receptor and averts the infection [Kang H, *et al*, 2015]. Studies have also authenticated the prominence of CRISPR technology as an appropriate remedy for hepatitis B virus. The covalently closed circular DNA poses a problem for treating hepatitis B. Eradication of hepatitis B was possible through gene editing by CRISPR technology which alters the covalently closed circular DNA. This has in turn reduced the intensity of the clinical condition by the removal of hepatocytic viral load [Zhen S, *et al*, 2015].

Discussion

Determination of a gene function is very vital as it plays a crucial role on the characterization of the gene of interest. Homologous recombination or blocking of the RNA through RNA interference has been commonly employed in order to disclose the significance of the gene. This approach has been demonstrated at the invitro level involving cultured cells and invivo employing living models for characterizing the gene. Recent advances have allowed the manipulation of a gene at a specific locus in a cell that can be used for affirmative outcomes. Gene editing in a broad range of species has enhanced the understanding of molecules at the genetic and molecular echelon and served as a means of exploiting the specific loci on the genes with the intent of deriving diagnostic assistance [Im W, Moon J and Kim M, 2016]. Genome editing has been made possible with the help of specific nucleases capable of inducing cuts in single or double stranded nucleic acids. The process is very complicated which follows a series of cellular mechanisms after the activity of nucleases. Several repair systems have been affiliated with the cascade of cellular reactions that ensures the authenticity of the host genome. The strand breakage as a result of nucleases which is a part of genome manipulation
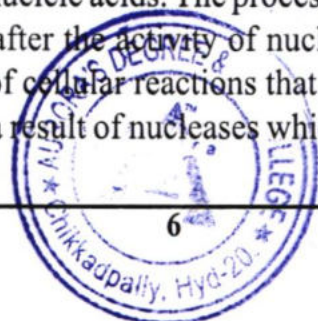
is rectified through non homologous end joining or homology directed repair mechanism [**Gaj T**, *et al*, **2013**]. CRISPR technology is one of the recently emerging techniques that are employed for editing genes for deriving positive results. As a matter of fact, this technology is often employed to counteract consequences causing clinical manifestation due to gene alterations. CRISPR technology makes use of several other biological entities including specific proteins and RNA sequences that will assist the direction of the complex towards the target nucleic acid sequence for degradation [**Cox DBT**, *et al*, **2015**]. CRISPR technology makes use of Cas 9 enzyme which is assisted by guide sequence towards the target sequence for initiating double strand breakage. Several studies have validated the prominence of this technology in eubacteria and archaeabacteria as a means of defense mechanism against the external nucleic acid sequences as a consequence of biological threat from the outside. Various variants of the endonucleases associated with CRISPR sequences have been studied with the ability of selective action against external RNA or DNA sequences contributing towards acquired immunity in the host [**Horvath P and Barrangou R, 2010**]. This system accounts to about 50% and 87% respectively in eubacteria and archaea and is responsible for fortifying the host from the context of adapting to high temperatures, rearrangement of chromosomes, replication and DNA repair mechanism [**Mojica FJ**, *et al*, **1995 & Riehle MM**, *et al*, **2001**]. A series of repeated fragment of with interspaced variable segments in Escherichiacoli has led to the discovery of CRISPR technology in 1987 which served as one of the recent achievements in biological sciences as the Nobel Prize for this technology was awarded in 2020. Repeats of 29 nucleotides in length were found in Escherichiacoli that were separated by interspaced sequences of 32 nucleotides in length [**Ishino Y**, *et al*, **1987**]. Mojicaet al, have validated the association of CRISPR system with Cas genes and discovered the repeats of short palindromic sequences of 24 to 40 nucleotides in prokaryotes. The Cas genes were located adjacent to the CRISPR site which further authenticates the affiliation of these genes with CRISPR segments [**Mojica FJ**, *et al*, **2000 & Jansen R**, *et al*, **2002**].

It was initially believed that CRISPR activity was an integral phenomenon related to the cellular machinery including DNA repair system and several hypotheses attempted to designate the CRISPR activity as a native aspect of the prokaryotes but it was not until 2005 when the relation between CRISPR segments and host immune defense were correlated. In 2005, the first proof validating CRISPR system with immune mechanism was demonstrated when majority of sequences within the intercalated segments were obtained following phage infection. This was the first evidence confirming the significance of a foreign nucleic acid for triggering host endonucleases causing the degradation of the external gene segment. Several reports have claimed the onset of prokaryotic adaptive immune system as a consequence of invading phages and plasmid gene segments [**Mojica FJ**, *et al*, **2015**]. This technology has been used as a promising diagnostic facet for counteracting clinical manifestation as a consequence of gene disorders. Several cellular and animal models for invitro and invivo analysis have been exploited for scientific benefits towards the human race with the intent of deriving suitable remedies for ailments that were challenging the scientific communities in the past. CRISPR technology has been applied in animal models and cell cultures for counteracting gene related neurological disorders like the Parkinson's disease [**Zhou X**, *et al*, **2015**]. In addition, this technology has provided a novel means of comprehending
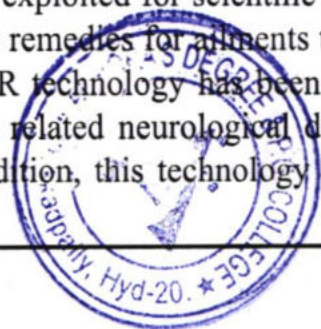
the molecular insights involved in gene manifestations causing disorders like muscular dystrophy, diabetes, schizophrenia and served as the optimistic measure against these clinical manifestations [Jarrett KE, *et al*, 2017].

Conclusion

Genes and genomes have always been the topics of research interest and several demonstrations have attempted to unveil the hidden facets from within that are affiliated with the normal well being of an organism. Several cellular mechanisms have known to have affirmative outcomes from the context of stabilizing a cascade of biological machinery. CRISPR technology is one such system associated with the defense mechanism of an organism. Studies and scientific reports have claimed the optimistic impact of this technology as a suitable measure for counteracting gene related ailments. Recent studies have also substantiated the significance of this technology in treating cancer but further insights are required to prove it authenticity. Further research at the cellular level on animal models should be conducted in order to unveil the molecular and genetic intricacies in accordance with gene editing through CRISPR technology.
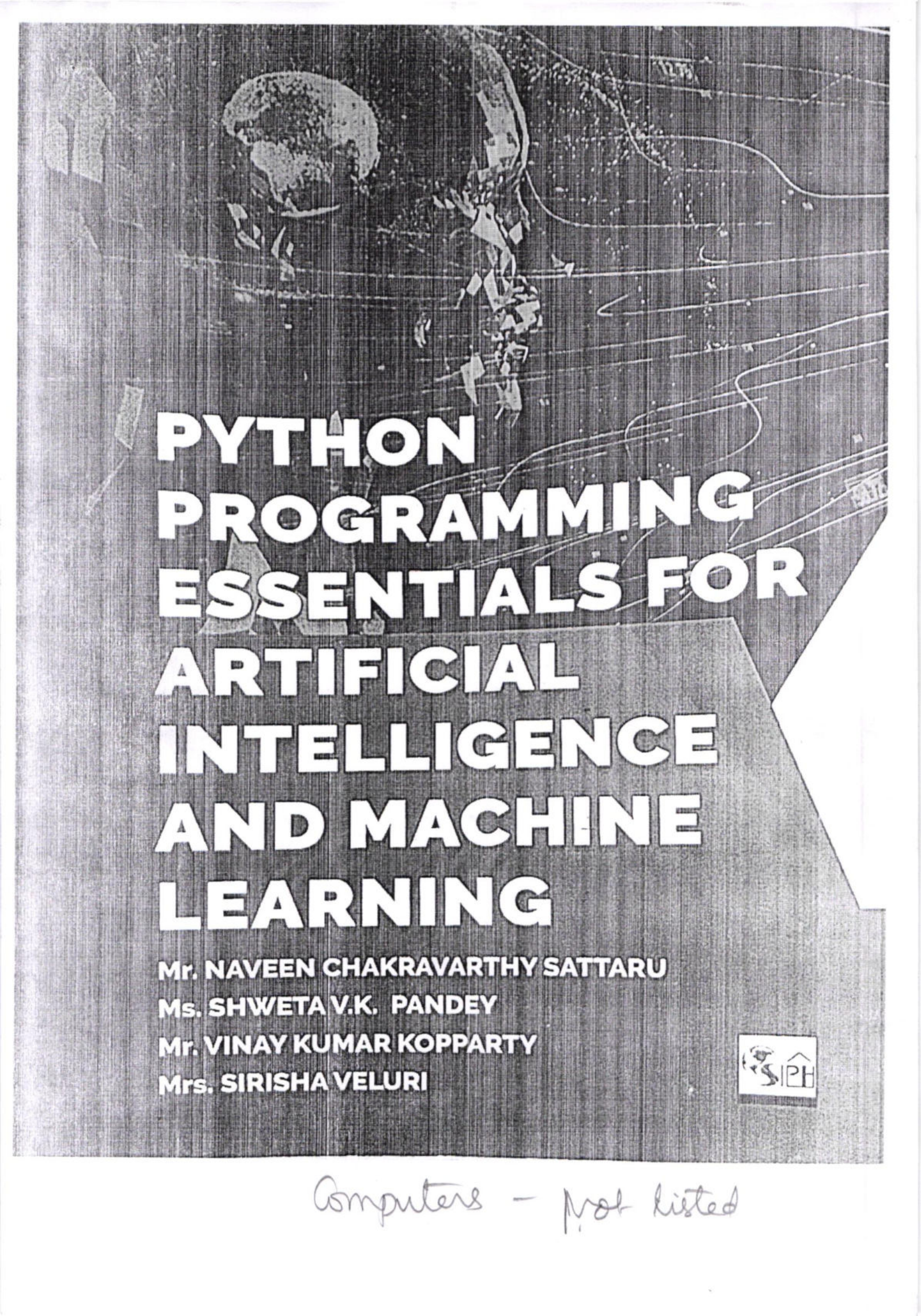
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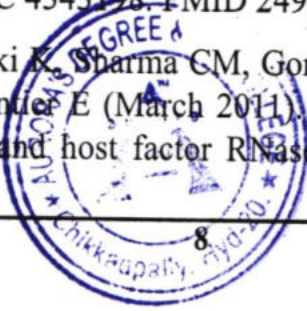
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PYTHON PROGRAMMING ESSENTIALS FOR ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

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भारतीय लोकतंत्र के महापर्व

73वें

गणतंत्र दिवस

की सभी प्रदेश वासियों को

हार्दिक शुभकामनाएं

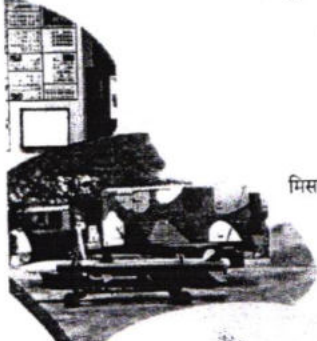# क्ट्रॉनिकी में उत्कृष्टता का 54वां वर्ष
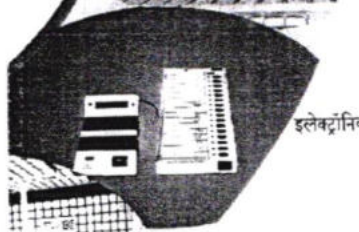

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ईसीआईएल: बहु उत्पाद, बहु-प्रौद्योगिकी उद्यम है जो परमाणु ऊर्जा, रक्षा, वांतरिक्ष, सुरक्षा तथा सूचना प्रौद्योगिकी एवं ई-अभिशासन के सामरिक क्षेत्र में नवोन्नत प्रौद्योगिकी समाधान उपलब्ध कराता है
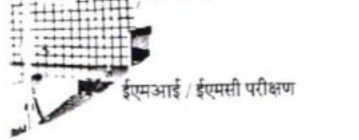
विद्युत संयंत्र के यंत्रण कक्ष

मिसाइल चेकआउट सुविधा

उत्पाद एवं सेवाएं निवेदित

❖ नियंत्रण एवं उपकरणीकरण प्रणाली, विकिरण संसूचक एवं उपकरण

❖ वीडियो निगरानी सहित एकीकृत सुरक्षा प्रणाली, कार्मिक एवं वाहन अभिगम नियंत्रण, वीडियो विश्लेषिक एवं सुरक्षा उपकरण

❖ इलेक्ट्रॉनिक निगरानी एवं युद्धकौशल प्रणाली, रेडियो संचार उपस्कर, रक्षा के लिए कमान्ड एवं नियंत्रण प्रणाली, इलेक्ट्रॉनिक फ्यूज़, जैमर, डाटा, वॉयस एवं वीडियो के लिए एन्क्रिप्शन उपस्कर

❖ ऐन्टेना प्रणाली एवं वी-सैट नेटवर्क, कॉकपिट वॉयस रिकार्डर, सिन्क्रोज एवं जाइरो

❖ ई-अभिशासन अनुप्रयोग, कंप्यूटर शिक्षा सेवा, इलेक्ट्रॉनिक मतदान मशीन एवं मतदाता सत्यापन पेपर ऑडिट परीक्षण प्रिन्टर

❖ परमाणु अवशोषण स्पेक्ट्रोफोटोमीटर, इलेक्ट्रॉनिक ऊर्जा मीटर, थिक फिल्म हाइब्रिड सूक्ष्म परिपथ इत्यादि

ऐन्टेना प्रणाली

एकीकृत सुरक्षा प्रणाली

इलेक्ट्रॉनिक मतदान मशीन

ईएमआई / ईएमसी परीक्षण

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दशहरा

लेखकः—डॉ. शिवहर बिरादार

परिचय:—विशेषकर प्रत्येक देश में दो प्रकार के त्यौहार मनाया जाते हैं। विवेक राष्ट्रीय त्यौहार! जैसे गणतंत्र दिवस. स्वतंत्रता दिवस आदि होते हैं। दूसरे सांस्कृतिक त्यौहार होता है। जिसमे कई प्रकार के धार्मिक, सांस्कृतिक, ऐतिहासिक, राजनीतिक से संबंधित त्यौहार विद्यमान है। वास्तव में हमारे भारतवर्ष को विभिन्न प्रकार के त्यौहारों का देश कहा जाता है। भारतवर्ष मे सांस्कृतिक त्योहारों में दुर्गा पूजा से संबंधित एक महान पर्व मनाया जाता है। अंततः यह पूजा अर्चना दस दिन मनाने से इस पर्व को दशहरा कहा गया है।

विषय :— दुर्गा पूजा का थोड़ा-बहुत आयोजन संपूर्ण भारतवर्ष में होता है। परंतु यह धर्मोत्सव हिंदू समाज की प्रत्येक वर्ग की पूजा कहलाती है। किन्तु बंग – प्रांत के हिंदू का यह सर्व प्रधान धर्मोत्सव है। यह पूजा दस दिनों तक मनाई जाती है। पहले हर घर में मोहल्ले में पंडाल बनाकर इस मंदिरों में मां दुर्गा देवी की प्रतिमा लगाकर प्रत्येक दिन माता के विशेष अवतारों की पूजा की जाती है।

पहला दिन पाड्यमि के तिथि पर मां भवानी देवी का रूप में संपूर्ण भारतवर्ष में पूजा की जाती है, और कुछ लोगों ने गौरी और पार्वती देवियों के रूप में पूजा कि जाती है। दूसरे दिन विद्या के दौरान माता जी को श्री बाल त्रिपुरा सुंदरी के रूप में पूजा जाता है। तीसरे दिन तदिया तिथि में श्री गायत्री देवी के रूप में पूजा अर्चना कि जाती है। चौथे दिन चविथी तिथि में माताजी श्री अन्नपूर्णा देवी और कुछ प्रांतों में कुष्मांडा देवी के रूप में पूजा जाता है। पंचमी के तिथि में श्री ललिता देवी और कालरात्रि के रूप में पूजा की जाती है।

षष्ठी में षष्ठी देवी या श्री महालक्ष्मी देवी के रूप में अर्चना पूजा की जाती है। सप्तमी के तिथि में श्री सरस्वती या चामुंडी देवी के रूप में पूजा जाता है। अष्टमी के दिन मूल अवतार श्री दुर्गा देवी जी की तथा सिद्धीधात्री, वाराही, नृसिंही, कल्याणी, कात्यायणी, महागौरी, गिरिजा देवी, भुवनेश्वरी देवी, माधवेश्वरी देवी, विशालाक्षी देवी, पुरुहितिका देवी, ज्वालामुखी देवी, माया देवी आदि रूपों में पूजा अर्चना की जाती है। नवमी में महिषासुर मर्दिनी देवी की विशेष अर्चना की जाती है। अंतिम दसवे दिन दशमी के तिथि में कामाक्षी देवी या श्री राजा राजेश्वरी देवी की असुरों पर विजय प्राप्त करने के उपलक्ष में पूजा की जाती है। दुर्गा उत्सव वर्ष में दो बार आता है। एक बार बसंत के प्रारंभ में और दूसरी बार शरद ऋतु में। किवदंती यह है की पहली पूजा भगवान रामचंद्र जी की पूजा की याद दिलाती है। ऋतुओं के नाम पर पहली पूजा को वासंती और दूसरी को शारदिया कहते हैं। आजकल शरद कालीन दुर्गा-पूजा शारदीय ही अधिक प्रचलित है। यहाँ बंग पूजा जो त्रेता युग में श्री भगवान रामचंद्र ने लंकाधिपति रावण के वध के लिए की थी। बंग प्रांत के हिन्दू का यह सर्व प्रधान धर्मोत्सव है, परंतु दुर्गा पूजा बहुत प्राचीन है।

अनेक शास्त्रों में उसका उल्लेख है। सतयुग में सूरध नाम का एक प्रबल पराक्रमी राजा राज्यच्युत हो गया था। वह अपने भ्रष्टराज की पुनः प्राप्ति के लिए भगवती की अर्चना करता था। एक अन्य शास्त्र में यह लिखा मिलता है कि भगवान मेधस ऋषि की आज्ञा से समाधि नाम का एक वैश्य पृथ्वी के दुःखदैन्य के नाश के लिए इस प्रकार की पूजा करता है। मार्कंडेय पुराण में दुर्गा का विशेष महत्व है। उन्होंने दैत्य विनाश के लिए भूतल पर अवतार लिया। देवताओं ने उन्हें सामरिक परिच्छेद से सुसज्जित किया। उन्होंने भयंकर अट्टहास के साथ युद्ध भूमि में प्रवेश किया, जिसमें दैत्य के हृदय में भय का संचार हुआ और अनेक अद्भुत पराक्रम व सम्मुख चंडा-मुंडा शुंभ-निशुंभ मुर, रक्तबीज, हिरण्यकश्य वज्रदस्तुड्ड, दुर्गू, विरुपाक्ष महिषासुर जैसे अनेक दैत्य दल व समूल नष्ट हो गया। युद्ध भूमि में दुर्गा के कौशिकी रूप कालराग से जन्म होकर महिषासुर रक्तबीज से भयंकर युद्ध करती है। साथ ही वाराही नृसिंही, कालिका के रूप में देवताओं को दर्शन देत है। कालिका पुराण में भी यही कथा है। अंतर केवल इतना है कि मार्कंडेय पुराण की दुर्गा 'सहस्र भुजा' है। कालिका पुराण वर्ण 'दसभुजी'। यही 'दसभुजी' दुर्गा देवी की विभिन्न रूपों की प्रतिमाओं की आज पूजा की जा रही है। यही कालिका पुराण के अनुसार बंग प्रांत में दुर्गा देवी जी को कालिका देवी के अवतार में पूज जाता है।

शरदकाल में बंग-देश की शोभा अनिर्वचनीय हो जात है। आकाश निर्मल रहता है। पृथ्वी शस्य श्यामला हो जाती है नदिया निर्मल जल से भरी कल-कल शब्द करती हुई बहती है प्रकृति के इस इर्षात हास-विलास के बीच में जगदंबा व आगमन होता है। सारी प्रकृति बंग-देश का उत्साह सजाकर आगमनी के लिए तैयार हो जाती है इस उत्सव की आबालवृ, नर-नारी सभी अत्यंत उत्सुकता से प्रतीक्षा करते हैं।

शुक्लपक्ष की प्रतिपदा से उत्सव प्रारंभ होता है। पंचम की तिथि तक यह साधारण रूप से चलता है। फिर सारा देश ढोलो, नगाड़ों, शंकों, घंटों, करतालो से निनादित हो उठता है पुरोहितगण बिल्ववृक्ष के नीचे दुर्गा का बोधन-कार्य समाप करते हैं और अधिवास की पूजा करते हुए। षष्ठी की रात बीतते ही मां महाशक्ति (दुर्गा) का शुभ गमन होता है। पुरोहित पूजा क कार्य समाप्त करके चंडीपीठ शुरू करते हैं। होम का महत् आयोज होता है। होमकुंड में घृतासिक्त, बिल्वदल द्वारा अखंड आहुत प्रदान करते हैं। इस पूजा पाठ, आमोद-प्रमोद और उत्सव समारोह में महा सप्तमी, महाअष्टमी और महानवमी के दिन बी जाती है। जब आखरी दिन विजय दशमी आती है दुर्गा कैलाश को प्रयाण करती है।

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अरोरा डिग्री एवं पी जी कॉलेज, चिक्कड़पल्ली हैदराबाद-20
मोबाईल– 9966155521

अनुक्रमणिका

रचनाकारों से निवेदन