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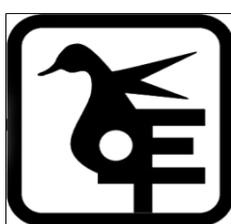
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# Vaze College Profile



## The KET's V. G. Vaze College of Arts, Science and Commerce (Autonomous)

Mithagar Road, Mulund (East) Mumbai - 400081 | Re-accredited (4th Cycle) by NAAC with "A" Grade

The Kelkar Education Trust's V.G. Vaze College (Autonomous) holds the distinction of being the first affiliated college in the State of Maharashtra to be assessed for accreditation by the National Assessment and Accreditation Council (NAAC) in 1998. Since then, the college has been committed to various quality initiatives. The college has undergone NAAC accreditation four times with an "A" Grade and 3.45 CGPA in the fourth cycle in 2017. The college has 17 aided undergraduate, 6 self-financing undergraduate, and 7 postgraduate programs. The college also offers a unique Post Graduate Diploma in Perfumery and Cosmetology and Vocational Skill Development program in Travel and Tourism. Short-term certificate courses are also conducted under the G. D. Kelkar Skill Development Centre and Finishing School. Vaze College boasts of 9 Ph.D. centres, 33 faculty with Ph.D., and more than 10 research guides.

The faculty of Commerce was started in 1984. From a few hundred students in 1984, the Commerce stream has grown by leaps and bounds. It is one of the biggest faculties in the college. Today we offer programs like B. Com, BMS. A&F, B&I and M. Com in Accountancy. We are fully committed to excellence in commerce education. The main aim of the Faculty of Commerce is to offer superior quality & professional education with a view to equipping graduates & post graduates with high ethical & leadership qualities. The increasing number of applicants every year for the Commerce course Programs is a testimony to the efficiency of the courses as well as the faculty. Our alumni have pursued higher degrees in reputed institutions and are well-placed today.

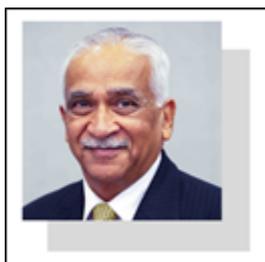
The purpose of this conference is to encourage and promulgate the research acumen of the students, research scholars, academicians, and professionals from various academia and industries towards Disruptive Innovations. This conference aims to provide a platform for global knowledge sharing.

## The Concept

Evolution is the quest for improvement, conveniences, more comforts, and a better lifestyle. It is often triggered by morphological changes in organic, technological, institutional, and social domains. Such a paradigm shift causes frictional noise where existing systems undergo a rapid change, diminish or vanish. Disruptive innovations belong to this league. While it is said that necessity is the mother of invention, disruptive innovation does not necessarily happen due to necessity but sometimes from the need to excel.

Clayton Christensen, in 1995, first postulated disruptive innovation as an 'innovation that creates a new market and value network and eventually disrupts an existing market and the value network, displacing the established market-leading firms, products, and alliances.' It is any new technology or startup that aims to shake up an industry and alter its competitive patterns. Innovations do happen in every industry but to be truly disruptive an innovation must entirely transform a product or bring an easy solution to something which was complicated in the past.

This virtual inter-disciplinary conference aims to provide a platform for academicians and researchers across the globe to deliberate and discuss various creative disruptions in business, science, and humanities. It also aims to provide students a platform to articulate their research thinking in the form of a paper presentation. Through an interdisciplinary approach, the web conference aims to analyze the topic from various perspectives. Commerce, science, social sciences, humanities, and media have been revolutionized by disruptive innovations and hence the conference hopes to ensure academic engagements in all these domains.



**Mr. C. N. Murthy**  
Former President,  
ICF Mumbai Chapter

## Keynote Message

Honourable Trustees of Kelkar Education Trust Sri Ramesh Vaze and Smt Jyoti Bhadkamkar, Valedictory session speaker Mr Hariharan Dr Kurup, , Principal Dr. Sharma, Prof. Preeta Nilesh, Mr Bhorkar, Dr Ambavane and Mr Anil Naik, Ms Chitra Subramaniam Members of the organising committee all dignitaries present here today, distinguished dignitaries, academicians, scholars, professionals and students.

I am delighted and indeed honoured to be invited to share my thoughts and beliefs with this august and learned gathering. A lot has been spoken today on the importance of innovation and change as also how it continuously changes our lives. All change causes disruption of a kind. Disruption affects us as individuals, it affects the organisations we build and work in and even the very systems in which we spend our lives. Yet all innovation does not necessarily disrupt of existing ways and systems. Some may add dimensions to what exists while other innovations have the potential to threaten and disrupt. A deep understanding of Disruptive Innovation which is game changing as Dr Ambavane noted when well understood increases our ability to cope with chaotic change with greater success.

Now, I come from the past when Clayton Christensen had not yet been drawn to the research that helped develop the theory of Disruptive Intelligence. If I reflect on the climate of those times it was an age of stability. Organic growth was the prime objective. As leaders and professionals we focused on improving our products and processes, creating better products that in our eyes delivered better value for customers. The accent was on ‘perfection’ and on making good products better. There were several management models and theories framed and adopted to help organisations excel in this journey. I remember the time when we swore by Management by Objectives MBO .... Which was all the craze in the early 1990s for instance. This was followed by stress on the power of Six Sigma and Lean.

Please do indulge me as I reflect on the lessons I learnt as a packaging professional working with ITC Ltd. and then with a Global multinational Huhtamaki PPL a subsidiary of a Global multinational Huhtamaki Oje of Finland.

I have had the opportunity of interacting with leaders and marketing professionals in many corporates across a multitude of industries ranging from FMCG to Pharma, to industrial and engineering products. Packaging is always the customer’s first handshake with a product in the marketplace. Brands are built with the stories the packaging narrates. Market shifts, competitor moves, innovations and launch of new technologies are all there for a packaging professional to experience and learn from. The way a detergent like Nirma took on a well-established and trusted product like Surf is a story that has become a legend. Similarly the soft drinks upheaval with Thumsup taking on the mighty Coke, Haldiram taking on Pepsi in the wafers and snack food business come to mind.

Even in our own packaging industry we had upheavals with strong competition from a multitude of small players in the unorganised sector that expanded the packaging market with cheap and cost effective products. As market leaders we prided ourself on our quality and the service we offered our MNC customers. We built a solid reputation for reliability and customer service. We always enjoyed a premium in the market. We innovated and created product options and packaging system solutions that were tailor made for our valued customers.

The consumer market in India, as in the rest of the world, kept growing and FMCG companies saw a major opportunity that remained to be claimed in the low end product market that would appeal to the economically lower segment of the population. That was a market we could not cater to. So although we were reliable and were the quality standard in packing, we were overpriced. Our technology, our processes and approach to the market was not in sync with the growth trends of the economy, particularly after the financial crash that resulted from the collapse of Lehman Brothers in 2008.

I always maintained that a crisis is an opportunity that cannot be missed! A crisis leads to introspection and renewal as one finds the momentum to break old models and the lessons learnt breathe new life that can spur organisations to greater heights.

Huhtamaki PPL had always been a corporate steeped with the spirit of innovation. Early on we set ourselves strategic goals to that would track and ensure that we never lost focus on innovation. We set up a programme which created an impetus for innovative thinking and action in the team called NASP New Applications, Services and Processes and Products. We aimed at having a minimum of 35% of our annual turnover come from innovations.

We always mentally divided the market into two segments – the value added and the general mass market trade. We prided ourselves on being the leaders in the value added segment but were outpriced and swept away from the larger mass market segment. And guess what, we were ok with that for a long time. We would innovate and enjoy a premium with new products but the shelf life of such new products was as short as 6 to 9 months. Competitors who had set themselves up to serve this market disrupted us and we struggled. I remember a conversation with the Finance Director of a large FMCG MNC. I shared the truth about the quality and the reliability of the packaging we offered that was superior to anything else in the market. He listened and told me in a calm voice ‘Murthy, but we are not looking for the best quality and neither is our customer. What we want from you is appropriate quality!’.

We were not geared to meet that expectation as market leaders. Our technology, our manufacturing infrastructure, our supply chain were totally out of sync. But most importantly this experience highlighted to us the cultural issues that kept us from seeing the threat over years and getting prepared for a new reality. We were seriously disrupted! Our Innovations were all aimed at sustaining our business model and we did not foresee the twist and turns of a fickle marketplace where customer values and needs can shift dramatically to spur growth in a different direction. Sustained Innovation focus did not work!

How I wish we had studied Clayton Christensen’s theory of Disrupting Technologies!

Around 1995 Christensen’s seminal work on ‘Disrupting Technologies: catching the Wave’ was published and in 1997 the Innovators Dilemma popularized the theory of Disruptive Innovation.

The results of his multi-method study indicated that, when an innovation that improved performance on attributes customers historically valued emerged, existing players tended to lead the process of taking it to market and maintaining their position much as we had done.

However, when an innovation that introduces new elements or attributes that cater to a different set of customer desired values emerged, existing players tend to ignore the innovation and either languish or fail. The new entrants lead the process of development. Christensen noted that this pattern is observed consistently across multiple technological generations and product lifecycles.

He identified two clearly different forces that drove innovation to change an existing marketplace.

1. Innovations that improve products and services along dimensions of performance that mainstream customers care about and which markets have historically valued. These are the innovations that enable incumbents to sell more products to their best existing customers at higher margins. These are termed Sustaining Innovations. Our innovation drive was always focused on this area.
2. Disruptive innovations on the other hand when initially introduced, are often low end and inferior to products currently sold on accepted performance dimensions. They do however offer a novel mix of attributes that appeals to customers not in the mainstream and to those near the bottom of the market. They are often smaller, cheaper, more accessible or more convenient.

An example was the disruption caused by the launch of Nirma detergent powder to compete against a well-established player like Unilever's Surf. You can see the story repeated with the proliferation of store brand consumer goods competing against established brands.

In our case at Huhtamaki PPL, the slow rise of a formidable competitive force in the shape of packaging suppliers in the unorganised space illustrates this. This disruption disrupted a market and created a new-market segment that provided value to customers who were not consumers of our products and services.

This crept upon us gradually and we did not realise the power of disruption that was to come for years!

The Disruptive Innovation theory further postulates that there are three elements that make Disruptive Innovation successful.

1. Enabling technology
2. An Innovative Business Model – one that targets new customers who previously did not buy products or services available in a given market and or low-end consumers dominating a market segment that is least profitable.
3. A Coherent Value Network of suppliers - partners in a value chain who gain when the disruption caused by the innovation gathers momentum.

It is only when all three are adopted by Disruptive innovators that they gather the power to threaten and unseat established players in the market.

Organisations, and leaders who lead their fortunes, can get caught up in the web of success and established thought processes and be focused on just being better at what they do. New entrants, on the other hand lack many customers and are not fettered by investments already made to move in different directions. All our competitors in the unorganised sector, for competitors they were, invested in slow speed indigenous machines. They sourced film and ink from small players at ridiculously low cost though there were quality issues. With a lower cost of raw material, waste was a bit more manageable and the cost of the packaging they supplied was indeed less than even our raw material cost!

For us, the normal bias for continuity renders us wedded to the growth path we were on and keeps us from being motivated to develop disruptive innovations that promise lower margins and target smaller markets. If I look back it did not behove us to introduce inferior products and services that we believed our existing customers could not use. It was just not what Huhtamaki PPL did!

Today we need constant innovation to cope with Chaotic times:

Times have changed and markets and economies are shifting like never before. So, let's talk about change.

If we examine the trends and how technologies and eco-forces will impact us in the years ahead, in addition to the Global disruptive forces that will create extraordinary disruption, like Urbanisation which are

- The Accelerating technology change
- Shifting demographics
- Shifting global connections in trade, finance, people and information

There are three exponential technologies that will define our future:

- Genetics
- Robotics and
- ABCD - AI / Block Chain / Cloud Computing / Data Analytics

David Peterson, the Senior Director of Coaching and Leadership at Google and Jedi Master of coaching postulates that the significance of the celebrated VUCA model will alter with the two fundamental drivers of VUCA being Complexity and Constant Change.

Ambiguity, uncertainty and unpredictability are the side effects.

Garvey Berger and Johnston created a complexity framework that is worth quoting. The world we know first shifted from being Simple with repeatable and predictable cause effect relationships, where correct answers and best practices could be arrived at, to being complicated and it then it moved to being complex, where the relationship between cause and effect is unpredictable and does not repeat. There are no right answers to many problems and the human mind needs to grapple with dilemmas and polarities.

The scene today is chaotic. In the chaotic world that we live in today there is simply no clear cause and effect relationship. One grapples to find useful data for decision making. And leaders are faced with uncertainty and ambiguity. The recent pandemic has brought this reality home to all of us. Life as we knew it has irrevocably changed and we do not know what shape it will take next. The human mind must be comfortable with ambiguity and uncertainty and ready to face exponential change to help us be resilient and capable of defining our new businesses, indeed our lives. The one reason why leaders fail is because they do not adapt when things change. The comfort of success often tends to keep them in a zone of contentment. To them disruptive innovation does not appear a major threatening change process.

Being innovative today to cope with disruption requires leaders and innovators to shift their position on the continuum between 'Bias for Continuity' and 'Bias for Change'. They need to be able to embrace new perspectives and keep learning what they do not know. The ability to stay resilient, accept vulnerability and yet be curious and courageous is what will build the capability to innovate. (Post card exercise)

A leader who recognised this truth very early is Satya Nadela. Microsoft had always had a cutthroat culture and had been a performance driven organisation which was driven by numbers and performance KPIs that every individual in the organisation targeted. Reviews were long and detailed with great analysis of what happened and why.

Overcoming the challenges of growth required Microsoft to change the way it developed products, earned its revenues, and managed its people. They had to introduce new products and business models like software as a service as also their licensing policy. Employees had to be scaled to master new advanced products.

Nadella's solution was a new culture dubbed the "growth mindset."

The new culture today encourages "learning, trying and even failing."

Satya Nadela, adopted Carol Dweck's work on Growth Mindset to bring in culture change in Microsoft. He shifted culture in the organisation to focus on Change Leadership rather than on Change Management. The culture embraces:

- Learn-it mentality
- Openness to change
- Value for innovation
- Diversity and inclusion

In short, it emphatically says, 'Culture eats Strategy for Breakfast'!

Innovation and change demands not IQ or EQ but AQ - Agility Quotient. It demands adaptability and ability to deal with the mental states when facing change. Leaders who recognise their own and the emotions of their people and know how to realistically deal with them at every stage are the ones who will best be able to manage chaotic change that innovation, be it sustained or disruptive, brings. The ability to stay resilient, accept vulnerability and yet be curious is what will build the capability to innovate.

We need to be more relaxed and comfortable with multiplicity and ambiguity. Getting in touch with our roots tells us that our civilization gives us the DNA that helps put anxiety over chaos. Traditionally we see chaos as a source of creativity and dynamism.

To quote Pawan Varma, ‘Since the ultimate reality is an integrally unified coherence, chaos is a relative phenomenon that cannot threaten or disrupt the underlying coherence of the cosmos.’

With this realisation we can develop the human mind into a network... an open architecture which continuously connects the dots within, intertwining the knowledge that resides with the constantly changing external dots with which the being engages. This makes an efficient system of adaptation and willingness to engage with new perspectives.

This is the aim of the Theory of Disruptive Intelligence!

The imperative for a deep understanding of what drives disruptive innovation and how players and markets can benefit is greater than ever before. It is indeed heartening that we have today a conference where educationists and scholars have focused on researching the subject with a multidisciplinary approach. I would stress the need to focus research on not just the doing, the processes and the structure of innovation but to also include the study of human mindsets and cultures in organisations and societies that are intrinsic to creativity and sustainability.

Thank you for allowing me the opportunity to share my thoughts and for a patient listening. I once again congratulate all the wonderful intellectuals here today who are fascinated by the science and potential for systemic growth that it affords mankind. May the insights and learning that flow here help us develop creativity and resilience that is sorely needed in the coming ages.

## Valedictory Speaker



**Mr. Venkatasubramanian Hariharan**

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**A STUDY ON INNOVATION IN STARTUPS: GLOBAL TRENDS AND TECHNOLOGY****Ms. Ashvina Paul Raj<sup>1</sup> and Ms. Heena Tarannum<sup>2</sup>**<sup>1</sup>Visiting Faculty – M. Com, Narsee Monjee College of Commerce and Economics (Autonomous) and<sup>2</sup>Student – M. Com (Business Management) Part II, Narsee Monjee College of Commerce and Economics (Autonomous)**ABSTRACT**

*Human development in recent decades has been accompanied by dynamic changes in technology and an increasing abundance of digitized devices and services. The pace of change seems likely to step up tremendously because of “frontier technologies” such as artificial intelligence (AI), robotics, biotechnology, nanotechnology and so on.*

*Though there are concerns that this proliferation of frontier technologies might lead to labor forces being replaced by technology, recent interest on the work-life balance, and the quality of employment has also received attention. This study investigates the role of such technology on startups and enhancement of innovative performance comparable to the leaders and pioneers. This aims to capture the impact of accelerated technology on startups and the resultant impact on the employment quality and innovative performance. The results of this study will provide practical implications for enhancing technology entrepreneurship.*

*These technologies have already brought enormous benefits as witnessed by the remote working and the innovative startups which have some of the best innovative and upgraded technology. But rapid advances can have serious downsides if they overtake the ability of societies to adapt. There are fears, for example, that jobs might become redundant as economic activity is automated, and that social media is intensifying divisions, anxiety, and doubt. Overall, there are concerns that frontier technologies will further widen inequalities, or create new ones.*

*Keywords: startups; innovative performance; technological innovation; employment quality; technology entrepreneurship; frontier technologies.*

**INTRODUCTION:**

**“A truly disruptive technology not only changes the way that people think but also the way they operate”**

The term startup describes any company which is in its initial phase of operations. It involves one or more entrepreneurs developing a product or service that they believe to be in demand. Since startup companies begin with limited revenue and high costs, they usually require huge capital investment from various sources. Such sources usually include bank loans, government grants, business incubators, and venture capitalists.

Innovative Technology based startups can change the face of the fields, industries, sectors they belong to. Here are some of the common characteristics of the best innovative technology-based startups:

- Upgraded and innovative technology in terms of manufacturing, supply chain, providing healthcare and other services.
- Tremendous competitive edge over the leaders and peers in the industry.
- Cutting edge technology to ensure the best quality of products and services.
- Technological innovation in common tasks and activities resulting in better productivity and profitability.
- Huge impact on the way the product or service is delivered to the final consumers. The study focusses on Innovative Technology based startups in manufacturing, agriculture, healthcare, and financial services. Some of the innovative Technology based startups in India and globally are discussed below:
- **ULS Robotics – Exoskeleton Technology Platform:** ULS Robotics is a Chinese startup developing an exoskeleton technology platform. This technology was developed to help workers who might experience fatigue and loss of productivity due to that and the repetitive nature of the mundane work in a factory setup. The use of exoskeletons on the shop floor helps workers in doing their tasks efficiently while reducing or eliminating any physical strain they might experience. Exoskeletons usually provide support for the waist, upper limb (with 4 degrees of freedom), and lower limb (with 12 degrees of freedom).
- **Life shots:** Life shots was started in the year 2018 in Thane as India’s first concept human garage. It was developed mainly for painless and drugless healing. It brings better healthcare and delivers highest quality

therapies & treatments with unmatched care, outstanding services & innovative technology. They are dedicated to offer a state of existence where all the body functionality operates in perfect harmony. They have trained therapists who are mainly focused to provide quality care with human touch; which truly reflects the essence of their motto which is - " Painless & Drugless Living". They offer a variety of therapies and services, some of which are:

- Meditative Dentistry
- Sound Wave
- Zero Body Dry Float
- Cryotherapy and so on.
- **Ninja Cart:** Ninja cart is India's largest fresh produce supply chain company that is solving one of the toughest problems in the world through technology. They connect producers of food directly with retailers, restaurants, and service providers using in-house applications that drive end to end operations. Currently, their Supply Chain is equipped to move 1400 tonnes of perishables from farms to businesses, every day, in less than 12 hours. They are focused on making the Ninja cart innovation more accessible to the most fragmented parts of society. And intend to leverage our strengths and resources to innovate for new product categories and customer segments while solving complex supply chain problems. The competitors of Ninja Cart were Khula, Farmioc, Chilibeli and AgroStar.

The Problems faced before Ninja Cart were:

- Farmers experience price risk, information asymmetry about demand, distribution inefficiency, and receive late payments.
- Retailers face problems like higher costs, low quality and unhygienic produce, high price volatility, and the everyday hassle of going to the market.
- The traditional Supply Chain is highly inefficient, unorganized, and has a high rate of food wastage.

The solution found by Ninja Cart:

- They eliminated intermediaries by taking control of the Supply Chain by using technology and analytics.
- They have built reliable, cost-effective, and high-speed logistics and infrastructure to solve for inefficiencies in the Supply Chain.
- On one end, farmers get better prices and consistent demand, and on the other end, retailers receive fresh produce at competitive prices that are delivered to their doorstep.
- **FinTEx:** FinTEx is a non-profit, member-driven community of the leading organizations within FinTech and Financial Services, working together to promote collaboration, grow investment, and drive innovation in Chicago and the broader Midwest. FinTEx serves as the connector to this rapidly growing ecosystem and provides a single point of access for those looking to do business in the Midwest. The services offered by them are:
  - Cultivate community & stimulate collaboration.
  - Accelerate innovation.
  - Attract national & international attention to Chicago.
  - Build the talent pipeline.
  - Grow business & investment opportunities.

#### **Objectives of the Study:**

- To understand the various innovative technologies used in Startups worldwide
- To learn about the impact of technological based innovative Startups in various sectors worldwide
- To assess the impact of innovative technologies in the growth and success of Startups
- To understand the benefits of innovative technology based Startups to humanity

**Sources:**

This study is done through collection of Primary and Secondary Data. These data are collected as follows:

- Primary Data: The Questionnaire
- Secondary Data: Articles and Websites

Sampling Method: The Sampling Method is Non-Probability - Convenience Sampling Method

Sample Size: 50 Responses (total 52 responses)

**Data Analysis:**

A survey was conducted to find out about the awareness and opinions of individuals about innovative technology based startups and their need, impact and other related aspects. The following are the summary of the data collected:

- **Age Group of Respondents:**

Age Group (in years)	No.of Responses
Up to 20	3
20-30	39
30-40	3
40-50	7

Since the majority of the respondents of the survey belong to the age group 20-30, the responses maybe a reflection of their perception and views.

- **Fields in which innovative tech based startups are likely to be successful and fully virtual:**

Fields	Likely % of success	No. of Responses
Food	11.54	6
Hospitality	1.92	1
Health Care	5.77	3
Financial Services	76.92	40
Any Other	3.85	2

The fields in which innovative tech-based start-ups are likely to be successful and function virtually according to the respondents is financial services (76.92%); followed by food (11.54%); healthcare (5.77%); other sectors (3.85%) and hospitality (1.92%)

- **Whether Innovative Technologies can ensure success of Start-ups**

Type of Responses	No. of Responses
Yes	51
No	1

- **H0: Innovative Technologies cannot ensure success of Start-ups**
- **H1: Innovative Technologies can ensure success of Start-ups**

Since, maximum respondents felt that Innovative Technologies can ensure success of Startups ; it can be said that the Null Hypothesis(H0) is rejected and we accept the Alternative Hypothesis(H1).

**Functions to be considered to be considered as Innovative Startups:**

Type of Function	No.of Responses
Artificial Intelligence	28
Robotics	7
Virtual Reality Technology	13
Quantum Technology	1

Majority of the respondents felt that Artificial Intelligence will be preferred for innovative tech startups; this was followed by innovative technology related to Virtual Reality and then Robotics. As very less awareness exists about Quantum technology it had only one response.

**Whether Emergence of AI has resulted in innovative Tech Based Startups:**

Type of Response	No.of Responses
Yes	41
No	9

- **H0: Emergence of AI and other technologies has not resulted in innovative Tech Based Startups**
- **H1: Emergence of AI and other technologies has resulted in innovative Tech Based Startups**

Here, Chi Square ( $\chi^2$ ) is greater than the Critical Value at a Degree of Freedom of 2, Significance level of 5% , hence Null hypothesis is rejected.

So, as per the study it seems that Emergence of AI and other technologies has resulted in innovative Tech Based Startups

**Whether Innovative Tech Startups are beneficial to the Society:**

Type of Response	No.of Responses
Yes	44
No	8

- **H0: Innovative Tech Startups are not beneficial to the society**
- **H1: Innovative Tech Startups are beneficial to the society**

Here, Chi Square(24.92) ( $\chi^2$ ) is greater than the Critical Value at a Degree of Freedom of 2, Significance level of 5% (3.841), hence Null hypothesis is rejected.

So as per the study, innovative tech startups are seen as being beneficial to the society

**Summary of Findings and Recommendations**

- **AI getting more prominence for startups:**

AI has marked its presence in almost all industry segments, and startups are no different. AI are sure to assist startups to establish themselves faster and in an effective manner. These modern technologies will help startups establish a modern infrastructure, leaving behind obsolete systems.

- **Robotic technology will spread its utilization in startups:** Though considered a challenging and difficult technology, robotics has emerged as a much-needed technology in the startup sector. The year shall witness increased use of robotic techniques to accelerate establishing the business and refining processes, depending upon the current global scenario.
- **Virtual Reality Based Technological Startups Would Be in Demand:** The situation has called for an increase in virtual services and hence startups are focusing more on areas where such online services can easily be provided.
- **More Capital Investments: Innovative Tech Startups would require more capital investments and hence** will require more time, finance and other resources for ensuring its long term success
- **Enhanced Digital Awareness and Acceptance: Because of the pandemic, digitization has gained much** greater momentum than before. It will include adopting the newest digital technologies and seamlessly integrating with third-party platforms, for the best of functionalities to be embedded in the solutions. For startups to function at par with the technology trends, there will be a fast implementation of necessary technical skills including software, hardware, and human resources. It will be beneficial to mankind and the common people.
- **Changing points of business focus:** As startups build their business, their focus areas are bound to see a change in future. There will be an increased focus on a variety of areas like international rules and regulations like GDPR, cybersecurity, marketing of brands, reliability of software, work from home operational ease, etc. It will be beyond mere business profits and productivity.

**CONCLUSION**

With each technological upgradation and innovation, there is a scope for improvement in the various sectors, industries, fields. The pandemic has further created a need for innovative technologies in various fields like financial services, education, agriculture, healthcare and so on.

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Innovative Tech startups are likely to benefit humanity by providing non-invasive options for treatments and therapies, fresh food items, quick financing and much more. There are some startups gradually gaining pace leading to more innovations in particular fields and sectors.

The future is here and it is in search of innovative technology based startups to cater to the emerging needs of humanity!

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**THE IMPACT OF FAST FOOD ON LIFE****Anjali Sharma**

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**ABSTRACT**

*Food & water are the basic needs for human beings which provide a balanced appetite and survival strength. Food within itself has various types but since the 1950's the innovation of fast food has been playing a vital role in one's diet routine. Fast food is such a type of food that is prepared and served very quickly, but it is less nutritious as compared to traditional foods. As fast food is associated with a higher body mass index, less successful weight-loss maintenance, and weight gain, it also reduces the quality of diet and provides unhealthy choices especially among youths or working-class people, raising their risk of obesity, tooth decay, and many more diseases. The paper has been indicating the objective of - "How Branded Fast Food Leaders (like McDonald's, KFC, Domino's, etc) influence people that affects health, expenditure, and environment in a disruptive innovation behavior." The purpose of the major reason for such disruptive innovation behavior is changing the lifestyle of people. Being only restricted towards physical health effects is what is not the agenda but this Industry has the power to influence people through various platforms directly on one's expenditure, thoughts towards food & environment destruction.*

*Highlights - Fast Food Industry, Health effects, Influence on expenditure, Environment Destruction, Changing Lifestyle.*

---

**INTRODUCTION**

Eating food is essential for every person; it continues us alive and additionally gives us leisure at the same time. We could see a shifting habit change over the historical periods. A faster-growing pace is been visible among the fast-food compared to prepared nutritious food as it is quickly prepared and dished up, often at chain restaurants, and typically related to less expensive and less nutritious items. This food is a type of widely prepared mass-processed food. Fast food, often known as junk food, is defined as food that is high in fat and sugar, oils, salt, and calories but is low in nutritional value and quality. Chicken nuggets, burgers, and fried potato cutters, as well as tinned chips, pies, pizza, and tender drinks, are all popular fast snacks. The Fast Food Industry has the power to be a competitive market in nature and influence a human to adopt changing lifestyle habits, one's expenditure, cravings & addiction towards food, thoughts towards food & environment disruptions.

**AIMS & OBJECTIVES OF PAPER**

India is diverse and ethnic, authentic in all kinds of social, cultural & democratic ways, while it's more diverse towards 'FOOD' keeping an eye on nutrition and taste. Comparing Indian homemade food or cuisines and fast foods impacting on Indian people was the basic to study this topic.

The aim is to bring in highlight the Fast food Industry as a disruptive innovation in nature due to changing lifestyles. Looking at the stores like McDonald's, Dominos, KFC & other branded fast food market leaders these have their ethnic ways to treat people through various strategies in fields of food meals, offers & discounts, giveaways & importantly looking out one's expenditure targeting nominal charges for provided at stores. Forward to it comes the objective of "How Branded Fast Food Leaders (like McDonald's, KFC, Domino's, etc) influence people that affects health, expenditure, and environment in a disruptive innovation behavior." impacting the lives. One of the largest growing food types in India is fast food. According to the survey, the Indian fast food industry is growing by 40% every year and generates huge sales. India has become one of the biggest hubs for global fast-food chains to grow due to the availability of raw materials, population size, etc. Major global fast-food players and their size Mc Donald's – 300 outlets and according to the plan it can 500 by the year 2020. Dominoes – in 2008 there were 227 outlets in Indian and by the year 2017, the number of outlets has increased to 1126.

Pizza hut – 360 outlets currently in India and according to the plan the number can go to 700 by the year 2020.

Subways – there are currently 600 outlets overall in India which might even increase by 2020.

A survey was engaged to understand this study among a circle of 100 people of [19-60] years, resulting in greater scope to study :

- Understanding how Fast food impacts life: an interesting point of was discovered among Indians was that fast food can be a leisure food or taste changer but cannot be included in the food cycle.

- Whether people in India are attracted to Branded Fast food yet bound homemade nutritional meals: Individuals agreed on this point as homemade food is mandatory in the diet by everyone in India than fast food, though it's cheap, delicious, etc here satisfaction towards homemade food was the ray of hope.
- Whether purchasing habits have been influenced by the promotion of fast food on social media: Fast Food Advertisement Advertising is a commonly applied marketing strategy to promote fast food products and to reach out to the wider public. The nature and extent of advertisement influence people for the consumption of fast food by which influence obesity-related dietary behaviors in people. The key food marketing vehicle to reach children is television. Fastfood companies spend the bulk of their budget for publicity on it. The ad campaigns are not merely the straight type (hallway posters, free food tasting, and so on) but also involve indirect advertising (for example, including sponsors' logos on school materials).
- Views of people on fast food consumption with related to health & hygiene: this point leads to a different direction, though we see a lot of stalls, cafes & even such brands of fast food in India maintaining a stand in the market but faults out while hygiene comes to it. Neutral thoughts resulted as people in India agree on Clean Hygiene but fail to prove out as it showed us a light towards enjoying fast food was the important rather than concerning more towards hygiene. Next comes health, over years we have been witnessing shifts in lifestyle, and innovation of delicious fast food has come up but here's what Indian's face while excess fast food was in a routine. Fast-food addiction is so excessive because of its simplicity. They're smooth to prepare and are very tasty. People prefer to eat them at the same time as looking television; they shape themselves many hassles and time while they're in a hurry consuming pizza and burgers as they are served at their doorstep warm and ready to ingest. fast ingredients get their flavor owing to regal usage of oils, salts, and sugar. Once they are stuck on fast food addiction, they find it hard to reflect on consideration the loss of nutrients because of rapid meals.
- *High-Fat Content*: Fast food, such as burgers, pizza, fried chicken, and chips, encourages people to gain weight and become overweight. Being overweight is harmful to one's heart health and can lead to other diseases. The negative aspects of fast food are well-known. Adolescence, weight issues, heart disease, diabetes, and other chronic illnesses have all been linked to fast components and processed substances, according to several research investigations.
- *High Salt Content*: Junk has always had an excessive amount of salt in it. Meals like bread, morning cereals, and biscuits already include a lot of salt. As a result of eating fast food, humans have grown saltier than they need to be, and too much salt is bad for fitness. Too much salt in your diet might be harmful to your health. Too much salt can cause high blood pressure and raise the risk of a stroke or heart attack in the long run. A high-sodium diet is also dangerous for persons with high blood pressure. Sodium raises blood pressure and puts your heart and circulatory system under strain.
- *High Sugar Content*: Fast food does include certain valuable ingredients that the body needs for proper health. The body requires some salt, fat, and sugar for energy to burn when we play and paint, but too much fat, salt, and sugar are harmful to one's health. Humans tend to settle their meals by having quick meals to save time. We may fill our stomachs with quick cuisine at a very low price. Sodium has a wide range of applications. It may be used to preserve food, enhance its flavor, and protect you from diseases. If consumed in excess, salt, on the other hand, can have catastrophic consequences. It can cause an increase in blood pressure and a higher risk of coronary heart disease.
- *Obesity*: Fast food is linked to a higher BMI, weight gain, and less successful weight loss maintenance. Fast food degrades the quality of one's diet and delivers unhealthy options, increasing the risk of obesity in particular. Fast food may lead to a slew of dreadful illnesses, including obesity and high blood pressure. Being overweight not only reduces our shallowness, but also increases our risk of high blood pressure, heart disease, stroke, arthritis, diabetes, and some types of cancer.
- *Tooth Decaying & Cavities*: The primary reason why fast food is so bad for oral health is the added salt and sugar found in it. When your patients eat these foods, debris is more likely to stick to their teeth. This food debris allows acids to build up along the surface of their teeth. Eventually, this causes tooth decay and cavities. Apart from the many other factors that disrupt up one's expenditure & environment as well :
- *Cost*: Diverse kinds of fast food are available in the market, out of which the most popular, fast food or soft drinks, pizza, hamburgers, potato chips, ice-lotions, hot dogs, chow minutes, french fries, cheese chili, and many others. The price is much less as compared to healthful Food. Less value is similarly a big reason for

the recognition of fast food. It's miles effortlessly handy to all instructions of the populace because of its low and appealing charge range.

- *Transportation:* Speedy food has a protracted shelf lifestyle and may not require refrigeration for most products like chips and wafers. The shipping of fast food is straightforward because of its packaging as compared to person-made meals. Ease of haulage and availability increase the recognition of prompt food each day. Fast food is getting more in a call for resulting in the growth of the fast-food industry, and a significant number of people are coming to devour at eating places. Now with the shipping hotline, human beings can just take the time to call their numbers, and the meals reach their doorstep after 1/2 hour.
- *Low Nutritional Value* The nutritional value of fast food is about one on a scale of 1 to 10, which is the least. The nutritional value is lost in the process of making the fast-food so synthetic vitamins and minerals are added to compensate for it, still, they are not good compared to natural vitamins and minerals. Natural photochemical are not present in fast food, which soaks up the free radicals to prevent disease.
- The study has prompted a consortium of more than 80 investors to demand that leading companies in the fast-food industry take the initiative and commit to long-term targets to reduce their environmental impact. However, McDonald's has hit back against the announcement, claiming they already do plenty to fulfill their environmental obligations. Also, the companies create a lot of pollution by the usage of plastics and thermocouples for serving purposes and drainage system is also important. Also, we cannot skip the pandemic crisis over the world, yes it has imbalanced the market of fast food but never te fewer platforms like swiggy & zomato have taken over the initiative to serve fast foods at the doorstep with great deals and strategies to attract and change the menus anytime and anywhere.

## REVIEW OF LITERATURE

The article —fast foods and impact on their healthl written by Asha Kiran and deepthi. R reveals that junk food simply means empty-calorie food. An empty calorie food is a high calorie or calorie-rich food that lacks micro-nutrients such as vitamins, minerals or amino acids, and fiber but has high energy.

The article —reason people eat junk food instead of healthy foodl reveals that Eating junk food regularly is linked to obesity and chronic health conditions such as high blood pressure, but many people still choose junk food sources over their healthy, nutritious whole food counterparts. Junk food is typically cheap, processed, and prepackaged, making it easily available, but several psychological motivators predispose people to choose it as a meal or snack.

The article —4 ways to attract the consumer in 2017l written by fern glazer reveals that Here are four methods Riggs said operators will likely use to entice consumers to visit — and potentially change the forecasted traffic future — as well as insights from forward-thinking brands.

The article —facts on lack of nutrients from a fast-food dietl written by Jessica reveals that Between 2007 and 2010, the average American adult got approximately 11.3 percent of his calories from fast food, with younger people eating more fast food than older people, according to the Centers for Disease Control and Prevention. The people with the highest body mass indexes tended to be those who ate the most fast food. The nutrient content of fast food is very

poor, putting people who eat a lot of fast food at higher risk for nutrient deficiencies.

The article —cause and effect: fast foodl written by alfitrah reveals that The first reason is changing lifestyles in society. In Jakarta, many people are working in offices or companies. The workers do not have much time to search for food because the working hours are very solid. Advertising is another reason. Jakarta is a big city that through advertising always informs new products to society. For example, the internet and television report every day about the development of different types of fast food. All of these ads influence people to buy fast food. Moreover, the price of fast food is very cheap. Therefore, every day many people buy hamburgers, Pizza, and other fast foods.

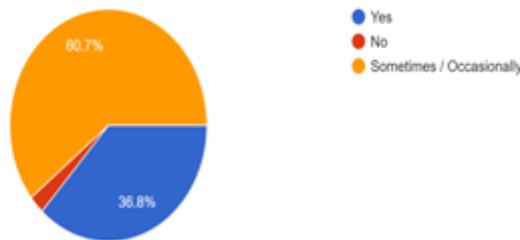
The article —how are teenagers affected by advertisements for fast foodl written by Jeffery Carey reveals that Fast food advertisements greatly influence teens' eating habits and advertisers are increasingly targeting them with a wide range of promotions. Advertisers are using channels that teens can access readily and easily, such as TV, in-school marketing and the Internet. Fast food advertisements significantly affect teens' eating habits, leading to consequences such as obesity.

The article —effects of fast food on the bodyl reveals that Obesity Fast food can have a terrible effect on your body. For instance, junk food increases the risk of obesity because of the added fats, refined grains, sodium,

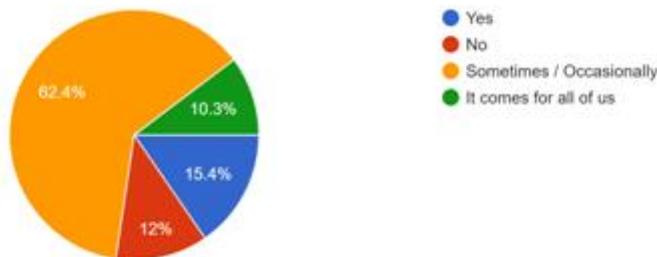
added sugars, and sweeteners in it. Obesity is the root cause of countless health problems that can have a serious impact on your quality of life. The article — top 10 most common ingredients in fast food written by William Harris reveals that considering that some of these ingredients have been implicated in serious health issues, it would be good to know which are the most common. We've set out to answer that very question. We started with menus from five popular fast-food chains -- McDonald's, Burger King, Taco Bell, KFC, and Arby's -- did some tallying, then cross-matched our findings with the U.S. Food and Drug Administration's list of common food ingredients and colors. The result is the top 10 most common ingredients in fast food, organized by the type of ingredient and what it does.

Here are some stats to provide a better idea of the scope of the study.

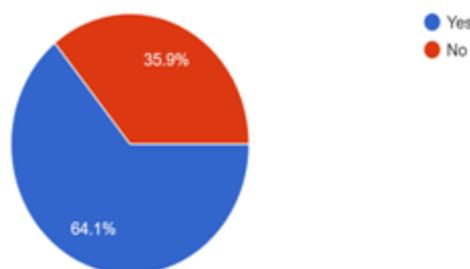
Do you consume Fast Food?  
117 responses



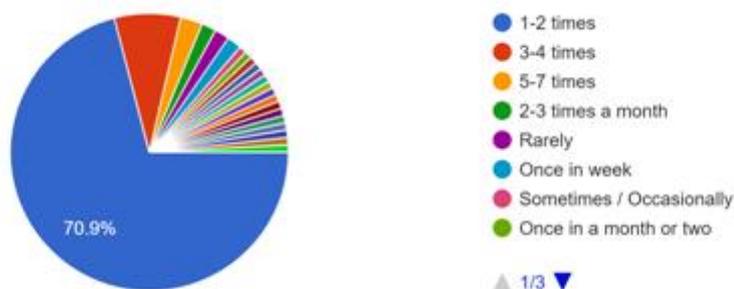
Do your family members also consume fast food?  
117 responses



Do you have a fixed meal time that you follow?  
117 responses



How often do you consume fast food on a weekly basis [Times = Days].  
117 responses



How often do you consume Homemade / Regular Food at home ?

117 responses



## CONCLUSION

Food is a vital source of energy. Food may be a symbol of benevolence and cordial relationships all around the world. Fast food is popular because it is cost-effective, convenient, and delicious. Fast food is consumed by the majority of people nowadays since they do not have the time or do not want to bother cooking for themselves. The general public's perception of typical persons is as follows:

That quick food outlet streamlines and simplifies their lives. Because of the quick service, this style of restaurant is becoming increasingly popular. Unfortunately, fast food is generally high in fat, salt, and sugar, which is why it tastes so nice. Fast food businesses invest a lot of money in advertising their foods to customers. Some folks might not have time to cook at home since they are juggling other tasks.

Fast food is tasty, and eating it once in a while is OK, but eating it too frequently can lead to health problems such as obesity or diabetes.

Fast food has large levels of salt, cholesterol, fat, and calories, which can lead to problems including obesity, high blood pressure, and other cardiac ailments.

We should pay close attention to what we eat daily since it is the fuel that propels us to better health.

Homemade cuisine is a better choice than fast food since it offers several benefits.

Higher organic process value, good quality, mental contentment, and so forth. A better diet contributes to a higher quality of life over time. Everywhere in the globe, there is a major dearth of knowledge about fast food facts.

One method to avoid fast food is to eliminate its appeal. Fast-food fans may be saved from the adverse consequences of fast food if they are aware of the importance of healthy eating.

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- <https://www.ijcmph.com/index.php/ijcmph/article/view/394>
- <https://www.ipl.org/essay/Influence-Of-Fast-Food-PCZYQBWAU>

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**A STUDY OF DISRUPTIVE INNOVATIONS ON HEALTH INSURANCE INDUSTRY**

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**ABSTRACT**

*With the invention of Information Technology, a new age of communications started and brought drastic changes in every field. This has resulted in a transition stage from an industrial society to an information society. Now IT has become the backbone of every industry and health Insurance industry is not an exception for it. The health insurance industry, across the world is going through a wave of digital transition, representing a new era of healthcare. The disruptive innovations in the field of health insurance operations like Artificial Intelligence, Data from social media, Robotic Process Automation, New IT architecture e.g. Blockchain etc. are continuously developing and finding out novel applications in the medical and healthcare sector. These latest developments in technology help insurance providers in their operations, managing their policies effectively, ease of their claims and reduction in cost of transaction etc. Consequently, their revenue and profitability increased. Similarly, they are also proving beneficial to the consumers in the form of quick solution of their queries and settlement of their claims, prompt guidance, fast communication etc. Even during this current COVID-19 pandemic period, these technologies have enabled insurance providers to cater effective and efficient healthcare services to the consumers.*

*Key Words: Health Insurance, Disruptive Innovation, Artificial Intelligence and Block chain.*

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**INTRODUCTION**

The health insurance industry, all over the world, is going through a wave of Disruptive Innovations e.g. digital technology, transaction through mobile etc. Digital transition, representing a new era of healthcare consumerism. Digital technologies keep on evolving and finding novel applications in the medical and health insurance sector, despite industries struggling badly with the peril of the COVID-19.

While the insurance industry has already taken a plunge towards digitization, the pandemic has encouraged all health insurance service providers to mount on to an unparalleled digital transformation journey. However, in these trying times, most players are clueless about how to improve their health insurance coverage services during the pandemic. Digital transformation and the adoption of cutting-edge technologies can help such players to overcome the disruption and gain a competitive edge. A study is undertaken to enlighten the effects of disruptive technology on the health Insurance Industry and in consequence with that on the customers and the insurers.

**RATIONALE OF THE STUDY:**

The study aims to conduct the effects of the use of disruptive technology on the health insurance business. Since past decade the disruption has become a key word in business, politics and public thought, as the impact of disruption spreads across economies. Due to the constant development of science and technology, disruption is taking place and manifesting new business models replacing the old ones. Recently, the insurance sector is also being particularly affected by disruption due to fast developing technology e.g. Smart phones, Digitized applications, Chat bots, Ais, RPAs, Blockchain etc. automation have created a new means of distributing insurance products and lodging claims. The vast amounts of data generated and collected each day create opportunities for better underwriting and new products. Furthermore, the importance of digital assets have created opportunities for new insurance products, such as cyber-insurance.

**LITERATURE REVIEW:**

1. **Supriya, Ganesh Sapa et. Al. (2014):** have stated that the insurance buyers will soon be able to open D-mat or e-insurance accounts for their policies in India, which will eventually reduce their hassles for documentation on customer's front. For e.g.: proof of age, address every time to buy a policy, printing & delivering policies. It will finally improve the efficiency & better the customer service.
2. **Asoc. Evelina Bazini & Florita Madini (2015)** have mentioned that the adoption of Information & Communication Technology (ICT) use among the insurance companies is become a necessity for faster insurance operation, faster processing of insurance claims & companies' liabilities and for effective service delivery to customers.
3. **Samir Kumar Palit (2021)** has stated that Digital disruption is a key phenomenon concurrent in many industries of this age, has made its way into the insurance industry too. DI enables insurance companies to

create newer opportunities, increasing competitive advantages and dissolving traditional boundaries from product distribution to data analytics.

4. **Mia Wallace (2021)** has opined that COVID has accelerated digitalization. It entails at least three major changes that could be transformative for the industry.
  - 1) It could help the sector extend the boundaries of insurability, using the Internet of Things.
  - 2) It could help insurance businesses address the significant block of transaction costs the industry is carrying.
  - 3) Most importantly, digitalization could help insurance redefine the way customers are interacted with.
5. **Rutya Safi (2020)** stated that in the insurance sector in 2019 and beyond, disruption seems inevitable. AI, RPA, IoT, Blockchain etc. based developments across the sector, whether generated by insurers in-house or in partnership with the big-player technology suppliers or through partnering with insurtechs, are becoming increasingly prevalent and driving the change – both in terms of operating procedures of insurers and customers' expectations. At the same time, it is important to be alert to the hazards, paying close attention to responses towards the different risks posed by these technologies in routine framework.

### **The impact of digital transformation on insurance operations**

The wide exposure of availability of insurance policies in the market & ever-growing financial literacy amongst the policyholders enable them to review their insurance requirements regularly and switching between insurers. In the modern era, the market suggests that the policyholders should see technology-based offerings rather than mere policy rates in times to come. For any insurance-focused, digital transformation initiative, it is the key to place the customer journey at the heart of any development. We are seeing more and more insurers take an agile approach to life-cycle design, identifying pain points and seeking to use technology to remove these. Consumers are now demanding real-time engagement and online access to services managed uniformly from their mobile and personal devices. This means insurers need to embrace the move from the old world of paper processes to a new, truly cohesive, digital ecosystem, minimizing the need for manual intervention to a limited number of exceptions. As even COVID has forced the digitization, it is time to embrace AI fully. IRDAI focused & encouraged establishing the Sandbox Regulations in 2019 to promote innovations in fin-tech and insure-tech products like online automotive claims, health profile-based pricing, as well as AI-based claims estimation, and chatbots on wellness programs for customer engagement. This will pave a way for customer-centric products, efficient policy pricing, and bridging the trust deficit between insurers and customers.

### **Need of the Study:**

Health Insurance Provides cover to people including vulnerable section of the society. Medical expenses for health are ever shooting and going beyond the capacity of a common man. As a consequence, health insurance premiums are also rising day by day which causes inability to purchase health insurance policy to a common man. Recently, the COVID pandemic has also created an urge of health insurance due to huge spending to be incurred for the treatment of COVID which resulted into sudden heavy demand for health insurance. Now to reduce the cost of premium, speedy claim settlements, technology based fast and convenient services to customers, and to decrease administrative and servicing cost, the Dis play an important role. This will result into both i.e. increase in customer satisfaction and business of the insurers.

With the ever-increasing speed and volume of change and disruption, the insurance sector is being continuously affected especially from 2019 and beyond.

### **OBJECTIVES OF THE STUDY:**

- 1) To study the effects of Disruptive Innovations (DIs) on the health insurance industry
- 2) To recognize the challenges and opportunities created by the Dis in the health insurance industry.
- 3) To study the future of Dis on the health insurance industry.

### **RESEARCH METHODOLOGY:**

The research is descriptive and explanatory in nature using secondary sources of data.

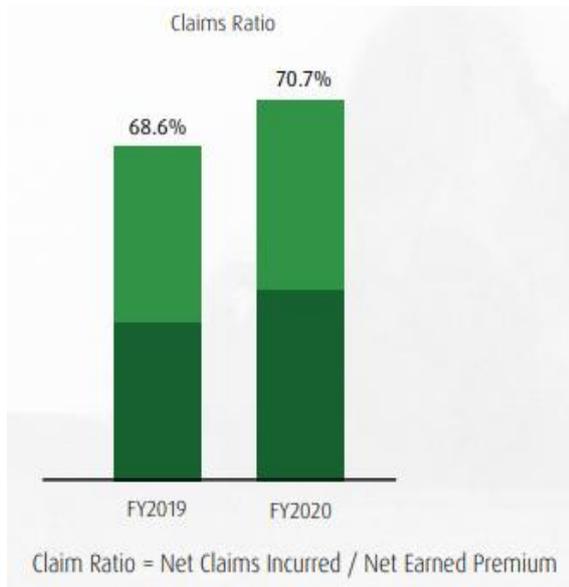
**Sources of Secondary Data:** Articles, Reference books, Newspapers and Publications & Research papers related to the subject.

**Period of Study:** The study is based on the period 2018 To 2021.

**Scope of Research:** This paper is descriptive research on the effects of Dis on the health insurance sector. It will help readers to understand about and realize the drastic changes and their effects on the insurance companies and the customers have been taken place due to Dis.

**Limitations Of the Study:** The study is conducted on the basis of secondary data only. Primary research could not be conducted due to scope of the research, time, cost constraints and last but not least the prevailing pandemic situation.

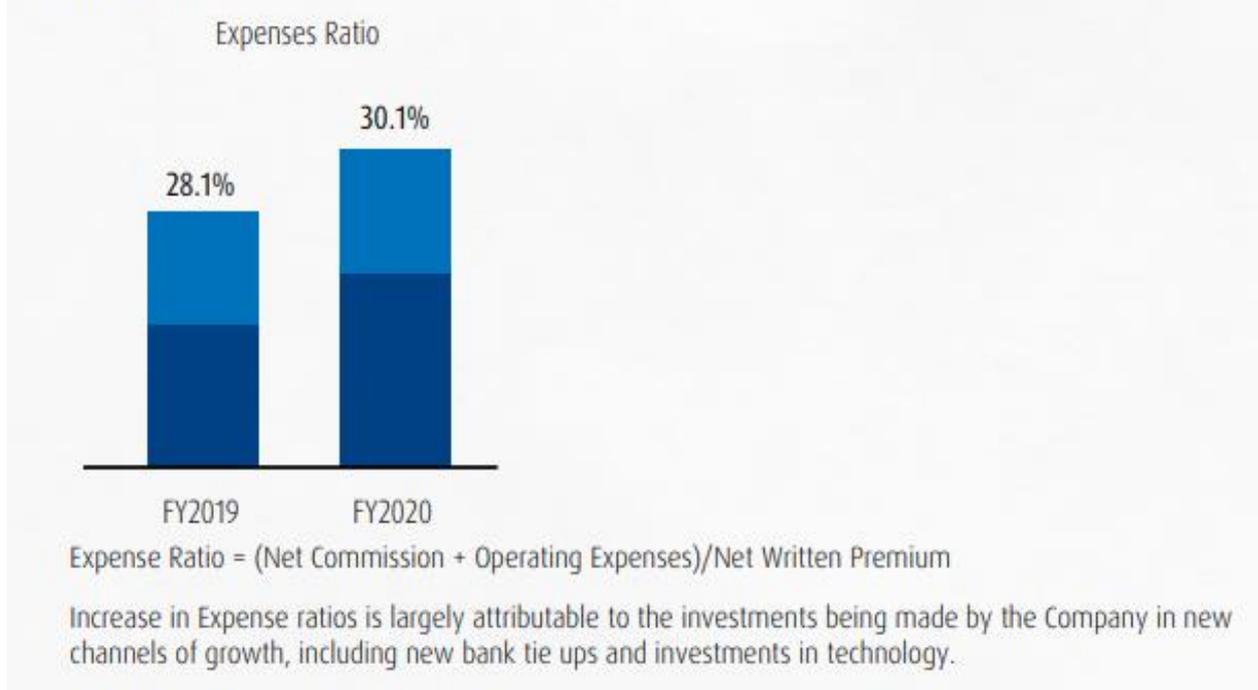
**Data Analysis: -**



For Bajaj Allianz, it is observed that claims settlement ratio is increased from 68.6% to 70.7% & the expenses are also increased from 28.1% to 30.1%.

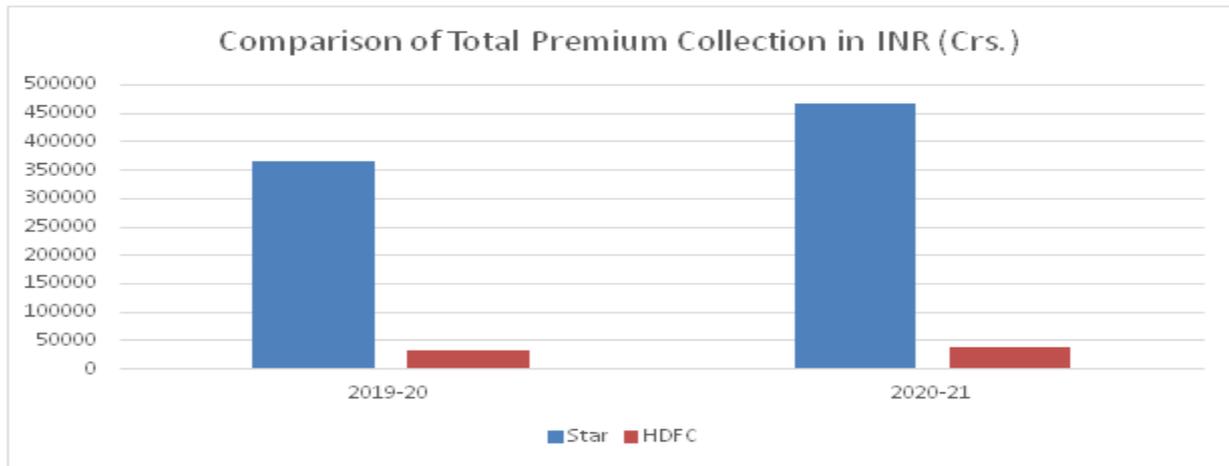
\*reference: <https://www.bajajallianz.com/download-documents/annual-report/Annual-Report-2020.pdf>

**(c) Expense ratio**



Co. name	Total premium collection in INR (in Crs.)	
	2019-20	2020-21
Star	366237	468409
HDFC	32422	38583

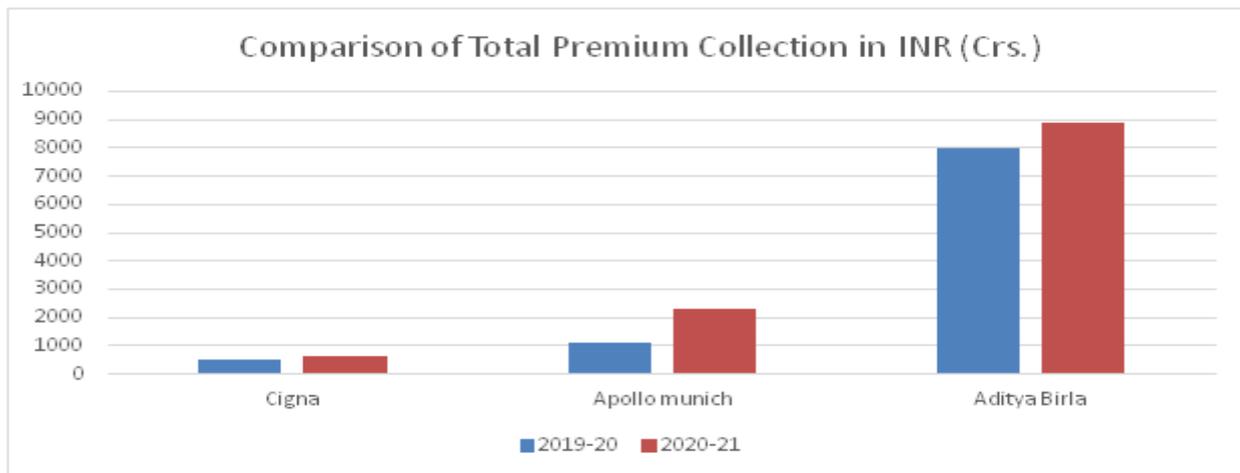
\*Source:- Year-wise annual reports of respective companies



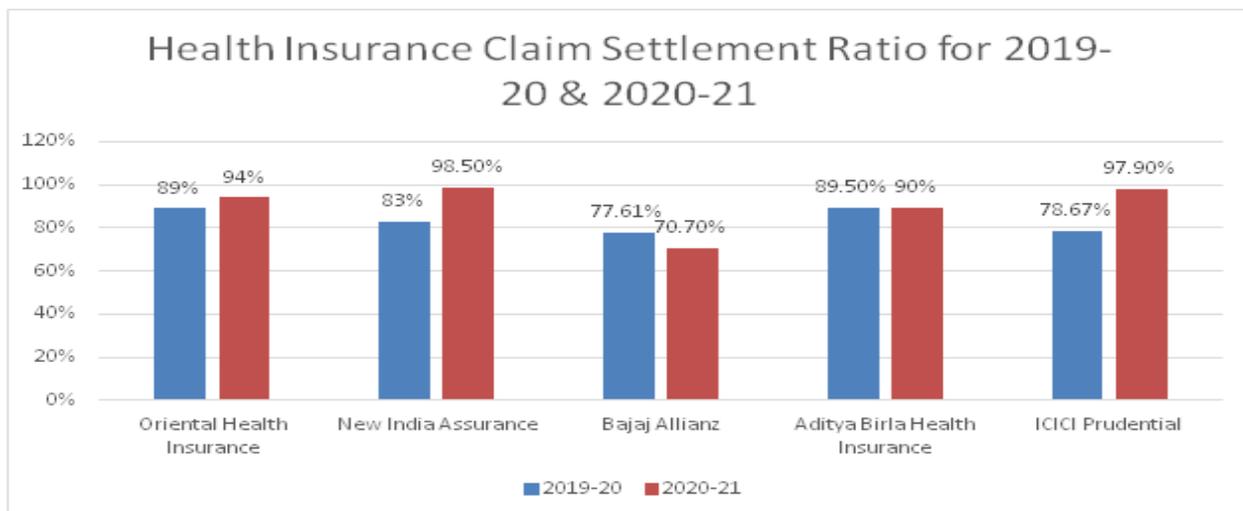
Intpretation:- The above chart shows there is an increase in premium collections of all the respective companies due to wide use of technologies during COVID pandemic period.

Co. name	Total premium collection in INR (in Crs.)	
	2019-20	2020-21
Cigna	503.4357	631.3667
Apollo munich	1102.367	2301.077
Aditya Birla	8008	8882

\*Source:- Year-wise annual reports of respective companies



Interpretation:- The above chart shows there is an increase in premium collections of all the respective companies due to wide use of technologies during COVID pandemic period.



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From the above data, it can be evidently seen that there is a growth in the claim settlement ratio of respective companies due to integration of disruptive innovations in the businesses except Bajaj Allianz, wherein they have a decrease.

### **CONCLUSION**

The above analysis & interpretations show that the technology is here to stay for long & will be the way forward anyhow. So, integration of those new disruptive innovations in form of Artificial intelligence, Robotic Process Automation, Insurtechs, Big data & predictive analytics, Machine learning & Augmented/Virtual Reality etc. would bring in even more robust & sustainable growth in the business. Fast paced internal & external exchange of data can be ensured. Dynamic technological changes evolve the customer expectations and demands for the simplified online personalized experience. The first step to successfully adopt any new technology would be to understand the impact across the value chain and invest in the right technology.

Even though there will be a digital transformation shift, it will bring in some challenges as well in form of data complexity, slow growth, rising costs, stalled reforms etc.

Another challenge for the industry is tendency of insurance companies to under price their products to gain an edge over competition, which is also allowing the industry to bleed. Artificial pricing leads to artificially excessive competition.

The inadequate development of health-related infrastructure in the country is one of the major challenges today for the health insurance sector. The industry is also required to work on the education and awareness levels of the market to resolve the situation partly. Going forward, Indian health insurance sector may evolve into a scenario of an independent regulator for health insurance & will have to rely more on IT professionals for getting the job done.

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**A STUDY OF FARMERS WITH REFERENCE TO UTILIZING 'KRISHI HAAT SERVICES' IN GYANPUR CITY OF UTTAR PRADESH**

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**ABSTRACT**

India is an agricultural country. Most of the population here is dependent on agriculture. It is said that the agriculture in India is the backbone for Indian economy, but the farmers of our country are still behind as compared to other countries because they are not able to generate good income. Farmers will be able to generate a good income only when they have proper resources and facilities to do farming.

'Krishi Haat Services' (KHS) refers as those services which is related to the farming. Krishi Haat Services is a disruptive idea for Agribusiness, it will provide all types of agricultural services to farmers at their farm. However, the benefits of the Krishi Haat Services may be offset by undermining the agriculture sector and preferences of services being displayed when they needed. Krishi Haat Services will be perfect and an affordable platform for farmers to utilize services related to agriculture. This research investigates the relationship between farming attributes, farmers satisfaction and farmers problems in the agriculture industry. This research highlights the various type of problems farmers are facing in agriculture and how willingly they are to take the services which are related to their farming. The area of study includes the understandings of various concepts like agricultural services, disruptive thinking, start-ups idea of 'Krishi Haat Service' and the analysis of financial, social and emotional status of farmers.

**KEYWORDS:** - Krishi Haat Service, Farmers & Agriculture, Disruptive Thinking

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**INTRODUCTION:**

India is blessed with large arable land with 15 agro-climatic zones as defined by ICAR, having almost all types of weather conditions, soil types and capable of growing a variety of crops. India is the top producer of milk, spices, pulses, tea, cashew and jute, and the second largest producer of rice, wheat, oilseeds, fruits and vegetables, sugarcane and cotton. In spite of all these facts, the average productivity of crops in India is quite low and farmers are still not able to earn respectable earnings.

KHS "the market for farmers". KHS does not exist. It's an idea of researcher to provide one stop solution for farm services agriculture sector. Krishi Haat Services are referring to those services which related to the agricultural services. Krishi Haat Services will provide all the facilities to the farmers for farming at their farm. KHS will provide all types of agricultural machinery, equipment's, products, and poultry equipment's etc to the farmers. KHS will be brought so that the productivity of the crop and the income of farmers can be increased. KHS is concerned with resource allocation. On one hand, a farmer has a set of farm resources such as land, labour, farm buildings, working capital, farm equipment etc. that are relatively scarce. On the other hand, the farmer has a set of goals or objectives to achieve may be maximum family satisfaction through increasing net farm income and employment generation. KHS will impact farmers across the country by providing accessibility of extensive of high-quality inputs, end to end crop guidance and market linkages for various commodities, thus offering 360-degree solution to farmers with a very unique approach. Thus, KHS can be a disruptive innovation in agribusiness which will help increasing not only the productivity of farmers but also the economy in future.

**Features of KHS:** KHS based on online and offline stores where farmers can buy services related to their farming. Moreover, it will able to save farmers time and use it to determine what kind of services are in zone of Agriculture of specified farmers and display services according to farmers interest. Buying services through KHS saves time, money and effort of farmers of going to market and provide consultancy at the same time. KHS will provide all types of agricultural machinery, equipment, seeds, fertilizers, biocides and poultry equipment etc. to the farmers.

**Types of Services:** KHS will provide two types of services

**A to Z Services-** This service refers to before the product service. In this service, farmers will be getting the service from preparing their fields for sowing till the harvesting the crop at their farm.

**1 to 10 Services-** This service means after the product service. In this service, a proper market will be provided to the farmers to sell their agriculture products at best price.

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**Merits-** Time Savings, Affordable Price, Services at Farms, Market for Agricultural Products, Potential for Rapid Growth, Offers and Customized Services are some merits of KHS

**Demerits-** Delay in the Delivery, Pricing Segments and Environment etc are demerits of KHS

**COMPARISON OF KHS AND BIG HAAT**

**BigHaat:** -BigHaat is India's leading Agri Digital Platform transforming the agriculture value chain from pre-harvest to post-harvest leveraging science, data and technology.

	<b>BigHaat</b>	<b>KHS</b>
<b>Services</b>	BigHaat is an online company that works with several seed suppliers across India in bringing their products into BigHaat platform to provide transparent, competitive and quality services to the seed’s buyers.	KHS will provide all types of agricultural solutions through online and offline stores at farmer’s farm. KHS will provide an extensive range of high-quality inputs and end to end crop guidance to farmers.
<b>Mode</b>	Through online and offline stores	Through both online and offline stores at farmer’s farm.
<b>Pricing</b>	BigHaat charging different-different Prices according their different-different products. They are charging a well amount for services	The pricing segments of KHS will depend on the basis of crop and the fields of farmers. KHS will charge amount according the farmers farming cost.

**REVIEW OF LITERATURE**

(Agbarevo, 2013): Ms. Agbarevo describes that how farmers behaviour and perception changed when they adopt a new technology for delivering the good inputs in farming, productivity, income and impact assessment (farmers standard of living). The author described that farmers awareness is very important for extensive services and the effectiveness of extension delivery influence the adoption of agricultural extension.(Arun Makal, 2017): Here in this paper the authors work mainly focused on the issues and problems of farmers in agriculture. The rural infrastructure plays a big role for the development of agriculture and farmers. The authors also states that farmers also face difficulties due to changes in technology environments and governments rules and regulation.(Ashwani Kumar Verma, 2021): In this author talking about Farmer’s Producer Organisation. How the FPOs are tackling the challenges of agriculture and helping the farmers to gain more productivity and increasing their income. (Vinayak Nikam, 2019): Mentions that the need of FPO for small scale farmers. FPO not changed the farmers productivity and inputs but also have been seen as important medium for increasing social capital of the farmers in the village.(Srijna Jha, 2020): In this the author talks about the adoption of agricultural technologies for sustainable agricultural products (fertilizers, improved seeds). The author also states that the transformation of agriculture sector in rural area increase more productivity. (A. Elias, 2016): This study states the farmers satisfaction towards the agricultural extension services and identifies the determinant factors for farmers. This study is also focusing on whether the agricultural extension service provider should bring more changes so that more farmers can be satisfied. (Rovira-Más, 2020): In this research paper the researcher found that crop data management will give consistent knowledge about farms to lead optimal decisions. The author also said that by using the Artificial Intelligence (AI) farmers can move forward towards a modern and sustainable agriculture. It’s also focusing on the current status of advanced farm management systems.(Vishnupriya M, 2021): In this research paper published by the author, the research speaks about the awareness about use of Krishibhavan services by the farmers.

**OBJECTIVE OF THE STUDY**

1. The objective of this study is to identify the farmers issues and solving them through the help of KHS
2. If such type of farm services organization exist then, will farmers like to take services from KHS?
3. To understand support of govt schemes for the farmers
4. To identify the services that KHS can provide in agriculture.

**SCOPE AND LIMITATION OF THE STUDY: Scope-** This research is subjected to Krishi Haat Services with respect of agricultural sector products and services within Gyanpur City’s villages of Uttar Pradesh. **Limitation-** The research is limited to only one city of Uttar Pradesh, so findings cannot be generalized for entire Uttar Pradesh or India. As study is questionnaire, its conclusions are subject to data collection.

**RESEARCH METHODOLOGY: PRIMARY DATA** – For this research the data collected from 40 exiting farmers from different-different villages of Gyanpur City. **SECONDARY DATA**

The paper is also based on Secondary data collected from various sources like journals and websites.

**DATA ANALYSIS & INTERPRETATION:** The data collected by questionnaire through the help of google forms and personal interview taken of the farmers and analysed, interpreted

**Q.1** What type of farming you do? **Interpretation:** majority of farmers (17) are doing crop farming while less farmers (3) are doing organic farming.

**Q.2** What are the difficulties you face in preparing a crop? **Interpretation:** in this analysis states that the majority of farmers have to face difficulties like fertilizers, biocides, lack of information and agriculture marketing.

**Q.3** Do you generate good income through agriculture? **Interpretation:** In this the majority of farmers are not sure that they earn a good income or not. They depend on the productivity of crops.

**Q.4** How do you get information about government schemes for agriculture? **Interpretation:** In this majority of farmers said that they get information about govt schemes through the agriculture officer.

**Q.5** Did Govt schemes useful for your farming? **Interpretation:** The farmers (12) agreed on that the govt schemes are useful for their farming.

**Q.6** Have you taken any kind of agricultural loan? **Interpretation:** Majority of farmers said yes that they have taken loan for agriculture

**Q.7** Do you consult to anyone before taking loan? **Interpretation:** Most of the farmers says that they consultant before taking any agricultural loan

**Q.8** Do you trust organization that provides consulting services? **Analysis:** In this response that states that the framers trust the organization who provides consultancy services regarding agriculture specially when they are going to take loan or buy seed

**Q.9** Which sources do you prefer to take loan? **Interpretation:** Most of the farmers preferred Institutional sources (Banks, Rural Organizations)

**Q.10** If any organization provides you all facilities related to your farming, then you would like to take it? **Interpretation:** Most of the farmers (28) are willingly like to take such services from the organisation

**Q.11** What price range do you except for consulting services? **Interpretation:** In this the farmers are expecting the price of farm service is between 10K to 30K. they also excepting that the organization will charge them accordingly their farming cost

**Q.12** Do you think such services useful for farmers? **Interpretation:** the most of the farmers says that such type of services maybe useful for them.

#### **FINDINGS & CONCLUSION:**

1. Majority of respondents are professional farmers.
2. The farmers are facing so much issues and difficulties in farming
3. Majority of farmers are not getting proper access of resources and also not finding a proper market to sale their products
4. Majority of farmers get information about govt schemes and agriculture through the agriculture officer
5. Krishi Haat Services will be a booster for farmers in their farming. Through the help of KHS farmers will achieve their goals and objective.
6. Majority of farmers are depended on Govt schemes but sometimes it's not useful for farmers.
7. KHS will be the future of Agribusiness.
8. Majority of farmers are willingly to take KHS farm services for their farming.

**LEARNINGS AND SUGGESTIONS-:** With this study researcher get to know that farmers have a lot of issues regarding their farming's which are rising day by day. They need a specific solution for agricultural problems. KHS need to cope and satisfy them with variety of agricultural services at their farm.

- The target of KHS is farmers and agriculture sector, so that's why farmers and KHS should come together so that they can grow in agriculture sector.
- KHS should need to develop a business strategy that will be reasonable as well as sustainable, so that farmers understand the business policy of KHS and prefer to take farm services through KHS.

**SCOPE OF THE FURTHER RESEARCH-** The scope of the further study is in agriculture sector's products and services providing by KHS to farmers. In this study there is geographical limitation also.

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**A STUDY ON DISRUPTIVE STRATEGIES IN E-COMMERCE**

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**ABSTRACT**

*This paper analyzes to note the impact after the adaption of disruptive E-commerce strategies. The internet has transformed many things, and it has also changed the ways of marketing and advertising. E-commerce enterprises are said to serve as the primary source of income for many people in India. A significant difference is detected in the buying pattern of customers over the years. Ultimately, an e-commerce business can do product marketing in accordance with the market desires and have more appeal in the eyes of consumers. This paper will highlight some specific guidelines for companies who naturally want to increase their possible sales and profit. The main research aim in common was to generously assist companies towards a successful E-commerce strategy.*

*Keywords: E-commerce, Strategies, Marketing, Enterprise, Disruptive.*

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**1. INTRODUCTION**

Retailing has come a long way. Changing trends have also led retailers to improve their strategies and capture more customers. E-commerce or electronic commerce typically refers to purchasing and selling of products/services over the internet. It is inexpensive, effortless to use, and more convenient in such times of a pandemic. It is evidently the most vastly spreading form of business around the developed world and it also has changed consumer behavior. There is clearly no doubt about the e-commerce benefits but the need needs to be assessed properly.

The e-commerce enterprises should follow the accurate definition of strategic goals that are practically possible and feasible goals. Initially, e-commerce portals were meant for only sales personnel but nowadays strategic intent is equally involved. E-commerce enables transactions between two or more individuals and organizations. Over the past 10 years, the fierce competition of e-commerce has fairly stood constant. There are barriers to e-commerce like economic barriers, socio-political barriers, and cognitive barriers. In addition, there are two critical models of e-commerce:

1. B2C- where online transactions of goods and services typically take place between retailers and customers.
2. B2B- where transaction of goods and services take place between two or more organizations/entities.

**2. REVIEW OF LITERATURE:**

1. 1. Indrajit sen in his published study on E-commerce Strategies in B2C Retail fall 2013: E-commerce has revolutionized the way of buying or perception of many buyers. E-commerce has its own advantages and disadvantages but is undoubtedly proven to be more beneficial to both customers and retailers. It is good news to all those who invested their personal money in setting up an e-commerce enterprise as these are expected to flourish in the future.
2. Sanjay Mahopatra in his published study on E-commerce Strategy August 2013: Sufficiently emphasized the specific need to design e-commerce portals and why it is essential. The Chief Information Officer is held responsible for implementing the e-commerce portal strategy in a genuine way. Frequent change in the leadership generates differing views on the strategic decisions of the company. Cloud computing has majorly contributed to e-commerce and made it more open to newcomers.

**3. STATEMENT OF PROBLEM:**

In the previous studies conducted, strategies to build a successful E-commerce enterprise are widely discussed and its importance is also shown. But the strategy to sustain, maintain or cope-up with others in e-commerce was out of focus. Trends change with changing time and so does the retailer need to change his e-commerce strategies. Retailers need to adapt to disruptive changes in innovations/strategies to sustain the e-commerce market.

**4. OBJECTIVE OF THE STUDY:**

- To understand how disruptive strategies help E-commerce.
- To identify which strategies are most effective.
- To suggest some solutions.

**5. LIMITATION OF STUDY:**

- The scope of study is limited to Maharashtra region only. It can be extended further to cover the country.
- Sample size of the study is not too large. Future research can be undertaken on a larger scale.

**6. METHODOLOGY:**

- Primary data was collected with the help of questionnaire through online google forms from various E-commerce retailers.
- Secondary data has also been collected from books, e-journals, articles, and websites.

**7. ANALYSIS AND INTERPRETATION OF DATA:**

Present study was conducted with simple questions related to disruptive strategies that help in boosting your e-commerce business game. People from different age groups, gender and education have responded. By the end of the survey, 22 respondents participated, their responses were recorded for scrutiny and analysis. Following are the questions asked during the survey along with the interpretation of data collected.

(7.1) In this growing world of technology, social media is a center of attraction. Social media platforms like Instagram, Facebook, Whatsapp, Twitter, etc., play a significant role in marketing your product/service. 63.6% of respondents have said YES, 27.3% respondents have said SOMETIMES, whereas 9.1% have said NO.

(7.2) 13 respondents chose YES. 4 of respondents chose SOMETIMES, 3 of the respondents chose NO, while 2 of them chose MAYBE.

(7.3) Maximum respondents said YES, customized/personalized customer service makes the customer happier. Because customer happiness is the end goal of every company. Currently, customers require their product/service as per their convenience and preference. By delivering such a product/service indicates that personal love, attention, and care is taken while making it and that makes it more special.

(7.4) Communicating directly along with your potential customers with none middlemen inevitably makes the communication a lot smoother and simple to understand customer demands. From the collected survey:

- Maximum respondents have naturally chosen YES.
- MAYBE and SOMETIMES have been chosen by 2 and 3 respondents respectively.
- And the least number of respondents chose NO.

(7.5) Who does not like free stuff arriving their way? Consequently, it is clearly evident that adding free goodies to your customer's order will bring in a lot of difference in the reviews given by them. Typically seeing free stuff in our order instantly forces a wide smile on our faces and we merely tend to remember that particular seller as the one who sent us free goodies. Therefore, 59.1% have properly selected YES. 22.7% have selected SOMETIMES, 13.6% of them selected MAYBE and 4.5% said NO.

(7.6) In India the customer is considered a god. Regular customers who shop quite frequently become an active part of our minor family and affectionate relations are naturally developed with them.

(7.7) All age group people in common are to be undoubtedly seen on social media following some specific type of social influencer. Influencers can generate a significant impact on the audience. Some of them demand money for marketing your product/service and some deal in the barter system.:

(7.8) A customer loyalty program is typically designed to merely encourage loyal customers to continue shopping more and more. It in common is an effective strategy that helps to develop a healthy relationship between the customer and the established brand.

(7.9) Maximum respondents properly said YES, 7 and 5 respondents said SOMETIMES and NO respectively, and only 1 respondent said MAYBE. The intentional frauds that have happened precisely in the tragic past while making online payments have naturally caused customers to be skeptical while paying via debit/credit cards or net banking. They sincerely believe in paying after receiving the product/service physically or in person.

(7.10) Customer review can undoubtedly help in properly understanding the key issues in the product/service, shed light on new cases and reliably inform product innovation. It can also help you in instantly improving your brand.

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## 8. FINDINGS AND CONCLUSION

Electronic commerce or E-commerce has grown abundantly over the years in way enterprises conduct their transactions and global negotiations. There are a lot of disruptive e-commerce strategies out there to carefully level up your business game.

It has become essential to advertise your product/service on social media platforms as they invite a significant number of customers. Conducting frequent sales/offers and giveaways is also crucially important. Personalized customer service represents the most recent trend that makes the customer more satisfied. Direct communication should be done with your customers to prevent any kind of miscommunication. Adding freebies to the order can cause a huge difference in reviews coming from the customer. And reviews from your customer are absolutely essential as it helps you in understanding what is going wrong and how to improve/resolve it. Barter deals with social media influencers are satisfactorily proven to be more beneficial for retailers. It is necessary to traditionally build a customer loyalty program to merely ensure your longtime customers about the brand. Providing the service of cash on delivery can be useful as it is more preferred by the customers.

It indeed is a valuable piece of good news to those who have already invested their time, and sufficient money in these disruptive strategies at it will not merely help them extend their struggling business but also sustain the challenging market in the long run.

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**A STUDY ON THE LEVELS OF AWARENESS AND PERCEPTION OF SEXUAL ORIENTATION AND GENDER IDENTITY AMONGST STUDENTS**

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**ABSTRACT**

*Adolescence is the dawn of many new feelings due to puberty that are confusing, intense, and sometimes, even overwhelming. A teen may discover that he doesn't associate with the identity that was given to him after birth, causing a disruption. He then finds himself a new identity in which he feels happier, that is innovation. These newer identities come together and make the LGBTQ+ movement, helping people identify themselves better. LGBTQ+ is an umbrella term inclusive of many different gender and sexual identities. Gender identity is who you are. Sexual orientation is who you like. People who don't fit in the gender norms dictated by society often find themselves muddled and this dysphoria can increase the risk of mental and physical health problems. This study aims at analysing the levels of awareness and the perception of sexual orientation and gender identity amongst students, and to promote inclusivity of the LGBTQ+ community. A survey was conducted among the students living in and around Mumbai about their views and awareness of the LGBTQ+ movement. Findings show that even though there's a general awareness, a significant number of students are still oblivious of the differences between sexual and gender identities and few are unsure of their own identities. The lack of awareness stems from the fact that they weren't educated about it by parents or schools. It also showed that there is certain negativity around the LGBTQ+ topic in their surroundings and it faces a certain resistance due to politics, culture, and religions. My study concludes that even though we have a basic awareness, we are far from a time when there's complete acceptance and support for the LGBTQ+ people, and when the topic is not frowned upon. This will happen when we open positive discussions about it in schools, colleges, workplaces, and all forms of media. Let's let people live their lives the way they want to.*

*Keywords: LGBTQ+, Awareness, Sexual orientation, Gender identity*

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**INTRODUCTION:**

Teen years are often the defining periods of a person's life. The person is slowly learning about life and different aspects of it. They experience various hormonal, physical changes. They also start having firm opinions about things. It is in this phase that they discover who they really are, and who they like. Many times, not fitting into the society dictated gender and sexual norms may disrupt the person's life. This gives rise to a lot of uncertainty, and sometimes, desperation to fit in. This desperation may sometimes be confusing, and the cause of a lot of mental problems and depression. When traditional norms don't fit a person, he finds newer identities; identities in which the person feels at home, and comfortable. That is innovation.

When mankind progressed, and basic needs like food, shelter, and clothing were no longer scarce, people got thinking. Thinking about who they were, what their purpose was, etc. It is then that they discovered their liking to different kinds of people. It was in the 19<sup>th</sup> century that people realized that they were not alone. However, like-minded people seemed far and few. And with the constant backlash they faced because of religion and culture, there was no way people would come out openly. During the late 20<sup>th</sup> century, protests had already started in the west to legalise LGBTQ and people were coming out. However, the movement was still taking its time due to fewer means of propagation.

With the advent of the internet, correct information started spreading fast and wide. People started being aware, and more and more people showed support for the movement. In India, the movement gained popularity around 2014, and Section 377 of IPC was decriminalised in 2018.

The topic of LGBTQ+ has always been a heated discussion. Often times even people who identify themselves as LGBTQ+ don't completely understand what the term means. LGBTQ+ is an umbrella term. Sexual orientation is who you are attracted to, drawn to emotionally and romantically, and want to have relationships with. Gender identity is who you are, rather than who you are attracted to. It is a person's sense of being a man, a woman, both, neither, or anywhere along the gender spectrum. A person's gender identity may match or be different from their birth-assigned sex.

Following are some of the types of gender identities:

Cisgender- A person identifies with the sex they were assigned to at birth.

Transgender- It's an umbrella term that encompasses all people who identify with a different gender than which they were assigned at birth.

Nonbinary- Someone who does not experience gender within the gender binary.

Genderfluid- Someone whose identity shifts between, or shifts outside of, society's expectations of gender.

And many more.

This means that being transgender isn't the same thing as being lesbian, gay, or bisexual. There are many identities associated with sexual orientation:

Heterosexual: People who are attracted to people of a different gender.

Homosexual: People who are attracted to people of the same gender.

Bisexual: People who are attracted to both men and women are called bisexuals.

Pansexual: People whose attractions span across many different gender identities (male, female, transgender, etc.) may call themselves pansexual or queer.

Asexual: People who don't experience sexual attraction for anyone call themselves asexual. Etc

People who can't identify themselves and who don't fit in the gender norms dictated by society often find themselves muddled, and upset and this dysphoria can increase the risk of mental and physical health problems. There's also a certain resistance to the whole LGBTQ+ movement saying that it goes against cultures and religions, which further aggravates the situation. Moreover, the political and social situation in India isn't exactly conducive for LGBTQ+ people. They face discrimination everywhere they go. Till today there are therapy classes, chemical treatments etc. to 'correct' LGBTQ+ individuals.

This study aims at exploring the levels of awareness amongst the students and their perception of issues pertaining to sexual orientation and gender identity.

#### **REVIEW OF LITERATURE:**

1. Danielle Nadine Pierre has done a research paper on a similar topic "Broadening Understanding: Students' Perspectives on Respecting all Sexual Orientations and Gender Identities in University Classrooms" In it, she has conducted a survey to understand the opinions and experiences of LGBTQ+ identifying students. The research finds out that out of the yielded responses, a fair majority felt comfortable, a substantial minority felt uncomfortable in their campus life because there wasn't enough inclusion by the educators about the different sexual and gender identities in the university curriculum. Respondents also felt uncomfortable about their sexual and gender identities because of the professor's comments and assumptions. The study is the beginning of a long discussion of combating hetero-sexism and cissexism and puts the voices forward of those who are affected by it the most.
2. Jason C Garvy has researched about "Queer Quantitative Query: Sexual Orientation in Higher Education Surveys" In his paper, he states that the lack of quantitative research on sexual orientation in national higher education perpetuates hetero-normative and dominant methodological assumptions, which has a great impact on policy and practice (re)formation. He says that the number of questions asked about sexual orientation, their framing, and the answer options determined the level of inclusivity. Although there may be political and financial costs to including sexual orientation in higher education survey data collection, not including such questions would have drastic consequences for the wellness and success of LGBTQ+ students.

#### **OBJECTIVES:**

1. To analyse the levels of awareness about sexual orientation and gender identity among students.
2. To determine the amount of negativity around the LGBTQ movement.
3. To suggest ways of increasing awareness and promoting inclusivity of LGBTQ+ people amongst students.

#### **LIMITATIONS OF THE STUDY:**

1. The sample size of the survey may not represent the ideas of everyone.
2. Mumbai, being a metropolitan city, the awareness and the acceptance of the LGBTQ+ community is much higher than in any other part of the country.

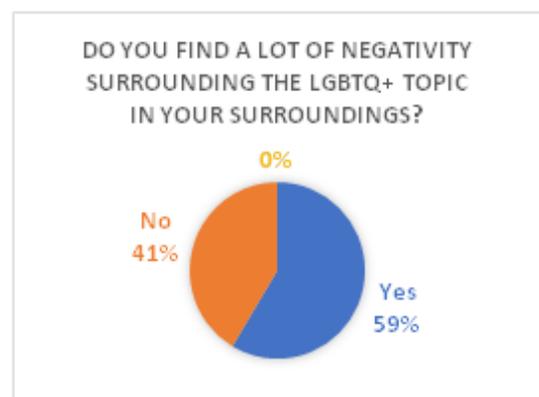
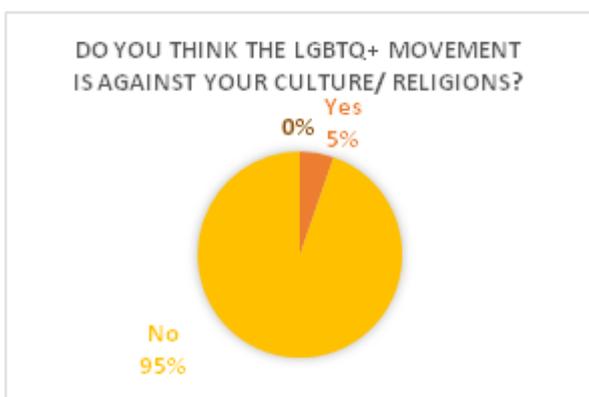
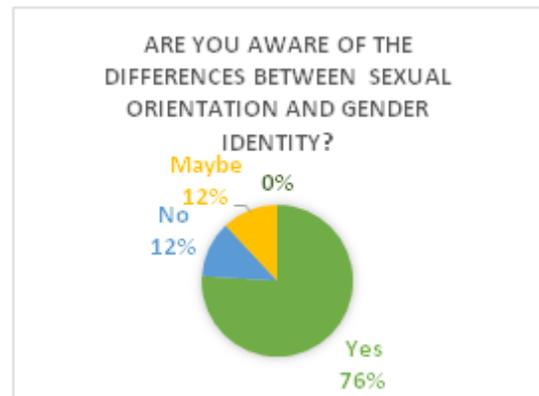
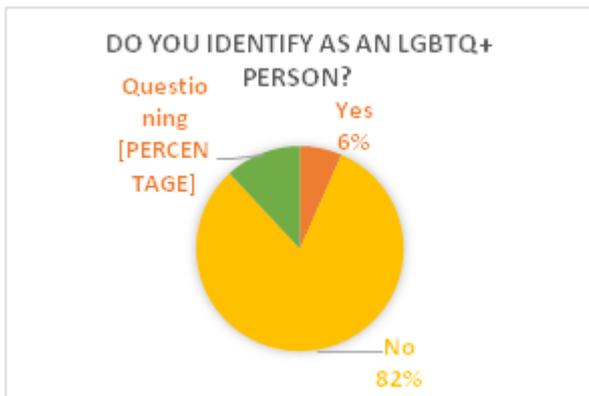
3. The survey had multiple-choice options to choose from and this might not represent the true thoughts of the people.
4. The sense of anonymity may lend itself to greater information exchange due to a sense of safety, but it may also lead to less truthful responses for the same reasons.

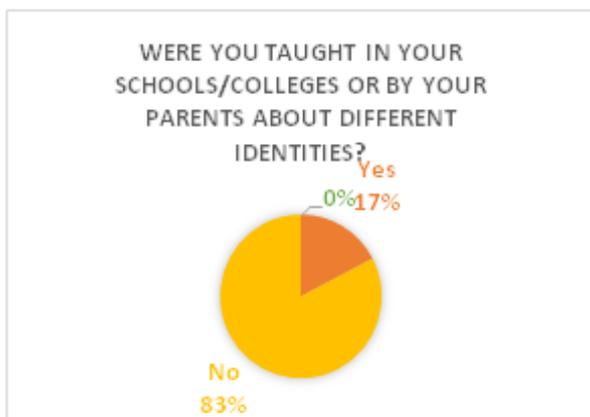
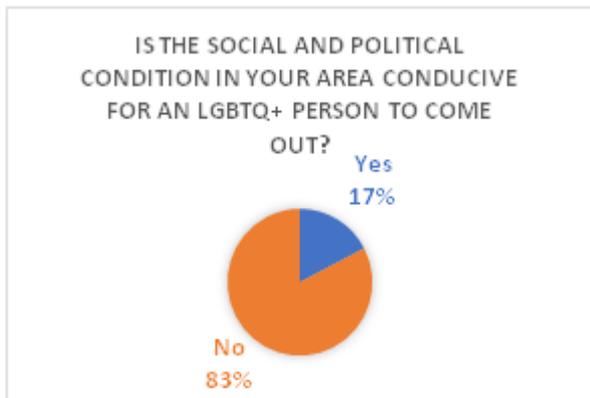
**RESEARCH METHODOLOGY:**

This research paper was aimed at exploring the levels of awareness about the LGBTQ+ community and their perception about the same in students’ minds. The sources of primary data collection were survey and interviews. The sampling method used was convenience sampling. The survey questionnaire was developed following the advice of people who identify themselves to be LGBTQ+ for it to be as inclusive as possible. The sample size was 75 students from different colleges. The survey was conducted anonymously. A multiple-choice survey questionnaire was circulated amongst the students. The age of the students who answered the survey was between 17 to 19 and the locality was in and around Mumbai. Interviews were also conducted for a better understanding of data at ground level and for. The sources of secondary data were research papers and other articles related to the topic. The method of analysis is statistical analysis.

**ANALYSIS AND INTERPRETATION OF DATA:**

The data was collected from 75 students. The survey link was uploaded on various social platforms and students were requested to fill the survey. The link was also circulated to others through private messages, friends, and mutual contacts for 2 weeks. The results obtained are as follows:





Awareness of different sexual and gender identities:

Sexual orientation	No. of people aware
Heterosexual	71 (94.6%)
Homosexual	68 (90.6%)
Bisexual	66 (88%)
Polysexual	20 (26.6%)
Pansexual	30 (40%)
Asexual	50 (66.6%)
Queer	34 (45.3%)
Demisexual	17 (22.6%)
Sapiosexual	24 (32%)
Others	2 (2.6%)

Gender Identity	No of people aware
Cisgender	57 (76%)
Transgender	72 (72%)
Nonbinary	34 (45.3%)
Genderfluid	17 (22.6%)
Gender Queer	19 (25.3%)
Agender	18 (24%)
Androgyne	9 (12%)
Bigender	1 (1.3%)
Other	1 (1.3%)

The interviews conducted reveal that media has a big hand in the negativity surrounding the LGBTQ+ community. Majority of the negativity around the topic is due to the media propagating it as a menace to society and culture. The majority of the interviewees can't discuss the topic openly in front of their parents. Even if people pretend to be cool and accepting, there are always snide comments. Calling someone gay/lesbian is still considered an insult. Many interviewees also suggested different reforms like conducting seminars and webinars for parents and students alike. A personal interview conducted with a 5<sup>th</sup> std student revealed that this younger generation, despite being so exposed to the internet wasn't aware of the LGBTQ+ movement or the terms. What was interesting to note that she was aware of the "Black Lives Matter" movement.

**FINDINGS AND CONCLUSION**

The survey shows that there is a certain confusion and unawareness about the different sexual and gender identities. This lack of knowledge is due to the fact that neither parents nor school/college have educated students about the same. Parents play an important role in shaping children's lives and most parents treat the LGBTQ topic as if it's some nasty pandora's box that should not be opened. This causes the children to think it's wrong and shun it from an early age. Some people are still confused about their own sexuality. Therapy will help them figure out who they are and what they like.

If the media starts giving positive and correct information about them then things will start getting better. Everybody deserves an equal opportunity. The participation of LGBTQ+ people in all activities, be it social, cultural, or democratic should be normalized. YouTube and social media should be used to spread awareness since a large number of people actively use these platforms. Schools and other institutions should conduct seminars and topics like LGBTQ should be included in the syllabus right from an early age. We will achieve complete support and acceptance for LGBTQ+ when the topic is discussed at schools, colleges, workplaces openly, without any frowns.

Have a connection before judging other people. LGBTQ+ people are as normal as the rest of us. Discrimination against them should be stopped at all costs. They have a right to live freely and as they want. No religion or culture should dictate how they live their lives. We won't need any programs, any movements if a person is recognized as a human first. Gender and sexuality are a part of identity, not individuality.

### **SUGGESTIONS AND RECOMMENDATIONS**

This survey was conducted amongst students in and around Mumbai. Further research should be taken up to include students from all parts of the country to get a more holistic view.

Additional research should also be conducted about the perception of the LGBTQ+ community amongst the general public as students are a very small section of society.

Effective seminars should be conducted on this topic to reduce stigma and increase awareness.

Therapy should be available at cheaper costs and schools and colleges should have counsellors.

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**A link to the Survey Questionnaire: A survey on the levels of awareness and perception of sexual orientation and gender identity amongst students.**

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**A STUDY ON IMPACT OF DISRUPTIVE E-COMMERCE STRATEGIES ON THE CONSUMERS**

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**Ms. Shravani Nimale and Ms. Khushi Bandekar**

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**ABSTRACT**

*The world today is moving technologically rather than rapidly, in the e-commerce industry. To compete on this platform, the organisations constantly maintain their disruptive strategies and effectively capitalized. E-commerce is a paradigm shift which influences not only the marketers, but also the consumers. The consumers, being the key element in the e-commerce market are also the main reason for this research. The impact of disruptive strategies in the e-commerce industry and its effect on the consumers is what is highlighted in this research paper. Further, with the help of both primary and secondary sources, a detailed understanding of e-commerce trends in the current decade is discussed. E-commerce has been part of our life and is reaching the expectations of the consumers by offering them quality goods and services. The benefits of e-commerce strategies not only adds value to the consumer's satisfaction, but also enables the organisation to gain a competitive advantage over other competitors. The study further examines the key patterns such as consumer demands, changes in trends, pricing strategy, etc on the e-commerce platform. This indirectly influences the increase in usage of e-commerce. Overall, the present paper attempts to investigate the impact of disruptive strategies in the e-commerce industry from the consumer point of view and interprets the results for the same.*

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**INTRODUCTION**

The world today is moving towards a disruptive and technological environment, and so is the business world. A transition is now faced by the society, where all organizations are dependent on online transactions and advanced information technology for their regular operations. In this booming business economy, the E-commerce plays a prime role. In this paper, the drastic changes in the e-commerce industry are highlighted.

What is E-commerce?

Electronic commerce also known as E-commerce, is the platform for buying and selling of goods and services, funds and data, through a medium of network known as, the Internet. E-commerce is further divided into 5 categories, depending on the parties that involve in an exchange.

They are:

- B2B - It is Business to Business [Consists of all electronic transaction between organizations.]
- B2C - It is Business to Consumer [involve sale of goods and services by a vendor to consumer using shopping cart software.]
- C2C - It is Consumer to Consumer [includes all transaction between consumers]]
- C2B - It is Consumer to Business [like B2C, C2B model also involves the interaction between business and consumers but with their roles reversed.]
- B2G - It is Business to Government [includes interaction between businesses and public sector via internet technologies for the purpose of licensing, tax procedure and other government related operations.]

In almost any industry, the most dramatic stories of growth and success were launched from a platform of disruptive innovation. (Christen et al. 2002).

The phenomenon of disruptive strategies can be explained by a swift change from existing products, markets and consumer demands to introducing new user friendly, quality and affordable products.

Even though, a disruptive innovation helps to create a new market and network, it eventually disrupts the current long-standing market demand, displacing the older technology. Being aware of the uprising innovations before the market, can always be risky and can drain the firm's resources eventually. At the center of this growing and globalized economy is the E-commerce.

**REVIEW OF LITERATURE:**

1. Gunasekaran, Marri, McGaughey and and Nebhwani (2002) in their research paper highlighted the impact of e-commerce on operational systems in "E-commerce and its impact on operations management ", this defines how the e-commerce or trading has spread over every field of business the paper depicts the revolutionary role played by the older technologies and points out the disruptive changes brought by the e-commerce technologies in the production, sales, purchase, finance, warehousing, distribution, etc.

Technologies based on internet have enabled business to shorten their procurement cycles and maintain close relationships with consumers to facilitate constant communications. The paper in depth explains the significance of e-commerce in different business operations.

2. Khosla and Kumar (2017) in their analytical report had mentioned that there are some new trends that are expected in the near future in e-commerce they are expected in the near future in e-commerce this can lead to growth of niche businesses, omni channels, mergers, covering more rural markets and so on they even discussed about the rise in digital payment modes and its impact on the consumers. This all together can disruptive innovate the current business infrastructure and supply chain management.

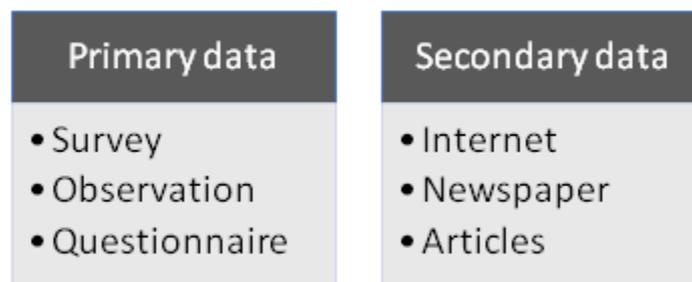
**STATEMENT OF PROBLEM:**

As the business market environment tends to shift and long term stability is not easily attainable with the constant market disruption and emerging regions. In order to compete on this platform, organization maintain flexibility within their business models and strategies to effectively capitalize or respond to market disruptions.

E-commerce provides a large platform for the targeted audience along with large quality goods and services. However the companies have to compete with each other to survive in the market . Due to disruptive strategies, the business can lure the customer towards their websites. But as long as the consumer is concerned the usage of sites must be built on trust and quality assurance.

**OBJECTIVE OF THE STUDY:**

1. To understand the current trends and status of e-commerce.
2. To study the consumer's experiences about advanced e-commerce technology.
3. To analyse the consumer habits and market demand in the industry.
4. To reveal important variables impacting the increase in usage of e-commerce.
5. To recommend ways in which e-commerce can be used effectively.

**RESEARCH METHODOLOGY:**

The data collected for this research is from primary sources. Primary data was collected in the form of questionnaire. Secondary data was also collected in the form of Internet and newspaper articles.

**ANALYSIS AND INTERPRETATION OF DATA:**

There is a large rise of e-commerce in recent years. Consumers have been using e-commerce conveniently for last five years .The primary domain of e-commerce is shopping. As e-commerce is a wider platform, it broadens consumer choices. E-commerce applications have evidently increased. During the pandemic, e-commerce has played a significant role . As lockdowns had become the new normal, businesses and consumers went digital providing and purchasing more goods and services online. E-commerce is safe. As security is the consumer's concern, e-commerce security provides protection to e-commerce assets from unauthorized access, use and alteration. Although future cannot be predicted, but the future of e-commerce is enormous.

**FINDINGS AND CONCLUSION**

The impact of e-commerce strategies is linked with many factors, such as technology and internet which plays a vital role. E-Commerce provides a large platform for the targeted audience along with large quality goods & services. However, the companies have to compete diligently to survive in the market. Due to disruptive strategies , the businesses can lure consumers towards their websites. But, as long as the consumer is concerned the usage of websites must be built on trust and quality assurance. For recommendations, it is always advisable to the consumer to verify that their payment details are safe. Quality and affordability is also the consumer's

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main goal. Genuine and user-friendly websites will attract a large crowd, but a complex website might experience abandon baskets.

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**LIVE - IN RELATIONSHIP DISRUPTING TRADITIONAL MARRIAGE SYSTEM IN INDIA**

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**ABSTRACT**

*In today's world, the concept of Disruptive Innovation is used extensively. Disruptive Innovation basically describes a process by which any product or service at the starting phase takes root in a simple application at the foot of a market by being less exorbitant and more or frequently accessible, and then relentlessly moves up-market, eventually replacing established challengers. Disruptive Innovation, generally related to the fields of Business and Economics can also be understood in the Sociological context.*

*Marriage is a more legal and socially accepted form of relationship whereas Live-in relationships are looked down in the society. Live-in relationships are the new and on-going trend among the youth that gives couples the freedom to live with their partners without any pressure of getting married. In India live-in relationships remains a controversial issue, with many young Indian couples and their families on the opposite sides of the divide. The older generations view this as the interruption in the traditional norms and customs which previously existed in the society. The concept of live-in relationships is popular among all walks of life, especially in the metropolitan cities. It can be said that the new wave of live-in has replaced or delayed marriage to some extent.*

*This paper focuses on explaining what live-in relationships are and in what way are they different from the traditional marriage system in India. Both of these socially-constructed institutions have their pros and cons. This paper is the analysis of views and perspectives of people on live-in relationships and the changing dynamics of the society in both the systems. The objective of the paper is to examine how traditional marriage systems in India are getting disrupted because of the new wave of live-in relationships.*

*This paper is the analysis of a survey conducted between people who have their particular views regarding live-in relationships. It also covers information from the World Wide Web which includes E - Research papers and E - articles. A detailed analysis of both the above mentioned sources, are the scope of study in this paper.*

*Key words: Live-in relationships, Disrupted, Traditional Marriage Systems, Perspectives, Changing Dynamics, Society.*

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Humans live in a modern fast-changing world, where technological and industrial expansion has occurred at an extremely rapid rate for the last few decades. These changes have affected people's lives to a great extent. Society and Law have been always working hand in hand for the improvement of everyone. Society is progressing every single day but people are finding it difficult to keep up with these new upcoming changes. In India, the concept of marriage has been given utmost importance. It is considered as a religious ritual. Marriage is a social union or a legal contract between people that creates kinship. The concept of live-in relationship isn't new to the society but the main problem is that people in a live-in relationship hesitate to reveal or speak frankly about their status or their relationship to the society. But recently, things are changing and couples have started living together in a single household even without getting married. They don't hesitate to share about their relationship status and the condition in which they are living in. Such relationship may be brief or may continue for a considerable period of time.

Because marriage is considered as a sacred union in India, people of current generation do not want to gamble it. They want to enter into marriage only if they feel that the relationship is going to work in a long term basis. Couples want to completely understand about their significant other and then want to decide whether they want to marry or not. This delays or probably displaces the thinking of getting married because people find live-in relationships more convenient. Such a change, according to the traditional thinking society might lead to disruption of marriage system.

Live-in relationship being new and trendy created personal curiosity towards the topic (Live-in Relationships Disrupting Traditional Marriage System).

Live-in relationship also known as Cohabitation is a system whereby two people or a couple decide to live together on a short-term, long-term or permanent basis. It is an emotionally and/or sexually intimate relationship where couples want to understand their stability and compatibility. The term live-in relationship is most frequently applied to couples who aren't married.

According to [legalserviceindia.com](http://legalserviceindia.com), the legal definition of live-in relationship is “an arrangement of living under which the couples which are unmarried live together to conduct a long-going relationship similarly as in marriage.”

In the case of *S.Khushboo v. Kanniammal* (2010), The Supreme Court of India, for the first time gave legal recognition to live-in relationships. The Court categorized them as “domestic relationships” which was protected under the Protection of Women from Domestic Violence Act, 2005 (“DV Act”). The Court stated that a live-in relationship falls within the confines of the Protection of Life and Personal Liberty incorporated under Article 21 of the Constitution of India. Further, The Court held that live-in relationships are legally accepted and that two adults living together, in any instance, cannot be thought about as illegal or unlawful. However, they became a developing region of controversy with reference to the types of live-in relationships that are recognized. Due to these controversies, The Supreme Court in *Indra Sarma v. V.K.V. Sarma* (2013) categorized live-in relationships into two— (1) domestic cohabitation between two unmarried individuals and (2) domestic cohabitation between a married and unmarried individual or two married individuals.

Marriages have been and will be always considered as an important ritual of societies across the world. It has been a salient ritual. It entails legal or/and religious activities. Live-in Relationship on the other hand is a kind of setting where couples decide to live together. While marriages are socially welcomed, live-in relationships in many societies aren't socially accepted. Generally, the couple involves a man and a woman. A couple who identifies in any spectrum of the LGBTQ umbrella i.e. Lesbians, Gays, Bisexuals, Transgender and Queers, are yet to find a legal pathway for a recognized marriage. Therefore, legal provisions provided in Special Marriage Act, also remain alien to them. Hence, the idea of family, for them lies with the remedies given for a live-in couple. Ergo, Right to adopt, dignity and life are given to them without the title of being married. According to Advocate Maneka Guruswamy, who sphere headed De-criminalization of Section 377 believes that marriage equality is also a fundamental right of a human. Both, marriage and live- in relationships are traumatic in a sense, but there is less paper work in live-in situations. Children born in a marriage have legal and social benefits. Through the case of *Tulsa & Ors vs. Durgatiya & Ors*, in 2008, the Supreme Court established legal status for children born in a live-in relationship. One of the important preconditions laid down by the court for a child born in a live-in relationship is that he/she has to be treated as legitimate , that his/her parents must have cohabited under one roof for a long period portraying themselves to society as being similar to husband and wife. In the case of *Bharatha Matha vs R Vijaya Renganathan & Ors*, the Apex Court held that a child born in a live-in relationship shall be considered as a legitimate child, consequently, he shall have the right to access his parents' property which does not include ancestral undivided property.

When it comes to families, marriages are amalgamated with union of families, but in live-in relationships, generally, families do not entail much with the couple. It is difficult to differentiate between marriage and live-in because both have their own set of advantages and disadvantages

In the modern world, the number of live-in relationships has increased rapidly. People consider marriage as a sacred union, although, this generation wants more freedom of personal thoughts and also want to see the amount of compatibility with their partner. Thus, this paper explains about live - in relationship in detail. This study also looks upon whether live-in relationships are disrupting the traditional marriage system in India.

To make things definite the analysis does not cover conditions of live-in relationships during the pandemic, it does not include detail information of the traditional marriage system in India.

Considering all of these objectives, a survey was conducted among people from varying age groups via Google forms. The survey gathered opinions of 77 such respondents which included students and people from different background. This survey gives analysis on how people think about live-in relationships and to know whether they are / aren't in favor of this modern change.

As mentioned above, Marriage and Live-in Relationship, both are socially constructed institutions, and legally accepted. The response to the question "Though legally accepted in India, do you think live in relationships are not societally accepted" was predictable and in huge numbers positive with 85.7% people responded by saying live-in relationships are not societally accepted.

Narrating their opinions on this question, some responses cited are –

-“Yes live-in relationships are accepted, however, Most of Indians like things old school, where the couple movie in together after the marriage and not before.”

-“Diverse society has various old traditions and customs. Accepting new ways of living life is a difficult pill to swallow resulting in criticism.”

-“Because the society is still predominantly run by people from a different era that consider, any man-woman relationship out of wedlock to be sinful and wrong.”

-“People think that live-in relationship is a sin and those living and supporting this idea are causing disruption in society.”

-“For decades, people in India specifically have believed in marriage as an institution for better fulfillment of needs of couples, and concept of live-in is foreign to them. Couples living together before marriage is considered as a taboo in many parts of India. Many people, mostly the older generations don't feel live-in as real or reliable as marriage.”

Delving further into the findings, when asked about whether "Live-in Relationships are criticized in the society" 92.2% respondents affirmed that Live-in Relationships are criticized in the society whereas 7.8% respondents disagreed. It is fascinating to note the responses to the question about "live - in relationship helping couples having a better future in marriage". More than 66% of respondents approved that live-in helps to have a better future in marriage.

Proceeding to the latter half of the study, when it came to marriage being more relevant or convenient than live-in relationship in India, it was surprising to see 33.8 % of responses were in favor and also were against of marriage being more relevant than live - in relationship. Some of the responses were:-

-“Society tends to look down on people who choose live-in over marriages as live-in is not given social sanction its opposed. Also I feel it is an individual's choice on how they choose to live their life. So one shouldn't consider it as a shame simply because it's NOT.”

-“For ages, we've lived in a culture where relationships are considered very sacred. It's almost as if live-in relationships are tagless and the cultural mindset is reluctant to accept it.

-“India mostly leans towards a conservative mindset. Hence people who prefer live-in relationships, are characterized and are generally questioned as it creates a disruption and a danger to the traditional practice of marriage.

-“As per Indian culture, being or living together as partners is not acceptable before marriage, this kind of 'harms' their norms or culture.’

-“Yes, because the girl and boy live with each other without marrying, and this creates a lot of stigma. Because of this stigma, it is criticized.

66.8% respondents were certain that live-in relationships does not decrease the value of traditional marriage system in India. This clearly indicates that live-in relationship can be considered as a positive for the society. Responses to the question "live-in relationships are a boon to the society" were interesting as 61% of the respondents accepted that live-in relationship is a boon for the society. Some of the responses to this question were :-

-“Yes it really helps the couple to understand each other before getting committed for the rest of the life.”

-“Yes because live-in gives you a chance to evaluate the person you want to spend your rest of the life with and helps to take us wise decisions.”

-“No live-in relationship is not a boon to any society. In India people give more importance to marriage that's why most of the people feel it's a boon. The society gives more importance to that sindoor and mangalsutra rather than the relationship of the husband and wife.”

-“It's better to live with someone you choose and decide a future for yourselves than be forced to live with someone instantly just cause you're 'married' especially if it's arranged.”

-“I think it is a boon for individuals who prefer live-in relationships as there are many positives for sure. But as far as society in general (India) is concerned, people are more judgmental because of which it is more of a bane than a boon.

**Other notable opinions from the respondents were :-**

-“Because if it's an arrange marriage or even a love marriage people may get uncomfortable after moving in together. When they are in live-in relationship they get to know each other in a whole other way. So it is a boon.”

-“Live-in relationships can help understand a person in a better manner and should be gaining more importance. Hope this gets better for the next generation.”

-“Yes, I think live- in relationships are a boon. Cohabitation helps couples understand their strengths and weaknesses before being committed for life.”

-“Live-in relationships allows the couple to understand each other and helps in family planning - economically as well as socially. This gives flexibility to them as well as their families.”

-“Personally I think society should start accepting live-in relationship if the girl and boy agrees with each other!!!”

-“Live-in Relationships are being more socially accepted in metropolitan cities as young generations finds it less complicated. I don't think its disrupting traditional marriage system in India. Marriage rates are not on decline as much but the divorce rates in past two decades have drastically increased, this might be a reason why couples are now opting for live-in relationships.”

-“Live-in Relationship, though a western thing, people are trying it out. But still the masses are uncomfortable and many prefer original wedding system rather than live-in. Also even though it's legal it's not conventional and at some places convenient because people don't let a couple stay in a rental house if they are in a live-in relationship. Basically it is criticized.”

Marriage and live-in relationships are choices that should be free from societal pressures. Live-in relationships provide couples with a greater opportunity to know each other better with a freedom to live together or to end the relationship as per their wish. But they have to face many social hurdles. Every single kind of a relationship has certain advantages and disadvantages, whether it is marriage or a live -in relationship. Concluding these findings, it is true that live-in relationships disrupt traditional marriage system. It can be and is considered by most of the young generation couples as well as individuals as a positive approach before marriage because it helps to build a more compatible and healthier bond between couples which can be influential for a better future.

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**CASE STUDY ON BLOCKCHAIN AND CRYPTO CURRENCY****Srilatha Ratnam**Assistant Professor, Information Technology Department, Wilson College, Chowpatty

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**ABSTRACT**

*The block chain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value. Blockchain technology holds immense promise for a variety of industries, including financial services, real estate, supply chain management, health care, academia and more. From smart contracts to blockchain-encrypted academic credentials, these use cases are vast and far-reaching. To make sense of this revolution, we need to understand what a block chain is and what it is capable of doing. This paper focuses on cryptocurrency as a case study of how blockchain technology works, and provides a case study of blockchain. This paper also defines basic blockchain-related features and concepts, and reviews the way features behave in an economic environment and how they balance the incentives of the participants.*

*Keyword:- block chain, encrypted, smart contracts.*

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**I. INTRODUCTION**

If you have been following banking, investing, or cryptocurrency over the last ten years, you may have heard the term “blockchain,” the record-keeping technology behind the Bitcoin network .Blockchain seems complicated, and it definitely can be, but its core concept is really quite simple. A blockchain is a type of database. To be able to understand blockchain, it helps to first understand what a database actually is. A database is a collection of information that is stored electronically on a computer system. Information, or data, in databases is typically structured in table format to allow for easier searching and filtering for specific information.

**II. WHAT IS THE DIFFERENCE BETWEEN SOMEONE USING A SPREADSHEET TO STORE INFORMATION RATHER THAN A DATABASE?**

Spreadsheets are designed for one person, or a small group of people, to store and access limited amounts of information. In contrast, a database is designed to house significantly larger amounts of information that can be accessed, filtered, and manipulated quickly and easily by any number of users at once. Large databases achieve this by housing data on servers that are made of powerful computers. These servers can sometimes be built using hundreds or thousands of computers in order to have the computational power and storage capacity necessary for many users to access the database simultaneously. While a spreadsheet or database may be accessible to any number of people, it is often owned by a business and managed by an appointed individual that has complete control over how it works and the data within it.

**III. HOW BLOCKCHAIN DIFFER FROM A DATABASE?**

1. **Storage Structure:-** One key difference between a typical database and a blockchain is the way the data is structured. A blockchain collects information together in groups, also known as blocks, that hold sets of information. Blocks have certain storage capacities and, when filled, are chained onto the previously filled block, forming a chain of data known as the “blockchain.” All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled. A database structures its data into tables whereas a blockchain, like its name implies, structures its data into chunks (blocks) that are chained together. This makes it so that all blockchains are databases but not all databases are blockchains. This system also inherently makes an irreversible timeline of data when implemented in a decentralized nature. When a block is filled it is set in stone and becomes a part of this timeline. Each block in the chain is given an exact timestamp when it is added to the chain.
2. **Decentralization:-** For the purpose of understanding blockchain, it is instructive to view it in the context of how it has been implemented by Bitcoin. Like a database, Bitcoin needs a collection of computers to store its blockchain. For Bitcoin, this blockchain is just a specific type of database that stores every Bitcoin transaction ever made. In Bitcoin’s case, and unlike most databases, these computers are not all under one roof, and each computer or group of computers is operated by a unique individual or group of individuals. Imagine that a company owns a server comprised of 10,000 computers with a database holding all of its client's account information. This company has a warehouse containing all of these computers under one roof and has full control of each of these computers and all the information contained within them. Similarly, Bitcoin consists of thousands of computers, but each computer or group of computers that hold

its blockchain is in a different geographic location and they are all operated by separate individuals or groups of people. These computers that makeup Bitcoin's network are called nodes.

#### **IV. IS BLOCKCHAIN SECURE?**

Blockchain technology accounts for the issues of security and trust in several ways. First, new blocks are always stored linearly and chronologically. That is, they are always added to the "end" of the blockchain. If you take a look at Bitcoin's blockchain, you'll see that each block has a position on the chain, called a "height." As of November 2020, the block's height had reached 656,197 blocks so far. After a block has been added to the end of the blockchain, it is very difficult to go back and alter the contents of the block unless the majority reached a consensus to do so. That's because each block contains its own hash, along with the hash of the block before it, as well as the previously mentioned time stamp. Hash codes are created by a math function that turns digital information into a string of numbers and letters. If that information is edited in any way, the hash code changes as well.

#### **V. WHY THAT'S IMPORTANT TO SECURITY.**

Suppose a hacker wants to alter the blockchain and steal Bitcoin from everyone else. If they were to alter their own single copy, it would no longer align with everyone else's copy. When everyone else cross-references their copies against each other, they would see this one copy stand out and that hacker's version of the chain would be cast away as illegitimate. Succeeding with such a hack would require that the hacker simultaneously control and alter 51% of the copies of the blockchain so that their new copy becomes the majority copy and thus, the agreed-upon chain. Such an attack would also require an immense amount of money and resources as they would need to redo all of the blocks because they would now have different timestamps and hash codes. Due to the size of Bitcoin's network and how fast it is growing, the cost to pull off such a feat would probably be insurmountable. Not only would this be extremely expensive, but it would also likely be fruitless. Doing such a thing would not go unnoticed, as network members would see such drastic alterations to the blockchain. The network members would then fork off to a new version of the chain that has not been affected. This would cause the attacked version of Bitcoin to plummet in value, making the attack ultimately pointless as the bad actor has control of a worthless asset. The same would occur if the bad actor were to attack the new fork of Bitcoin. It is built this way so that taking part in the network is far more economically incentivized than attacking it.

#### **VI. BITCOIN VS. BLOCKCHAIN**

The goal of blockchain is to allow digital information to be recorded and distributed, but not edited. Blockchain technology was first outlined in 1991 by Stuart Haber and W. Scott Stornetta, two researchers who wanted to implement a system where document timestamps could not be tampered with. But it wasn't until almost two decades later, with the launch of Bitcoin in January 2009, that blockchain had its first real-world application. The Bitcoin protocol is built on a blockchain. In a research paper introducing the digital currency, Bitcoin's pseudonymous creator, Satoshi Nakamoto, referred to it as "a new electronic cash system that's fully peer-to-peer, with no trusted third party."

#### **VII. KEY THING :-**

Bitcoin merely uses blockchain as a means to transparently record a ledger of payments, but blockchain can, in theory, be used to immutably record any number of data points. As discussed above, this could be in the form of transactions, votes in an election, product inventories, state identifications, deeds to homes, and much more. Currently, there is a vast variety of blockchain-based projects looking to implement blockchain in ways to help society other than just recording transactions. One good example is that of blockchain being used as a way to vote in democratic elections. The nature of blockchain's immutability means that fraudulent voting would become far more difficult to occur.

For example, a voting system could work such that each citizen of a country would be issued a single cryptocurrency or token. Each candidate would then be given a specific wallet address, and the voters would send their token or crypto to whichever candidate's address they wish to vote for. The transparent and traceable nature of blockchain would eliminate the need for human vote counting as well as the ability of bad actors to tamper with physical ballots.

#### **VIII. BLOCKCHAIN VS. BANKS**

Banks and decentralized blockchains are vastly different. To see how a bank differs from blockchain, let's compare the banking system to Bitcoin's implementation of blockchain.

## IX. HOW IS BLOCKCHAIN USED?

As we now know, blocks on Bitcoin's blockchain store data about monetary transactions. But it turns out that blockchain is actually a reliable way of storing data about other types of transactions, as well. Some companies that have already incorporated blockchain include Walmart, Pfizer, AIG, Siemens, Unilever, and a host of others. For example, IBM has created its Food Trust blockchain<sup>1</sup> to trace the journey that food products take to get to its locations. Why do this? The food industry has seen countless outbreaks of e Coli, salmonella, listeria, as well as hazardous materials being accidentally introduced to foods. In the past, it has taken weeks to find the source of these outbreaks or the cause of sickness from what people are eating.

Using blockchain gives brands the ability to track a food product's route from its origin, through each stop it makes, and finally its delivery. If a food is found to be contaminated then it can be traced all the way back through each stop to its origin. Not only that, but these companies can also now see everything else it may have come in contact with, allowing the identification of the problem to occur far sooner, potentially saving lives. This is one example of blockchains in practice, but there are many other forms of blockchain implementation.

## X. CONCLUSION

First proposed as a research project in 1991,<sup>7</sup> blockchain is comfortably settling into its late twenties. Like most millennials its age, blockchain has seen its fair share of public scrutiny over the last two decades, with businesses around the world speculating about what the technology is capable of and where it's headed in the years to come. With many practical applications for the technology already being implemented and explored, blockchain is finally making a name for itself at age twenty-seven, in no small part because of bitcoin and cryptocurrency. As a buzzword on the tongue of every investor in the nation, blockchain stands to make business and government operations more accurate, efficient, secure, and cheap with fewer middlemen. As we prepare to head into the third decade of blockchain, it's no longer a question of "if" legacy companies will catch on to the technology—it's a question of "when."

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**THE IMPACT OF CASH BURN STRATEGY ON START-UPS IN INDIA**

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**ABSTRACT**

*To endure in cut throat competition firms are obliged to come up with disruptive business strategies. This paper discusses the impact of cash burn strategy on start-ups, directed toward the profitability of the start-ups. This strategy disrupts the traditional way of gaining customer base. Since, few years cash burn strategy is trending among the start-ups and other Companies which has set outstanding results and broke the barriers of ongoing practices. The primary objective of this study was to investigate and study the financial statements of start-up companies and the time they take to reach the point of no profit-no loss from the time of incorporation; to find out if the cash-burn strategy has helped accelerate this process of reaching the stage of no profit-no loss. Since the paper is based on secondary survey. Analysis shows that, one need to monitor the burn rate at different level of business development to sustain, grow and reach the equilibrium point. As a result; if a company or firm burns cash too fast, they run the risk of running out of money and going out of business. If a company or firm doesn't burn enough cash, it might not be investing in its future and may fall behind the competition. To use this strategy, start-up need financial assistance.*

*Keywords: Cash Burn Strategy, Start-up, Burn Rate, Financial statement, Equilibrium Point.*

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**INTRODUCTION**

India is home to many businesses. To enter, sustain and to grow into such competitive area we need some disruptive strategies to enter with in market with any product or services. It is seen that companies are receiving funding after funding even though they are not showing profit in their books, since they forecasting growth of business. On 16<sup>th</sup> January of the year 2016 Government of India launch start up India Initiative and various other schemes are launched to encourage the culture of job giver and not job seeker among the citizens of the country. Innovation, Creation and being passionate about disruption and development are few characteristics seen among successful start-ups. Start-ups are the young companies, in the form of sole or partnership who develops or launches a product or service and bring it to market in innovative way. Cash burning is one of such disruptive strategy which allows to gain customer base. Cash Burn Rate it's the rate of negative cash flow, usually quoted as a monthly rate. Burn Rate is how fast a company spends its available supply of cash. It is a matter for start-ups, since typically they are unprofitable at early stage and moreover not everyone can endure the burn. So, on this basis the paper evaluates about companies using Cash Burning as a disruptive strategy to get entered and be sustainable business in a competitive market.

**REVIEW OF LITERATURE**

A burn rate can be described as the rate at which a new company is spending its Venture capital to finance overhead before generating positive cash flow from operations. Articles, experts also say that burning money isn't just for start-ups, but mature businesses can also use this strategy. This strategy brings hard time on other players in market. By using this strategy Jio was set to launch its 4G mobile phone and digital services in the second half of 2016.

**STATEMENT OF PROBLEM**

Generally, companies are unable to manage their negative cash flow. This paper analyses if start-up can manage their cash burn and reach the stage of equilibrium.

**OBJECTIVES**

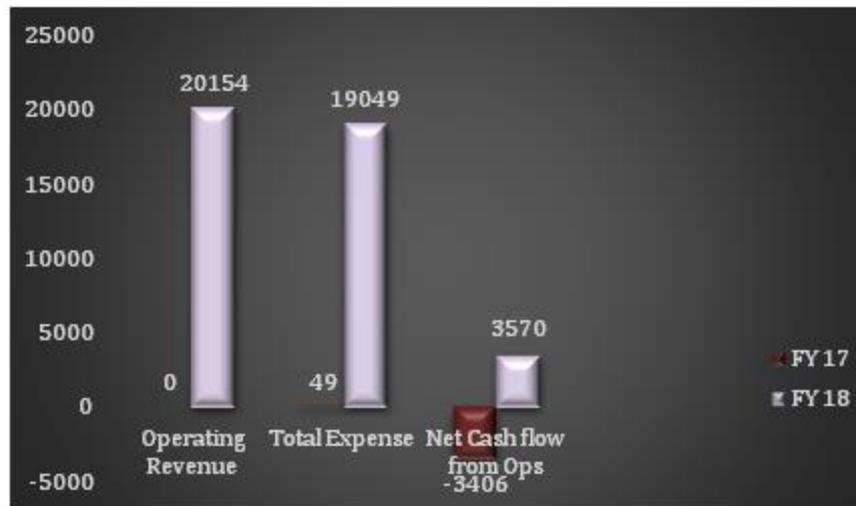
- To investigate and study of the Financial Statement of Reliance Jio Infocom Ltd.
- To detect the duration taken by Reliance Jio Infocom Limited to reach the point of equilibrium from the point of release of product for public usage by the use cash burn strategy.

**HYPOTHESIS OF STUDY**

- The association between cash burn strategy and growth is significant.
- Start-ups using Cash Burn strategy creates difference in the market. Thus, making a place for themselves by securing customer base and passing through a cut throat competition.

**RESEARCH METHODOLOGY**

The study is based on secondary data. Both author and the co-author have considered several journals, research paper from Research Gate, articles from Quora, Wikipedia, LinkedIn, websites of Forbes and more.

**ANALYSIS AND INTERPRETATION OF DATA****FINDINGS AND CONCLUSION**

- ❖ Jio's service became publicly available on September 2016. To earn profit out of this it took 15 months for the company i.e. The quarter ending 31 December 2017 was the first quarter when Reliance Jio earned profits since its commercial release.
- ❖ The reasons for start-ups to burn cash are to invest in brand building, advertising, building infrastructure, distribution channel, hiring employees, making product and services, talent acquisition, gaining of customer base. Cash burnt by Reliance Jio in FY 16(the year before the commercial launch) was ₹22,000 crore. Till 2020, they have burnt to the tune of ₹1.47 trillion, as the company undercut its entirety of competition and rose to become the largest telecom company in the country and 3<sup>rd</sup> largest mobile network operator in the world with 426.2 million subscribers.
- ❖ After analysing the case of Jio, it is seen that Cash Burn strategy does accelerate the process of reaching equilibrium and then further going on to earn profits, for the enterprise.
- ❖ After analysing Jio, it can be concluded that cash burn does accelerate the process of reaching equilibrium and subsequently earn profits.
- ❖ It can be culminated that not all start-ups can endure the burn. There must be strong plan of action to carry out this (cash burning) strategy.

**SUGGESTIONS**

It is important to reiterate that this study has been conducted on only one start-up. Start-ups at various stages of operations should be looked into. Start-ups are being formed all across the globe. Further study can be done about the cases of start-ups using Cash burning strategy in different countries and economies of the world. It is also recommended that the use of cash-burn strategy among other types of enterprises should also be studied and analysed.

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**A STUDY ON CONSUMER PREFERENCE FOR ONLINE BANKING**

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**ABSTRACT**

*Online banking is the new trend in the world of banking sector. Online Banking is an electronic form of banking system which allows consumers to make transactions for any financial/non-financial services via online. In 1996, Industrial Credit and Investment Corporation of India was the first to use e-banking in India. After the demonetization in 2016, many banks have come up with their online version of banking by introducing internet banking websites and mobile banking apps. Checking the accounts statement, opening a Fixed-Deposit account, transferring funds, ordering cheque book, making payments of utility bills are the various services offered in online banking. The change from traditional to modern approach has made it easy to complete any financial transaction in just a few clicks. With the evolution of online banking, long-ques, slow process, operating expenses has been cut down. ATM cards, debit/credit cards and smart cards has made many people "to go cashless". However, with benefits comes drawbacks. Lack of awareness about online banking, transaction issues, security check issues, internet issues etc. are some areas which still need to be worked on. Security is an area of concern for many people in terms of their money and savings, it scares people away from going online. By studying consumers attitude towards online banking, we can overcome these hurdles in the banking sector. Collecting information at a primary stage from the consumers, help us to analyze and resolve the problems of internet banking. Mobile banking would be the new preference over traditional banking. It drives with the conclusion that; the internet banking would be the next face of banking sector.*

**KEYWORDS:** *Online banking, Challenges, consumer behavior, mobile banking, aftermath.*

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**INTRODUCTION**

Earlier, when we used to talk about Online Banking in India, the industry in India was lagging behind many developing nations. It was due to the legacy systems, huge costs of running branches, and outdated technology that could not be upgraded. Since then, India witnessed gradual yet dynamic growth in Online Banking. Online Banking or Internet Banking means digitalization of the traditional banking activities and services that were earlier only available when customers visited the bank branch in person, is now available online providing its customers a wide range of financial transactions through various financial institution. These services can be easily accessed through smartphones, laptops, etc. Financial transactions like transferring funds, paying bills, managing bank account became effortless. The need for computerization of banking sector was felt in the late 1980s. Therefore, the Reserve Bank set up a committee in this regard in 1988. Then with further evolution, banks adopted the core banking platform. It was then branch banking was changed to bank banking. Core banking solution allowed banks to raise the comfort aspect to the customers, and it was hailed as a promising step towards improving customer convenience through the so called "Anywhere and Anytime Banking". Thereafter the process of computerization kicked up with the opening of economy in the early 90s. Rising competition from private and foreign banks accelerated too. The government, by launching its UPI system in 2016 allowed people in easily transferring money from one bank account to another, accelerating online banking in India by bringing up the presumed "Mobile Banking". The Indian government has been promoting Online transactions like never before. Online Banking, and the launch of UPI and BHIM by National Payments Corporation of India brought innovation in the province of payment system of Banking Sector. Today the Banks are serving their best to provide fast, accurate, and quality experience to its customers. There has been a big evolution in the banking sector over the years and it is bound to evolve further. With various steps and new features that the banking industry is introducing, this sector will grow further. But this growing sector despite of their diligent working, still face challenges such as Transaction issues, security issues, fear of customers for losing their money, lack of awareness.

Let us now see the study made by the researcher on the same.

**RESEARCH METHODOLOGY**

In order to collect the data, the researcher has collected the data through questionnaire which was truly and actively participated by 200 actual bank account holders. The research was conducted in the month of October 2021. Random sampling method is used to collect the data. The sample size for the study is 200. The collected will be analyzed through use of software like excel.

**REVIEW OF LITERATURE**

**Reserve Bank of India Reports: 2.3 The Growth of Internet Banking and common products:**

**2.3.1** Internet Banking is a product of e-commerce in the field of banking and financial services. In what can be described as B2C domain for banking industry, Internet Banking offers different online services like balance enquiry, requests for cheque books, recording stop-payment instructions, balance transfer instructions, account opening and other forms of traditional banking services. Mostly, these are traditional services offered through Internet as a new delivery channel. Banks are also offering payment services on behalf of their customers who shop in different e-shops, e-malls etc. Further, different banks have different levels of such services offered, starting from level-1 where only information is disseminated through Internet to level-3 where online transactions are put through. These aspects have been dealt with in brief in the introductory chapter and again detailed products and services are discussed in chapters 3 and 4. Hence, in the following paragraphs I-banking concerns in B2B domain are discussed.

**Banking Consumer Study: making digital more human (report by Accenture):** Our Banking Consumer Study examines how consumers’ behavior and preferences have shifted due to the pandemic. The rush to digital is depriving banking of its traditional human touch. This poses the risk that it will become commoditized, price-driven and incapable of shoring up declining customer trust. Banks that infuse humanity and personalization into their digital interactions can forge strong customer connections, build trust and drive growth.

**OBJECTIVES OF THE STUDY**

1.To study the consumer preference for online banking.

**HYPOTHESIS OF THE STUDY**

H0: Online banking is not the consumer’s preference, but offline banking.

H1: Online banking is the consumer’s preference.

**METHOD**

1) Participants: We have used questionnaire as a tool to collect the data among the bank account holders to study the consumers preference for online banking. And we received 200 respondents which were easily available. We have used a non-probability sampling method. In total we had 200 respondents in which 110 respondents were male and 90 respondents were female. The mean age group of the participants is 40. All the participants which we have considered are having an actual major bank account and not a minor account.

2) Research Design: We have used the random sampling method to study our topic and also had prepared a questionnaire and shared it with customers having an actual bank account in any of the RBI recognized banks. And we had a total of 200 respondents. The research was conducted in the month of October 2021.

3) Procedure:

Limitation of study: Due to the current pandemic situation and it’s widespread it was difficult to get response by actually, physically visiting the banks and asking its customers for their liking for online or offline banking and the difficulties they face and their suggestions for the same. And also, since it was hard to cover a huge group of consumers with actual bank account holders, hence there were only 200 respondents.

**RESULTS**

For the purpose of research, the researcher had collected the data with the help of questionnaire and total 200 respondents submitted the response. Analysis and interpretation of data is as follows:

1) Age of Respondents

Age of respondents	18-20	21-30	31-40	41-50	51 and above
No of responses	30	90	55	20	5

2) From the given below Mobile Banking Apps, which Banking App do you use?

Kotak-811 & Mobile Banking	40
HDFC Mobile Banking	30
YONO Lite SBI	22
Axis Mobile	40
IDBI Bank Go Mobile+	10
iMobile Pay by ICICI Bank	8
CANDI-Mobile Banking App	4

BOI mobile	9
PNB ONE	4
FedMobile	13
Others	20

3) Which of the following Banking Mode do you prefer?

Online Banking	116
Offline Banking	4
Both	80

4) How often do you use Online Banking?

Daily	26
Weekly	60
Monthly	102
Every Fortnight	12

5) What are the activities you are able to do with Online Banking? (Preference of respondents recorded using checkbox)

Paying Utility Bills	148
Transferring Funds	154
Checking Balance or Account Statement	144
Opening a Fixed Deposit, A/C	38
Ordering a Cheque Book	34
Buying a General Insurance	28
Other	30

6) What according to you are the problems in Online Banking (Preference of respondents recorded using checkbox)

No transaction without proper internet connection	120
Security Check issues	62
Transaction issues	68
Concern/ Fear regarding savings	38
Lack of awareness about mobile banking	52
Other	20

7) What is your observation on the functioning of your Online Bank

Least satisfied	2
A bit Satisfied	4
Moderately Satisfied	44
Satisfied	120
Very Satisfied	30

8) Do you think Online Banking would be the next face of Banking Sector?

Yes	190
No	10

**INTERPRETATION**

From the data collected from our 200 respondents we saw majority of our response from the age group of 21-30, followed by 31-40 and 18-20. This helps to understand the young generation consumers prefers more of online banking than the older generation. This is because of many reasons. The researcher has divided the statistics of reasons into the different age category groups for better understanding of the consumers preferences and their problems. Which would further help us to find consecutive solutions to these problems.

**18-20 Age group:** The figures shows that this age group consumers shows third most preference for online banking. All the respondents of this age group have bank account in one of the RBI recognized banks. Also, majority of this age group consumers uses online banking for paying bills, online shopping, and checking their bank statements. This age group prefers more of online banking than offline banking. In an open- ended

question, for why do they prefer online banking? Many responded saying that it is an easy and simple way of transactions, and they can access it anywhere at any time. Regular branch visits, long bank, lengthy account opening procedures are excluded. The consumers of this group use online banking almost daily and in every Fortnight. This category consumers don't face much problems with online banking mode expect for internet issues and some transaction issues. They are very much satisfied with the functioning of online banking.

**21-30 Age group:** The data shows that this age group shows the highest majority of consumer preferring online banking than offline banking. The consumers of this age group use online banking for online payments, transferring funds, opening a fixed deposit account, buying general insurance, shopping, tracking their savings and account statement. Many uses online banking as a mode of savings, by commencing with SIP funds, mutual funds, etc. Majority of the people of this age uses online banking on monthly basis, and few on every fortnight basis. All of the respondents of this category have their bank account in one of the RBI recognized banks. Security check issues, transaction issues, fear of losing their savings are some problems highlighted by this group. Also, majority of the consumers are moderately satisfied with the functioning of the online banking and greater number of people thinks online banking would be the next face of banking sector.

**31-40 Age group:** The above results shows that this age group has the second highest majority of consumers preferring online banking. They use online banking on almost weekly and monthly basis. Paying utility bills, transferring funds, checking balance and account statement, ordering cheque book are some of the online banking activities this category consumers. They think and have experienced that security check issues, transactions, internet issues and fear of losing money are some of the online banking problems. The individuals of this category observe that they are almost satisfied with functioning of their online banking. And they also think that internet banking would be the next face of banking sector.

**41-50 Age group:** The figures clearly states that there are only few people preferring online banking in this age category. Others prefer offline banking as they presume, and assumes that it is the safest mode of money transactions. The few who use online banking uses, it on monthly basis. They use it for transferring funds, checking the account statement and few other operations. Lack of awareness about the functioning of online banking, transaction, internet and security check issues, concern of losing their money are some of the problems they think that the online banking has. This category people are averagely satisfied with the functioning of their online banking. But they think that online banking will the next face of the banking sector.

**51 and above:** The data shows that only a handful of people of this age group prefer using online banking. All the people have their bank account with one of the RBI recognized banks. This group of consumers prefer offline mode of banking since they believe it a safe and easy mode of transaction. And most importantly they have a hard copy evidence of all-important documents, and generates personal relation with the staff at local branches. The individuals of this group either have an online transaction monthly or never. They face a lot of complications with online banking such as difficult to understand the use of online banking, transaction issues, security check issues, lack of awareness and fear of losing their money. They use online banking for transferring funds and viewing their balance. These consumers are not satisfied with online banking but thinks that it would be the future of banking sector.

## DISCUSSION

### FINDINGS

- Almost all the consumers from 18-40 aged group prefer online banking over offline banking.
- Majority of the consumers, use online banking on weekly and monthly basis.
- Transferring funds, paying utility bills, checking balance and account statement are the most frequent activities done by the consumers in online banking.
- Internet problems, transaction and security issues are the problems majorly faced by the consumers.
- More than average people are satisfied with their online banking system, and believes that online banking will be the next stage of banking sector.

### CONCLUSIONS

- From here we can conclude that our hypothesis

H0: Online banking is not the consumer's preference, but offline banking

Proves to be wrong.

And our hypothesis,

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H1: Online banking is the consumer's preference.

Proves to be right.

- As the results say, majority of the people are using online banking now-a-days, this makes the older generations lag behind and struggle with the disadvantages of offline banking.
- Many consumers still fear the online transaction of money, with the belief of losing their hard-earned money.
- A lot of consumers are still unaware of the more features of the online banking, hence creating lack of awareness about online banking.
- The trust and belief created by offline banking branches is not created in the online banking.

#### **RECOMMENDATION**

- As majority of the consumer is of the opinion that online banking would be the next stage of banking sector, the banks should come up with more adaptable and user-friendly banking Apps, so that anyone could be able to manage without having prior in depth knowledge of the online banking app.
- Online banking Apps should be promoted more and banks should educate its consumers about how secure the system is in layman's terms. This could help in eliminating the insecurity among the customers.
- Most of the online banking apps has a lengthy procedure for payment like typing the account number, confirming the OTP, these steps can be avoided. If there is frequent transferring of funds to a particular account then, the account details should be filled once and saved to beneficiaries.
- Allowing safe and easier transactions to happen even over lower bandwidth.
- Transactions should be made more secured so that frauds and cyber crimes don't take place.

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**CONTRAINDICATIONS OF VIRTUAL INFLUENCER MARKETING; AN OVERVIEW ON PERCEPTIONS, EXPERIENCE AND POST-PURCHASE BEHAVIOR OF CONSUMERS**

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**ABSTRACT**

*Influencer marketing is perceived as one of the predominant buzzwords in the field of marketing. Consumers conceived influencers more as 'trustworthy friends' than as a celebrity and they have the power to persuade the buying behavior of a greater number of people. This study aims at investigating the contraindicative side of virtual influencers by analyzing the perception, experience and post-purchase behavior of consumers. The present study is based on primary data collected from 150 consumers in Kozhikode district, using convenient sampling technique. Spearman's Rank Correlation Coefficient is adopted to analyze the relationship between variables using SPSS 22.0. The study identified a weaker relationship between the consumers' experience and level of satisfaction towards influencer marketing and their post-purchase behavior.*

*Keywords: Influencer marketing, Consumers' perception, Experience, Level of satisfaction, Post-purchase behavior,*

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**1. INTRODUCTION**

Influencer marketing is perceived as one of the prominent constituents of contemporary digital marketing tactics which has overshadowed every other traditional as well as modern marketing practices. Influencers' ability to create an interpersonal intimacy with the public help them to gain large or well-segmented following on digital platforms. The strength of persuasion, credibility, attractiveness etc. makes influencers so unique than any other promotional activities. Like any other marketing strategies, influencer marketing has also faced a fair amount of criticism. The rise of opportunities for social media influencers' marketing also increases the concerns of influencers' fraud. Influencers are now stepping into the social space not only for pleasing their followers, but also for other monetary benefits.

This study focuses on understanding the contraindications of influencers marketing by analysing the perceptions, experience and post-purchasing behaviour of consumers. The purpose of this study is to reveal the concealed downsides of contemporary social media influencers.

**2. OBJECTIVES**

- 1) To study the level of satisfaction and Post purchase behavior of consumers on influencer marketing.
- 2) To analyse the relationship between level of satisfaction and post-purchase behavior of consumers with respect to influencer marketing.
- 3) To analyse the relationship between consumers' experience and post-purchase behavior of consumers with respect to influencer marketing.

**3. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT****3.1 Level of satisfaction of consumers on influencer marketing and their post-purchase behavior**

Consumers' attitude and their purchase intention is positively correlated. One's intention to buy a particular product is significantly influenced by his/her personal belief (Lim et al.,2017). They conducted a study on 129 samples, predominantly millennials in Malaysia. The outcome of the study exemplifies that those who have positive attitude towards influencers would probably have the intension to buy influencer recommended products.

Consumer's independent as well as dependent self-construal impacted by influencers attributes of influencers which ultimately affects the impulsive buying behavior of consumers to some extend (Wang & Gao,2020). Likewise, consumers' emotions also play a significant impact on their buying behavior. The purpose of their study was to investigate how influencers marketing influence Chinese millennials consumers' impulse buying behavior. The findings of this focused group investigation revealed that the attributes of influencers such as their credibility, attraction and professionalism are highly mould the impulsive buying behavior of consumers including the highly rational consumers too.

The following hypothesis was proposed to explore the relationship between level of satisfaction of consumers on influencer marketing and their post-purchase behavior.

*H<sub>1</sub>: There is relationship between level of satisfaction and post-purchase behavior of consumers with respect to influencer marketing.*

### 3.2 Consumers experience on influencer marketing and their post-purchase behavior

Social media influencers have no significant influence over purchase intentions of consumers. But they have the ability to mould and improve the brand image of products and services (Nurhandayani et al.,2019). They conducted a study on 180 respondents for analysing the impact of social media influencers and brand images to purchase intention of consumers. The focus of the study was to find out the impact of brand image and influencers on purchase intention of consumers. The study identified that SMIs not directly influence purchase intentions of consumers. Instead, they directly shape the brand image of products and services which ultimately influence the purchase intention of consumers.

Consumers' awareness of paid endorsement and influencer-follower relationship is positively correlated (Dhanesh & Duthler, 2019). They had conducted a study which aimed to find the effect of awareness created by social media influencers on behavioural intention of consumers. Respondents of 342 college students at all women public university in the United Arab Emirates were selected, using random sampling technique. The study identified a positive relationship between awareness of paid endorsement and ad recognition. But it was found that there is an inverse correlation between ad recognition and influencer-follower relationship. The relationship dimensions such as commitment and control mutuality significantly influence the behavioural intentions of consumers.

The following hypothesis was proposed to explore the relationship between consumers experience on influencer marketing and their post-purchase behavior.

*H<sub>2</sub>: There is relationship between consumers experience on influencer marketing and their post-purchase behavior.*

## 4. RESEARCH METHODOLOGY AND DATA COLLECTION

### 4.1 Normality

The test statistics of Kolmogorov-Smirnov's test ( $p > .05$ ) and Shapiro-Wilk's test ( $p > .05$ ) indicate that the samples are not normally distributed.

### 4.2 Methodology

The study is empirical in nature. The data were collected from both primary as well as secondary sources. Primary data were acquired using Convenient sampling technique which helps to elicit information from 150 consumers from Kozhikode district, Kerala. To support the literature background of the study, we depended on many published sources such as journals, newspaper, websites etc. To test the hypotheses relationship between selected variable, the well-known tool, the Spearman's rank correlation coefficient is applied.

## 5. FINDINGS AND DISCUSSIONS

### 5.1 Level of satisfaction of consumers towards influencers marketing

It was found that there are significant differences between expectations and experience of consumers towards influencers marketing. This doesn't portray whether consumers are satisfied or not with the current marketing activities of social media influencers. For making a clear picture of level of satisfaction of consumers, the following analysis is made.

**Table 1 Level of satisfaction of consumers with respect to influencer marketing**

Variables	Percentage (%)					Mean
	HS	S	N	DS	HD	
The products recommended by influencers fulfilled consumers wants.	10	58	3.3	25.3	3	3.46
Level of satisfaction on quality of products ensured by influencers	6	30.7	1.3	55.3	6	3.26
Level of satisfaction on the price worth of products recommended by influencers	8	34.7	1.3	50.7	5.3	3.11
Level of satisfaction on the information provided by the influencers.	8.7	29.3	2.7	52	7.3	3.20
Level of satisfaction on the credibility of influencers	10.7	47.3	.7	20	21.3	3.06

(Source: Primary data)

(HS-Highly Satisfied, S-Satisfied, N-Neutral, DS-Dissatisfied, HD-Highly Dissatisfied)

Most of the consumers are in opine that the products recommended by influencers fulfilled their wants to some extent (58%, mean-3.46). Out of 150 respondents, more than 55% of them were dissatisfied about the quality of products ensured by the influencers (55.3%, mean-3.26). Likewise, they are dissatisfied on the price worth of the products too (50.7%, mean-3.11). 52% of the respondents opined that they are not satisfied with the information provided by the influencers about the products recommended by them. In spite of this, consumers are confident and satisfied about the credibility of influencers (47.3%, mean-3.06). So, they are still following many influencers in social media platforms.

**5.2 Relationship between level of satisfaction of consumers on influencer marketing and their post-purchase behavior.**

The following table shows the analysis of strength and direction association between level of satisfaction of consumers on influencers marketing and their post purchase behavior.

*H1: There is relationship between level of satisfaction and post-purchase behavior of consumers with respect to influencer marketing.*

**Table 2 Relationship between level of satisfactions of consumers on influencers marketing and their post purchase behavior**

			Level of satisfaction	Post purchase behaviour
<b>Spearman's rho</b>	Level of satisfaction	Correlation Coefficient	1	.236
		Sig. (2-tailed)	.	.004**
	Post purchase behaviour	Correlation Coefficient	.236	1
		Sig. (2-tailed)	.004**	.

(Source: Primary data)

The statistical test value was found to be less than .05 (sig.value-.004). So that the null hypothesis is failed to accept, which means Consumers' level of satisfaction somewhat influence their post purchase behaviour. Further noted that the strength and direction of association between level of satisfaction and post purchase behaviour is found to be .236 (correlation coefficient). Even though these variables are positively correlated, their magnitude of correlation is weak than expected.

**5.3 Relationship between experience of consumers & their post-purchase behavior**

The table portrays the relationship between experience of consumers and their post-purchase behaviour.

*H2: There is relationship between experience of consumers with respect to influencer marketing and their post-purchase behavior*

**Table 3 Relationship between experience of consumers & their post-purchase behavior**

			Experience of customers	Post-purchase behaviour
<b>Spearman's rho</b>	Experience of customers	Correlation Coefficient	1.000	.315
		Sig. (2-tailed)	.	<.000**
	Post-purchase behaviour	Correlation Coefficient	.315	1.000
		Sig. (2-tailed)	<.000**	.

(Source: Primary data)

Note: 1) \*\*. Correlation is significant at the 0.01 level (2-tailed).

The Test statistics is less than .05, so that the null hypothesis is failed to accept. It is found that there is correlation between experience of consumers and their post purchase behavior towards influencer marketing.

**6. CONCLUSION**

The role of social media influencers in the marketing field is enlarging day by day. The degree to which audience perceived the influencers are much greater than any other traditional marketing strategies and

mainstream celebrities. The study revealed interesting findings regarding how consumers perceived influencers marketing by capturing their perceptions, experience and their repurchase behavior. Consumers opined that even though the products recommended by influencers fulfilled their requirements, they are not fully satisfied with the price worth and quality of products recommended by the influencers. They also found that the level of satisfaction doesn't strongly influence consumers' post-purchase attitude and behavior. Today micro-celebrities like social media influencers create value in the minds of consumers and they are overshadowing traditional marketing practices also. But in fact, there is another side of influencer marketing, which negatively influence people's life and lifestyle to a certain extent. By winning the minds and trust of public, many of the influencers are compelling people to follow the way they have chosen by convincing them with the fabricated information. In short, the study substantiates that, even though influencers marketing is perceived as a leading digital marketing strategy, it has a negative side too.

## 7. LIMITATIONS OF RESEARCH AND INSIGHT FOR FUTURE DIRECTIONS

The study is limited to consumers' perception, experience of influencers marketing and their post-purchase behaviour. It does not make a comparative analysis of consumers' perception of both influencers marketing and celebrity endorsement and other traditional marketing practices. If we do so our study will cover wider areas which is not yet explored by the researches. For further analysis of influencers marketing, a comprehensive comparative study of demographic variables such as age, gender can be made including difference in opinion of consumers based on their geographical classification. The main potential of future research is to investigate means which helps influencers to overcome all the identified threads and drawbacks in the competitive market world.

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**CRISPR- A DISRUPTIVE INNOVATION IN BIOTECHNOLOGY AND GENETICS**

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**ABSTRACT**

*CRISPR, short for clustered regularly interspaced short palindromic repeats, is a gene editing technology that has revolutionized the process of site-specific gene editing. The CRISPR sequence is the gene present in bacteria which forms a crucial component of its defense system. It acts as a genetic memory of a previous viral infection. This novel technology has eclipsed the traditional methods of gene editing that include zinc finger nucleases and has paved its way into the world of biotechnology due to its cost effectiveness, ease of use and high efficacy. CRISPR has widespread applications in different arenas like targeted cancer therapies, modifying epigenomes, identification of disease targets and origins, development of transgenic plants and animals, screening of chromosomes and control over transcription amongst a few. Even though CRISPR is a new technology, the tremendous research that has been conducted to study its versatility has proven its groundbreaking scope in the future of genetic medicine. One of the most important contributions of CRISPR is the paradigm shift of gene therapy towards the positive side and lifting the stigma surrounding it. This is attributed to its precision and modification of specific genes while leaving others untouched. Researchers are now working towards finding the cure for malicious diseases like cancer, cystic fibrosis, diabetes, hemophilia and AIDS with the help of CRISPR. Although a lot is yet to be studied, CRISPR is a valuable tool and will prove to be a disruptive innovation as it will change the complete process of disease identification, diagnosis and therapy across various domains of diseases like hereditary diseases, autoimmune diseases and infectious diseases.*

*Keywords: CRISPR, Gene editing, Gene therapy, efficacy, disease*

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**INTRODUCTION**

Human genome editing gives us the ability to engineer and modify genes and DNA sequences of different biological systems[1]. This powerful technology that facilitates precision editing has successfully spread its branches to a broad spectrum of fields that include biotechnology, medicine and basic sciences amongst many [1]. Some of the most common tools used for gene editing are Zinc Finger Nucleases (ZFN), Transcription Activator Like- Effector Nucleases (TALENs) and the CRISPR-Cas system [1]. The CRISPR-Cas system, short for clustered regularly interspaced short palindromic repeats, is by far the most simple and precision driven technique for selectively modifying a required DNA sequence. The CRISPR-Cas technique was developed by Jennifer Doudna, Emmanuelle Charpentier and Feng Zhang in 2012 and they were awarded with the Nobel Prize for Chemistry in 2020. The versatility that CRISPR brings to the world of genome editing is one of its most fascinating aspects and has led to CRISPR gradually replacing the traditional methods of gene editing [2]. CRISPR-Cas is being used for various applications in the research arena that include imaging of chromosomes, creation of transgenic plants and animals, control over the transcriptional process and patient specific targeted therapy for cancer [2]. This versatility of CRISPR-Cas has generated a lot of excitement and interest in the arena of genome editing and in the scientific community [4].

**What is CRISPR?**

CRISPR refers to a partially palindromic short DNA sequence that is common to the genome of bacteria as well as some other microorganisms [3]. The CRISPR-Cas system is an important part of a bacterial cell's immune system [3] When a bacterial cell survives an attack mediated by a viral pathogen, this bacterial cell saves a small part of the virus's genetic material as a remembrance or a souvenir which acts as a genetic memory later[3]. When the same virus tries to attack the bacterial cell again, it is immediately recognized by the CRISPR palindromic sequence and a counter mechanism to destroy the virus is initiated [3]. After recognition the Cas endonuclease is sent to selectively destroy the viral genetic material, thus terminating its life cycle immediately and providing immunity from infections [3]. Today's CRISPR-Cas technology is a creative modification of this bacterial immunity mechanism and derives the idea of recognition and selective editing from the same [3].

**How does it work?**

The CRISPR-Cas technology that we use today has two key components - (i) the gRNA (guide RNA) and (ii) the Cas endonuclease enzyme [4]. The researchers synthesize a small piece of RNA which has a short 'guide' sequence [4]. This guide sequence goes ahead to recognize and bind to the specific DNA sequence that needs

modification [4]. The gRNA also binds to the Cas endonuclease enzyme [4]. This Cas enzyme selectively cleaves or cuts the specific DNA sequence recognized by the gRNA sequence [4]. Once precise cutting has been done, the researchers use the host cell's DNA repair machinery to add, delete or shift pieces of genetic material with another piece of customized DNA sequence which will give the expected output [4]. Amongst the class of Cas enzyme, the Cas9 enzyme is the most commonly used in association with CRISPR [4]. Other enzymes like Cpf1 can also be used as alternatives to Cas9 [4].

### Comparison with other gene editing tools

Zinc finger nucleases (ZFN) and transcription activator-like effector nucleases (TALENs) create a rope or a chain like structure with endonuclease catalytic domains and modular DNA-binding proteins [1]. This tethered conformation is used to induce targeted DNA double stranded breaks (DSBs) at the specific, required location [1]. In contrast the CRISPR-Cas system requires the synthesis of only one piece of RNA which acts as the guide RNA making the whole process considerably less tedious, inexpensive, highly efficient as well as highly precise [1]. The CRISPR-Cas technology is proving to be a disruptive technology as it is significantly advantageous as compared to ZFN and TALENs due to multiple reasons, some of which are :

- (i) CRISPR gives the researcher the ability to customise a DNA sequence according to the cell or organism's requirement, which is not possible with ZFNs. ZFNs are unable to engineer customised DNA sequences [1].
- (ii) CRISPR-Cas can be easily retargeted without the need of synthesis of new gRNA sequences. TALENs in contrast, require the construction of two new TAL genes [1]. This makes the process more time consuming and difficult [1].
- (iii) The specificity of the cleavage pattern of the CRISPR-Cas technology is unmatched [1]. In contrast, there is a chance of off-target cleavage with the use of TALENs [1].
- (iv) The editing efficiency of the CRISPR-Cas system is much more than ZFN or TALENs [1]. The ease of targeting of the Cas9 enzyme plays a major role in its efficacy and efficiency [1]. Cas9 can also be used to target multiple genomic loci at the same time [1]. This is done by providing a combination of gRNAs to the target of interest [1].

All of these factors contribute to CRISPR's superiority over other gene editing tools, making it an easier and more preferable choice for selective editing or precision editing. It is hence, being studied more and researched more to study its effectiveness in a wide range of organisms, including multicellular animals as well, whose organization is much more complex. CRISPR-Cas has revolutionized the world of gene editing and precision editing and has proved its disruptive nature time and again.

### Limitations of CRISPR-Cas

Even though CRISPR is the most widely used gene editing tool, it has its own drawbacks and limitations as well. Some of which include :

- (i) For the Cas9 enzyme to function appropriately, it requires a PAM sequence (protospacer adjacent motif sequence). This PAM sequence binds 2-6 nucleotides downstream of the target DNA sequence. The Cas enzyme detects the presence of the PAM sequence and cuts 3-4 nucleotides upstream of the PAM sequence. The requirement of this PAM sequence sometimes limits the targeting range [1].
- (ii) Even though CRISPR is the most precise technique for selective gene editing, there are still changes of off-target editing which can lead to inactivation of certain genes or even unwanted mutations that may sometimes lead to harmful side effects.
- (iii) The CRISPR-Cas technology is an extremely powerful tool and if it falls in the wrong hands, it may be used for unethical purposes as well.

### How is it a disruptive innovation?

The level of precision and accuracy that CRISPR-Cas brings to the process of DNA modification is unmatched by any other existing tools used for gene editing. Neither Zinc Finger Nucleases (ZFNs) nor Transcription Activator Like- Effector Nucleases (TALENs) have the efficacy and efficiency of CRISPR. Its ability to selectively modify only the target sequence and leave the surrounding area untouched has led to a huge paradigm shift in the field of gene therapy as earlier it was thought to be an extremely risky process [5]. Further research into the functioning of CRISPR will facilitate its path into the world of medicine and biotechnology. It is expected to completely transform the way diseases and disorders are identified, diagnosed and treated. CRISPR-Cas has given us hope for completely curing extremely fatal and malicious diseases like cancer, HIV AIDS amongst others [6]. The first ever trial in the USA to test a CRISPR based immunotherapy mediated

cancer therapy study was conducted in the University of Pennsylvania [6]. This is only the first step towards a much greater and brighter future for this revolutionizing technique. It also gives us some scope of finding a way to cure autoimmune disorders and incurable diseases like sickle cell anemia.

### CONCLUSION

After studying the various aspects of the CRISPR-Cas technology in detail, we can deduce and conclude that this unique gene editing tool will definitely provide a bright future for today's medicinal and research practices. Even though a lot more research and clinical trials are required for exploiting the full potential of CRISPR-Cas, it has proven itself to be a very valuable tool in a broad spectrum of fields.

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**CULTURED MEAT- THE FOOD OF THE FUTURE**

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**ABSTRACT**

*In-vitro meat production or cultured meat is a revolutionary way of producing slaughter-free meat in a laboratory. This method is a win-win for two main sides of people in the world, i.e., the animal activists and the meat lovers. This method includes culturing of isolated stem cells using advanced tissue engineering techniques to form meat. Cultured meat is very much humane and solves almost all of the problems with traditional meat, viz. no cruelty, sustainability, lesser use of resources, no transmissions of zoonotic diseases and lowers the risk of starting another pandemic due to the creation of superbugs due to antibiotic resistance.*

*Keywords: In-vitro meat production, cultured meat, isolated stem cells, zoonotic diseases*

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**INTRODUCTION**

Sucking in all the earth's resources plus ruthless killing of innumerable animals daily, the meat industry is one of the top three contributors to climate change. Producing meat in a laboratory is one of the top ways out. Although there have been quite a lot of backlashes regarding taking jobs away from farmers and giving them to scientists and many people being skeptical about meat grown in a lab, this industry has made quite a breakthrough in the past few years. Cultured meat industry is a very humane way to suffice the world's requirement for meat along with nullifying the need to chop down live animals or rainforests. It uses 96% less water and cuts down 96% greenhouse gas emissions and reduces the amount of arable land used by 70%.

**Traditional meat- Why is it wrong?**

First of all, traditional meat kills 200 billion animals daily. Vast majority of crops that are grown globally are fed to the livestock instead of humans which eventually led to skyrocketing of grain and legume prices leading to the fact that 800 million people are malnourished globally. Global health is another reason why animal agriculture needs to be reformed. A sick human is given antibiotics for 5-10 days whereas farm animals are given antibiotics for their entire life. About 70% of antibiotics produced globally are not available for sick humans but are being given to fine and healthy animals because they're kept in confinements, away from the sun and fresh air in cramped up spaces which can start off a lot of diseases. It has infact started off a lot of diseases worldwide. The constant bombarding of antibiotics on millions and billions of livestock has led to the formation of resistance among the bacteria and is transforming them into super bugs. This has put a lot of pressure on the medical system and scientists and according to Dr. Margaret Chan from the World Health Organization the world is heading towards a post- antibiotic era in which common infections will be deadly resulting to the end of modern medicine. Meat eating and meat eaters have contributed towards the origin of various viral infections and pandemics. Taking into picture the covid-19 pandemic had indeed had its origins in some Chinese slaughterhouse which eventually wiped off 2.2 billion people worldwide. 75% of diseases are zoonotic and the risk of zoonotic infections has become 4 times as frequent in the past 50 years. Other famous infections include Spanish flu and swine flu which were linked to pigs, bird flu, mad cow disease and the list goes long.

Environmental damage caused by the traditional meat industry is also something very serious. According to UN listing, industrial animal agriculture is one of the top 3 causes as it leads to – water use and pollution, soil decertification, chopping down of rainforests, loss of species, and the biggest issue CLIMATE CHANGE! About 1/3<sup>rd</sup> of the world's freshwater is used for animal agriculture, about 18% of greenhouse gas emissions are from this industry and about 70-80% of the croplands globally are used to produce feed for the animals reared for the meat industry. The impact of traditional meat industry on the environment and resources can be summed up as '*a black hole for global resources.*'

**The concept- what is it and how did it start?**

In really simple words cultured meat can be explained as, meat grown in a lab without having to kill an animal. Well cultured meat has benefits from all the major sides as it requires 95% less space, 96% less water and reduces greenhouse gas emissions by 96% as well and what's better than it doesn't require taking away a life to bring meat on our plate.

The general process although really simple on paper requires isolation of stem cells from the tissue samples of a living animal, keeping them in a FBS (fetal bovine serum) culture until they multiply, feeding them protein till they differentiate and redivide till they form a nugget or a burger patty.

The concept of cultured meat was first put up by a Dutch scientist William van Eelen in the year 1950. NASA partnering with Morris Benjaminson of Turro College, in 2001, grew pieces of goldfish and turkey to overcome the issue of meat storage for far travelling astronauts in space. The first meat which was actually consumed was a beef burger patty created by Mark Post at Maastricht University in 2013 which costed over \$300,000 which was then estimated to drop down to \$10 by 2021 and took 2 years to come into being. Memphis Meats, started in 2016, was the first startup to produce cultured meat at an industrial level when they produced their first cultured meatballs. Eat Just, founded by Josh Balk and Josh Tetrick, however, brought cultured meat to the tables for the first time in Singapore.

### The Process

The process of making cultured meat differs from company to company and also differs for different animal, the general procedure remains the same. Stem Cells are extracted from living animals during biopsy under anesthesia. These stem cells are multiplied in huge bioreactors, the same of which are used in the fermentation of alcohol, in a culture of Fetal bovine Serum or FBS. Feeding inputs are controlled which signals the stem cells for converting into muscular fibers called *myotubes* which are then placed in a water and gel mix. The myotubes contract and grow into larger muscle strands which, after feeding with AraC protein, grow fully into muscle strands layered together to replicate a muscle structure as shown in Fig (1)

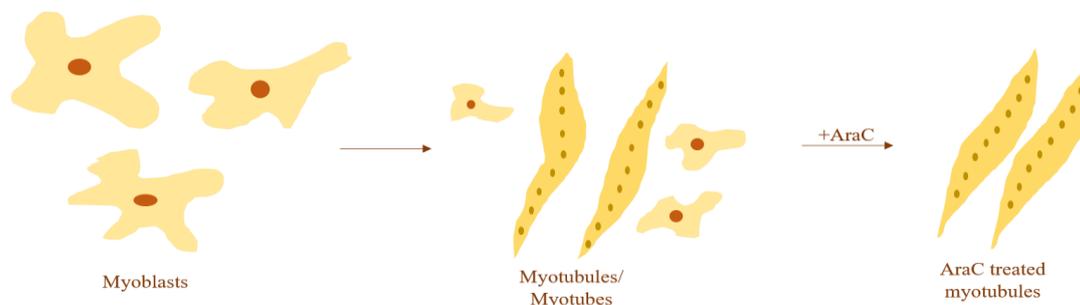


Fig (1)

### Consumer safety

Cultured meat although grown in a laboratory contain way less to no chemicals as compared to the heavily antibiotic injected conventional meat. As the above-mentioned information explains the process, the meat stem cells are grown in a bovine serum and given proteins till the differentiate and grow further, this process uses no chemical or medical usage. These cells are not genetically modified and thus they behave in the same way as they would in an animal thus the resulting tissue is very real and edible.

### Cultured v/s conventional meat- which one is healthier?

Cultured meat has a stronger side over conventional meat when it comes to the health point of view. Meat overall is a good source of high-quality protein. An average beefsteak has about 21 g of protein per 100 g of meat, a chicken breast(100g) has approximately 31g of protein, whole pork(100g) has about 27g of protein and 100g of salmon contains about 22g of protein. There are much more vegetarian substitutes for meat that consists of higher protein such as legumes but their prices have Skyrocketed ever since. Meat, once a luxury, has now become a very affordable commodity for an average western family. The places where the meat animals are kept are extremely cramped and are mostly away from sunlight where the animals are in a very close proximity of each other Such surroundings are rarely cleaned and would give rise to a lot of infections amongst the animals and thus they have to be fed with a lot of antibiotics throughout their lives and are also fed with a lot of hormones to fatten their yummy parts. Although stated healthy, conventional meat is not at all good for the body except for the tastebuds.

Also, according to Ayurvedic science, when an animal is bred with the motive to kill for food in negative surroundings, its thoughts and emotions have a negative impact on its flesh making it unfit for consumption.

Cultured meat takes all these problems out of picture. There is no need of killing or any cruelty to any of the animals also it maintains the quality, the health and the emotion ('bhava', according to ancient Hindu Science) of the meat. Skepticism of people regarding lab grown food is still is a major concern but that is believed to be solved with appropriate education of masses.

Future of lab-meat technology

Fig (2)

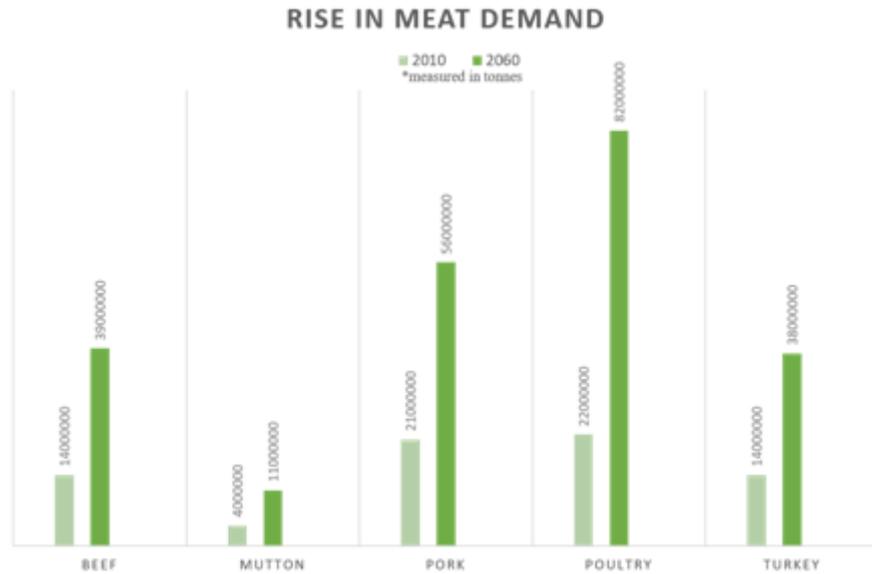


Fig (2)

As shown in Fig (2), to keep up with the increasing demand of meat and overtake of conventional meat industry by cultured (and plant based) meat supply, production needs to be scaled up. With the current technology and pace, the supply would eventually fail to keep up with the demand.

MeaTech 3D, an Israeli startup, aims at taking their technology from producing cultured meat to producing 3D bio printed meat. Their technology, although a bit far from reality, provides a clear insight on the future of meat production. Their solution states-

1. An umbilical cord sample is taken without harming the animal
2. A cell line is developed and multiplied in the bioreactor where the cells expand. These cells are differentiated to form *bio-inks* (muscle cells, connective tissues and fat cells).
3. The desired meat is then 3D printed in their state-of-the-art bioprinting facility.
4. The meat is then placed inside an incubator to cure.

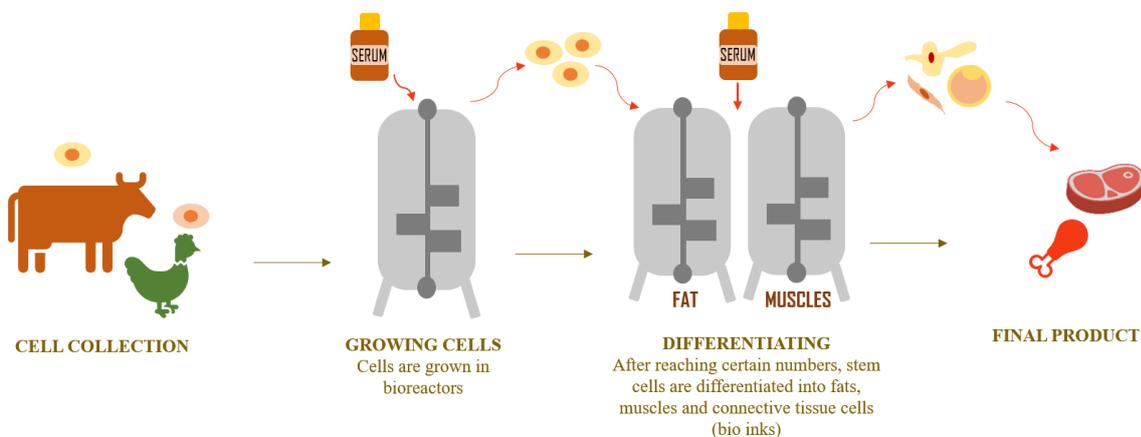


Fig (3)

These bio-printed meats imitate the exact texture as the conventional meat and have better quality than traditional meats and they can be served either frozen or fresh depending on the consumer’s choice. The diagrammatic process of MeaTech 3D’s visionary 3D printed meat is shown in Fig (3).

The biggest advantage of this technology is that the meat can be customized as per the consumer’s needs by tailoring the fat-muscle ratio of the meat. Also, this would be the cleanest form of meat.

Scope and affordability

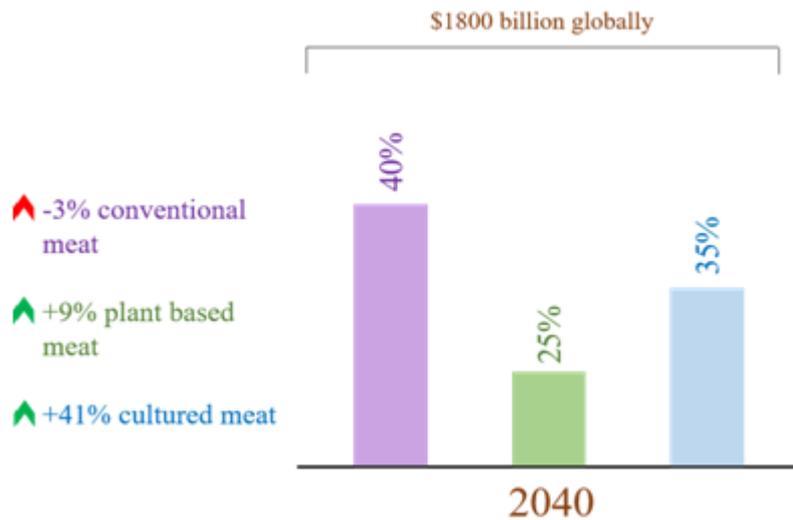


Fig (4)

When the first edible cultured meat was created it was a beef burger patty. It was created by Mark Post at Maastricht University in 2013 and the cost of a single patty was about \$300,000 as the production was on a very small scale and the only big investor was Sergey Brin (co-founder of Google who invested \$280,400). The production costs have dropped a lot since then. Now-a-days the average cost of producing a kilogram of cultured meat is about \$112. According to a spokeswoman from Mosa Meat the cost for producing a hamburger patty would be as less as \$10 by 2021 and may even become more affordable than a conventional burger in the near future as the production scales up.

Cultured meat, right now, is only being commercially sold in Singapore and that too, in high end luxury restaurants where one cultured chicken nugget costs \$23. The meat consuming population, however, needs to keep the needs of the planet over needs of their own. To make it as commonly consumed as conventional meat, people need to be educated to have a scientific, sustainable and a flexible approach towards the food they eat. <refer Fig (4) for commercial insight>

Environmental Impact

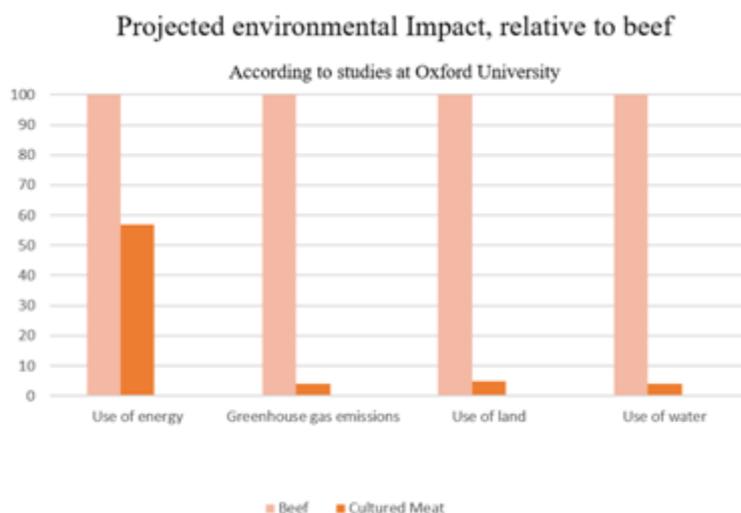


Fig (5)

Although cultured meat is said to be tremendously sustainable it is still not a fool proof solution for mass meat production. It will still use quite a lot of energy and will obviously have some or the other kind of emission. Scientists have warned about a significant carbon penalty if energy is sourced from fossil fuels. But although it will still lead to a lot lesser greenhouse gas emissions than conventional meat agriculture (up to 14.5%

reduction). The factors for a more positive environmental impact are- rate of technological improvement and increasing the levels of clean energy consumption. <refer Fig (5) for stats>

### **Challenges**

When the first meat produced in University of Maastricht was taste tested the feedback was very positive but the only thing that was lacking was the juiciness of the conventional meat that has a good lot of fat in it. Traditional meat has different muscles, lipids, connective tissues, bones and fats in it which provide texture to it. After significant development in technologies, scientists were able to produce cultured meat nearly as juicy as conventional meat and as many startups aim at using 3D bioprinting techniques to replicate various parts of meat that is still quite a long way to go. Other technological challenges include- developing better cell lines, cheaper culture media, reducing time taken for the cells to grow, scaling up small- scale operations and also it needs to taste exactly like traditional meat so that people don't mind it being lab- made.

Also, the biggest challenge that lies with the cultured meat industry is finding an alternative to the Fetal Bovine Serum which is derived from cow fetuses and added to culture media as it is the major barrier for this industry it is aiming at taking animals completely out of the equation.

### **CONCLUSION**

Cultured meat would change the way the coming generations change meat. Making the world and techniques more sustainable, this branch of tissue engineering will soon become commonly accepted. The skepticism and fear of technology amongst a number of people is still a huge hurdle and also cultured meat that challenges the beliefs of a few religions but those of which are believed to be taken over in the near course of time.

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**DESTRUCTIVE PRACTISE IN HOSPITALITY MANAGEMENT ONLINE FOOD DELIVERY PLATFORMS, A DESTRUCTIVE PRACTISE FOR TRADITIONAL RESTAURANT SERVICES**

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**ABSTRACT**

*This Paper reports on empirical study of an important Industry, the On Line Food Delivery Platforms and Traditional Restaurant services. In many Service industries, Companies compete with each other on the basis of waiting time of their services for their Customer, along with their other strategies such as Price, rewards, discounts. The Objective of the Paper is to study the threat placed by the Online Food Delivery Platforms on Traditional Restaurant Service. The online ordering has taken food business by a storm. There is a need to maintain competent presence at various search engines and social media platforms, which the traditional eateries find hard to keep up with. The traditional dining outlets find it difficult to match the competitive pricing and effective service offered by the online delivery platforms. The Primary and Secondary data collected during the research confirms that in the fast paced modern life, customers are driven by time constraints, and hence look up to Quick service at their door steps. This change in individual preference is causing a shift away from traditional dining which has resulted in considerable decline in business and eventually leading to closure in many cases.*

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**INTRODUCTION**

Gone were the days when people used to go to the restaurants for eating. Online food delivering business is taking shape in the market and changing the life style of people. In many service industries company compete with each other on the basic of waiting time of their services for their customer along with other strategies such as price reward discount. The objective of the study the competition passed by the online food delivery platforms on traditional restaurant services. The online ordering has taken food business by storm. The traditional dinning outlets find it difficult to match competitive pricing and effective service offered by the online delivery platform. The study confirms that in the fast paced modern life people are driven by time constraint hence look up to quick service at their door steps.

In India there is an increase in number of online food delivery portals, catering to the modern population. The major player in the field of online delivery portals is Zomato, Swiggy, and UberEats etc. Using this portals customer can order any food at their door steps from their favorite restaurants. They can also browse menu of lot of restaurants and food and discover many offers, and competitive pricing , restaurants has to offer to then just by one click .In the fast paced life of people which is highly influenced by social media and comfort culture .many people prefer to get food delivered by the online portal .

The businesses are also influenced by the change of trend and have considered investing more in their delivery services than in their room dining areas. This also paved way for new job creation in the market.

**REVIEW OF LITRATURE****GHOST KITCHEN /DARK KITCHEN**

Ghost kitchens are dark kitchens which are virtually located in different destinations but operates on a hub and spokes model. This means there is one central kitchen where food is prepared and delivered to subsidiary kitchen located in different areas. There is no physical space or dine in or take away facility in ghost kitchen. It relies completely on third party or websites. There is only a single owner and a single brand.

**CLOUD KITCHEN**

Cloud kitchen is any restaurant that operates from its kitchen. The business model of cloud kitchen is very different from what we hold to believe. They facilitate services needed to prepare delivery optimized menu items. The significant difference is the food from dark kitchen. Cloud kitchen items are optimized for ease of production of food, quality, reliability. A Cloud kitchen is a delivery kitchen with two or more brands belonging to a different or the same person operating from the same kitchen. Eg Asian House.

**EXAMPLE**

If a restaurateur who owns a delivery kitchen and delivers South indian food decides that he should start delivering Mexican food as well, but instead of adding Mexican to the current menu he starts operating a different brand that sells Mexican from the same delivery kitchen, then he turns his dark kitchen into cloud kitchen.

**OBEJECTIVES**

- 1) To understand chain migration that happened to cause the shift of trend from traditional dining to on line delivery portals
- 2). To obtain deeper knowledge about dark kitchen [a restaurant that has no front of house for customer].
- 3) To find out while considering a favorable strategy initiative, delivery might not be profitable for all restaurants.
- 4). To analyze the added cost that make the current model unsuitable for long time.
- 5) This research is valuable because it fills information gaps so that each individual understands the carbon foot print left behind by delivery portals.
- 6) To understand and analyses how social media platforms influence our food ordering habits.

**SOURCE OF DATA**

The data for the study was collected from Primary & Secondary sources. The Sample Size for Primary data is 110. The Method used to classify the Primary data is Quantitative method, expressed as judgmental studying was collected through internet, Journals etc.

The Sample size or Target Audience for the study has answered a Questionnaire consisting 10 questions. The Survey Questionnaire was circulated with the help of What's app. With the help of Survey questions, the significant findings were drafted.

The Secondary data was collected through internet, Journals etc.

The following were the questions asked in the Survey.

- 1). Do you consume Restaurant foods
- 2). Do you prefer to order food from online Portal or go to Restaurant for Dining
- 3). How often do you consume food that is ordered by Delivery services ( frequency of ordering food online)
- 4). Monthly Income.
- 5). Age
- 6). Do you use Discount coupons
- 7) Variable reasons for online ordering of food
- 8). Do you know the concept of Cloud/Ghost/Dark kitchen
- 9). Has your ordering habit ever been influenced by promotion in social media.

The answers given by the Survey participants will be discussed in the significant finding.

**SIGNIFICAT FINDINGS**

The sample size used for the study is a group of 110 persons from Age Group between 20-50 years, In according to the respective questions asked in the survey 91.82% participants answered that they consumed restaurant food. Among 110 Participants, 53.64% prefer ordering online. Most of the participants order food 3-4 times monthly. The Average monthly income of the Sample size is 40K to 60K. The Age Group of the sample size is between 20-50 years. There is 72.73% participants are influenced by discount coupons given to them by online portals. 62% people answered ordering from online portal is convenient and economical. 76.36% of purchases are unaware of the concept of Cloud/Ghost/Dark Kitchen. Lastly, 53.64% Participants aged between 20-30 are influenced by social media promotions to make purchases from online portals

The main reason for the shift is lack of time due to the fast paced modern life. The competitive strategy like discount/rewards etc. given to the purchasers by the online portal is also the main reason in the growth in the online food delivery business. The influence of social media on the people is secondary reason for the shift. The promotion activities on social media also influence people to try different variety of food from the comfort of their home. The secondary data collected also indicates due to growing online orders, many restaurants are shutting their dining areas and converting their business into dark kitchen. In spite of the high commissions charged by the portals and the aggressive promotions and cut throat competitions; Restaurants have made a shift from traditional in room dining to on line kitchen, which indirectly paved way to Dark/Ghost kitchen.

**BENEFITS OF THE STUDY**

Creates awareness among the consumer about the online food delivery platforms and the marketing strategy done by the companies. Help the society to understand the about dark/ghost /cloud kitchen and their role in the growth of online food delivery portals. It also helps to get the consumers attention towards unfair marketing and the influence created by social media to catch their attention. The study helps purchaser to make better choice ignoring the marketing stunts. Study make consumer aware about social media and peer pressure. Make the society aware about the promotion of fierce competition among the restaurants listed in the online delivery portals. Study also makes one aware of the growing plastic waste and carbon footprint left behind due to the considerable increase in online food ordering. Helps to understand the problems faced by the small restaurants that cannot invest in aggressive advertising campaigns which is promoted by the delivery portals. Make consumers aware about the cost incurred by restaurants to be at the top of the search platforms for better visibility to increase their popularity and sales. Also creates awareness about the possibility of Data breach.

**LIMITATIONS**

- 1) Plastic waste left behind as the food is delivered in plastic containers in most cases.
- 2). The carbon foot print left behind by the increased use of motor vehicles in the delivery of food parcels.
- 2). All of the on line food delivery portals actually promote a fierce competition among the restaurants listed with them.
- 3) Small restaurants cannot invest in aggressive ad world campaign which is promoted by the delivery portals.
- 4). The restaurants have to incur a lot of cost for featuring at the top of the search platforms for better visibility to increase their sales, this cuts deeply into their profits.
- 5). The on line portals may not have the advanced technology for data encryption and hence the privacy of customer data can be breached easily by hackers.

**FUTURE SCOPE.**

The life style of the people is changing continually and people are very busy with their life in this changing time individual prefer convenience more than anything and hence there is a huge scope of online delivery platform in the near future. The high skill marketing techniques has created new employment opportunities. The discount coupons make people order from online portal again and again using the portal this create demand for food delivery business in today's world. With the help of portals in the near future there will be the growth in the demand of homely food business which will lead to development and provides greater benefits and opportunities to the homemakers. The convenience provided by the delivery platform is a plus point for the restauranters and the purchaser. The growth and development in technology will also help the online food delivery business. All the above reasons and techniques will accelerate the growth of the online food industry. Hence in the future there will be a stronger and more competitive model of online food delivery business.

**CONCLUSION**

Disruptive practice is more than an innovation in today's economy. It's a chance to outperform the existing competition and get better. Accepting disruption empowers the business establishment to overcome the potential risk. . As there is growth in the business of online delivery platform society is getting keen towards the quality of the food that is delivered to them. There is a major role of dark/ ghost/ cloud kitchen in development of the delivery service. The use of social media promotion to improve the brand image and Create good will is noticed by the customer now a days. The society is also more aware

About the environmental issues created due to the delivery vehicle. For creating social pressure on the individual the brands and restaurants are spending a huge amount of money. The food delivery app makes people's life convenient. These helps in the growth of the society. There is a wide range of option available to customers to select due to the online app. A disruptive innovation is an innovation that improves a product or service in a way that the market does not expect. Summing up, the business of online ordering of food has been well accepted by the People inspite of the limitations Pointed out in our study and has a potential of significant growth in the Near future.

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**DISORDERING PAPER LEARNING: WIKIPEDIA AS A DISRUPTIVE INNOVATION**

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**INTRODUCTION**

Disruptive Innovation, a term of art coined by Clayton Christensen, describes a process by which, a product or service takes root initially in simple applications at the bottom of a market and then relentlessly moves up market, eventually displacing established competitors. Disruptive innovation changes practice.

Wikipedia was launched in January 2001, originally in English, however the first edition was in the German language. Since its initiation, Wikipedia has become the world's largest popular websites. Due to its availability in more than 250 languages, Wikipedia is widely preferred by people to access information.

The scholars have identified Wikipedia as a successful disruptive innovation in higher education. Traditional encyclopedias with articles written by paid experts have been displaced by Wikipedia, an online encyclopedia written and edited by volunteer editors. Encyclopedias like the Dictionary of Literary Biography and Encyclopedia Britannica were no longer sustainable business models post 2000.

This paper is interested in tracing the growth and development of Wikipedia. The paper will describe the nature of disruption caused by Wikipedia with a view to comprehend, compare and contrast the levels of the disruption. The paper also aims to analyse the innovation that the advent of Wikipedia has brought into the information industry and to understand whether Wikipedia qualifies as a disruptive innovation.

This study is based on Internet sources. Newspaper, magazines and journal articles have also been consulted. The paper has also drawn from the responses of three varied age groups to understand and appreciate the disruption of knowledge sources and the shift from Encyclopedias to Wikipedia.

**ABOUT WIKIPEDIA**

Owned and managed by the Wikimedia Foundation, Wikipedia is a non-profit charitable organization, for whom growth and distribution of free educational content is the motto. Wikipedia itself traces its roots back to the "ancient Library of Alexandria and Pergamon and the concept of gathering all the world's knowledge in a single place as well as to Denis Diderot and the 18<sup>th</sup> c encyclopedists. But the more recent origins are in a project called *Nupedia* launched in March 2000 by Jimmy Wales and Larry Sanger. Sanger designed *Nupedia* to ensure that experts wrote and carefully vetted contents. Later, in 2001, he was trying to think of ways to make it easier for people without formal credentials to contribute to *Nupedia*. He got to know about the *WikiWikiWeb* software developed by the programmer Ward Cunningham in the mid-1990s that makes it easy to create or edit a Web page or uploading to a server needed. Sanger thought that wiki users would quickly and informally create content for *Nupedia* that his experts would edit and approve. The project however did not take off and by mid- January 2001, Sanger and Wales gave their project a new name, Wikipedia and its own domain. (Sanger, Larry, 2005)

Wikipedia is an encyclopedia that summarizes essays, dictionary entries, critical reviews and reports accepted wisdom on a topic without breaking new ground. The articles are written with as much neutrality and objectivity as possible. Wikipedia authors can post prose copied from the Web and it has intricate rules by which participants can be temporarily or even permanently banned from Wikipedia for inappropriate behaviour. Wikipedia has set up an elaborate structure of administrators, bureaucrats, stewards, developers and elected trustees too oversee respect for fellow contributors.

With more than 75000 contributors who have written more than 57 million articles in more than 300 languages (Sept 2021) Wikipedia prides itself on being a 'self- organizing structure' or a system that is able to register and continually update information in an ongoing recursive process.

**DISRUPTION CAUSED BY WIKIPEDIA.**

Wikipedia follows the main criteria for a disruptive innovation, being simple, convenient, free and easy to use. Wikipedia has the potential to disrupt deeply rooted aspects of academic practice and democratise how and by whom knowledge is produced, distributed and used.

Encyclopedia Britannica ended its print production in 2012. Despite its dozens of hard-bound volumes with updated articles it could not compete with Wikipedia (Bosman, 2021). So also, was disrupted digital encyclopedias like Encarta, a 1993 entry and rival to Britannica which was discontinued in 2009. (Tartakoff,

2009). Encyclopaedia Britannica's decision in 2012 to abandon its printing operation as another major casualty of the digital era. The Encyclopaedia had been in continuous print since 1768, a 244-year run. (Sword, 2016)

Today, Wikipedia is a logical starting point for research for many, and acts as a springboard for furthering research; it has a place within the context of information gathering. (West & Williamson, 2009) Encyclopedias have an overall editor who leads entries and discussions while the lack of a single author or overall editor leads to discussions and events going wrong in one place and right in another. The differences between the two are not merely formal; they also reflect different solutions to the problem of knowledge in time.

Wikipedia presents the time of knowledge and that of the individual as congruent, (consistent) giving the impression that human fallibility can be overcome. For the Encyclopedia, a lack of adequate technology and restrictions of the print medium meant that acts of self-perception and understanding would remain individual and unable to affect the growth of the Encyclopedia as a whole. Wikipedia in contrast with its user generated content relies on speed to create the illusion that the individual mind and the system of knowledge can be synchronized in perfect harmony and that, consequently, human fallibility can be overcome. (Perovic, 2011)

The student community has been one of the largest beneficiaries of Wikipedia as it permits them to exchange ideas with others, enlarges their perspectives. It thus takes the students beyond classroom learning and at a young age students get the opportunity of being the content makers and aggregators and develop their digital skills.

Furthermore, we can look at Wikipedia as a platform that promotes 'Community of Practice'. In the initial stages, citizens all over the world can be considered to be at the peripheral stage where a majority of them are information gatherers. As people start reading articles they start editing too thereby moving from the periphery to the core. (Oppenheim, 2011)

Wikipedia is believed by many to have challenged the capitalist mode of production. Firer-Blaess and Fuchs argue that Wikipedia is based on, 'common ownership of the means of production and collaborative work'. They opine that knowledge creation is not centered and Wikipedia has disrupted the concept of 'labor'. Users on Wikipedia engage with the site not because they have to for monetary or financial gains but because they want to enhance their knowledge or skills.

Wikipedia is based entirely on free labour and that too in times in which knowledge, information or data is believed to be the new oil. The free access to digital publications and information for everyone irrespective of their wealth, religion, caste, language, race could improve education and reduce inequalities in the world and is hence a state of the art project (Sylvian & Christian, 2021).

Wikipedia's growth has been remarkable, but its open, participatory model of knowledge construction attracts criticism by some who see the site as a source of misinformation. In educational contexts, Wikipedia is often considered a destructive force-a digital tsunami; intellectual junk for and many schools and universities discourage their students' from using the site. An important reason for the success of Wikipedia was its online accessibility on computers and smartphones, unlimited size and instant updates. The other reason for the success of Wikipedia is the fact that this online resource is absolutely free while Encyclopedias are rather expensive. Wikipedia also scores on account of the fact that it can be updated very fast while it may take years to add concepts and update versions of Encyclopedias.

Wikipedia cultivates an image of inclusivity and participation for all. Its famous catchphrase, 'the encyclopedia everyone can edit!' appears prominently on the site, and users are continually reminded of the project's non-profit, crowd-sourced and crowd funded status. (Graham, 2015). It offers a formidable challenge to the well-established and authoritative Encyclopedia Britannica as well as to Encarta. Encyclopedia Britannica Editor -in- Chief, Dale Hoiberg however, pointed out that Wikipedia authors write of things they are interested in, due to which many subjects do not get covered, and news events get covered in great detail.

Frequent users of Wikipedia are aware that it may not be a credible source of information and that the user generated content cannot be consistently accurate. Users are aware of fraudulently edited pages too. The deterioration in the quality of articles was a cause of concern to the founders. Since 2005, Wikipedia has engaged into self-correction of content through the usage of repair bots. These software's are programmed to identify the errors and edit the site to maintain the quality. Since then the reliability of the site has increased but more needs to be done to keep a quality check.

A crucial reason for Wikipedia’s success as a disruptive innovation is its ability to create content which is based on different themes. For instance, Wikimaps, Wikibooks, Wikiquote, Mediawiki, Wiktionary, Wikisource and Wikiversity. We understand that Wikimaps are easily accessible and that teachers of geopolitics often use those to teach in the class due to its easy availability and copyright free nature. (Interview with Professor Sahasrabuddhe, Head, Dept. of Civics & Politics, University of Mumbai)

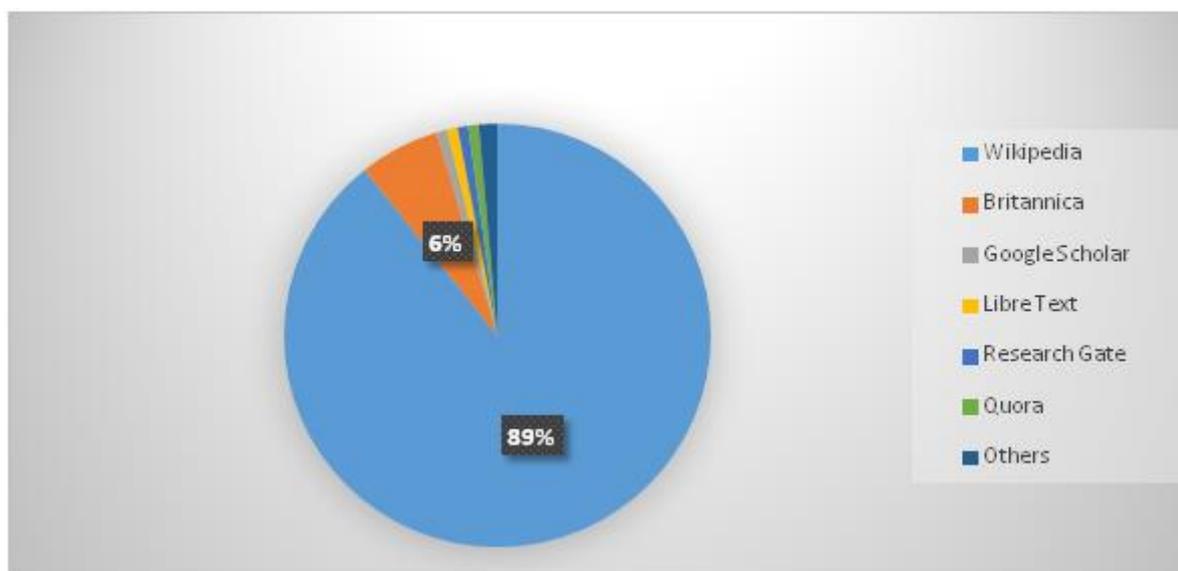
Greenstein and Zhu researched articles concerning aspects of US politics, finding the average length of a Wikipedia article was 4113 words, whereas the average length of a Britannica article was 1778 .There is no necessary relationship between size and quality, but Wikipedia entries offer greater scope for development. The short Wikipedia articles, known as stubs, actively invite further contributions, encouraging more interactivity and user-generated content. (Shane & Zhu., 2018)

To understand the usage of Wikipedia, the authors conducted a survey covering varied age groups. The following graphs, pie charts and tables conclude that Wikipedia the most preferred for searching information across the internet.

**Table 1**

Questions	Age Group: 15-40 Years- Student Community		Age Group: 40-60 Years – Professionals	
	Yes	No	Yes	No
Have you ever used an Encyclopedia?	77.1%	22.9%	67.5%	32.5%
Do you own an Encyclopedia?	28.%	71.8%	17.5%	82.5%
Have you edited a page on Encyclopedia?	10.7%	89.3%	22.5%	77.5%
Do you think Wikipedia is easy, simple and convenient to use?	96.9%	03.1%	95%	05%

**Chart 1- Sites referred to the most while using Internet,**



**CRITICISM**

Wikipedia has undoubtedly become an invaluable first source for investigation. Wikipedia’s citations can provide a quick convenient place for researchers to discover where detailed information is located (Kennedy, Forbush, Keegan, & Lazer, 2015) and can act as a megaphone amplifying the conventional wisdom, but its ubiquity and ease of use can pose challenges for serious researchers. Wikipedia’s credibility was eroded many a times and it needed damage control too bring readers back. While Google is surely a potential

competitor for Wikipedia, Quora and similar players do not have the kind of referencing and sourcing that Wikipedia manages. The fear of course is that Quora and similar players could begin a disruption.

A study conducted by Lam, S. T. K., Uduwage, A., Dong, Z., Sen, S., Musicant, D. R., & Terveen, L. titled 'WP: Clubhouse? An exploration of Wikipedia's gender imbalance' concludes that Wikipedia is a gendered space where only a small fraction of Wikipedia's editors are women. (Lam, et al., 2011). Hinno Saar has argued about the gender gap among contributors that results in unequal coverage of topics. The study also shows that women are more likely to contribute to Wikipedia articles about women. (Hinno Saar, 2019). Yet another study, features underrepresentation of editors from the Global South. This also makes us examine the digital divide that exist between Global North and Global South wherein the third world countries still do not have access to internet which in turn hampers the development of the nations and their contribution to the knowledge industry. Due to this, the opinions and perspectives of people from the global south are rarely documented.

The English language has in the 21<sup>st</sup> c acquired a global status. The dominance of the English language in Wikipedia should also be a cause of concern. Although Wikipedia translates pages into a variety of languages, English continues to be at the forefront.

Perhaps Wikipedia should promote content generation across all languages and innovate itself further.

### **CONCLUSION:**

Fifty years ago, the family encyclopedia provided a ready primer on any name or idea and now the role is being played by the Internet and increasingly by Wikipedia. While people would turn to Encyclopedia Britannica for good writing and authentic information, the challenge today is, to convince students and other researchers that free websites should not be used for serious research.

Without a doubt, if we were to ask if Wikipedia become the family encyclopedia for the 21<sup>st</sup> century, our study affirms this.

Wikipedia has been a disruptive innovation; disrupted Paper Sources of knowledge in a big way and eased the process of information seeking.

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**DISRUPTION OF TV CAUSED BY OTT PLATFORMS**

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**Sanjana Khatri and Sanskruti Malvade**

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**ABSTRACT**

*The entertainment industry has a huge influence on today generation and OTT platforms contribute most of it. OTT (over the top) is a platform which provides services and videos on demand with the help of the internet. OTT media firms such as Netflix, amazon prime, Hotstar, Voot, Etc has been people's taste nowadays. Earlier there were limited channels with a fixed time but today due to OTT platforms anyone can watch their favorite shows anytime anywhere. Due to the pandemic there is increase in OTT subscribers causing a competition to TV cable operators. This research paper will cover the no. Of people that adapted OTT and their reason of shift. Research data will be collected by survey method and the sample size is 135. Pre-pandemic people were not much aware of OTT platform but post pandemic people are more into OTT platforms creating a challenge for them to provide them with the best. This paper also focuses on exploring the advantages, future of OTT firms.*

*Keywords: OTT, pre pandemic, OTT trend, competition, growth, post pandemic*

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**INTRODUCTION**

OTT (over the top) is a platform which provides services and videos on demand with the help of internet. There are currently 40 providers of OTT platform in India. Post pandemic have witness an rapid increase of viewers towards OTT that was the case pre pandemic Pre pandemic mostly people were attracted towards Television. Since a number of people are shifting to OTT platform and discarding traditional way of using TV, this is what has caused a change or innovation / disruption of TV by OTT platform. The reason why researcher choose this topic to exactly know the effect that OTT platform caused TV industry .In the fiscal year 2018 the OTT market in India was worth RS.2150 crore and it value grew to RS.35 billion in 2019.

In today's time there are various option available as for entertainment. Entertainment is a form of activity that holds the attention and interest of an audience or gives pleasure and delight. OTT has been the best way for users to entertain themselves as it provides a comfort zone so they pick OTT over TV. Due to nation-wide lockdown across the country TV, Theatres could not work. In the case new movies were released on OTT platform and so people will be able to enjoy it as per their convenience.

People today need not have to wait for favourite show or movies not only youth but also other members of the family are trying to shift themselves to these platforms. Researcher here tried to find out the reasons of shift to these platform and their reasons for not shifting.

Some of the most famous OTT platforms are

**NETFLIX:**

Netflix was founded in 1997 by Reed Hastings and Marc Randolph in Scott valley, California. Netflix initially both sold and rented dvds by mail, but the sales were eliminated within a year to focus on the DVD rental business. In 2007, Netflix introduced streaming media/ video on demand.

**Netflix, Inc.** Is an American pay television over the top media and original programming production company. It offers subscription-based video on demand from a library of films and television series, 40% of which is Netflix original programming produced in-house. Netflix has also played a prominent role in independent film distribution. As of October 19, 2021, Netflix had 214 million subscribers, including 74 million in the United States and Canada, 70 million in EMEA, 39 million in Latin America, and 30 million in Asia -Pacific. It is available worldwide except in mainland China (due to local restrictions), Syria, North Korea, and Crimea (due to US sanction). Netflix is a member of the motion picture association (MPA).

**HOTSTAR:**

**Hotstar** (also known as **Disney+ Hotstar**) is an Indian brand of subscription video on demand and over the top streaming service owned by star India and operated by Disney company .Starting 1 September 2021, Indian users will be able to choose from a range of three new subscription plans, namely – **Mobile** for INR 499/- per year (a single device, mobile-only plan), **Super** for INR 899/- per year (access to 2 devices across mobile, and living room devices) and **Premium** for INR 1499/- per year (access to 4 devices across mobile, and living room devices). Entertainment Distribution both a division of the Walt Disney company .Hotstar generated at least 345 million views throughout the 2015 world cup and approximately over 200 million views during the 2015 Indian Premier League season.

The 2019 Indian Premier League repeatedly broke records for concurrent viewership on Hotstar, with the 2019 final setting a new "global record" peak of 18.6 million. US research site *tech crunch* credited these gains to the extensive growth of internet usage in the country. This was surpassed during the semi-final of the 2019 Cricket World Cup between India and New Zealand, with 25.3 million. After the India-Pakistan match earlier in the tournament, Hotstar surpassed almost 100 million daily users.

**VOOT:**

**Voot** is an India subscription video over demand and over the top streaming service, owned by Viacom 18. Launched in March 2016, it is Viacom18's advertising-led video-on-demand platform that is available as an app for IOS . Voot is available only in India, and hosts over 40,000 researchers of video content that includes shows from channels like MTV, Nickelodeon and colors . Content is also available in multiple languages like Kannada, Marathi, Bengali, Gujarati, Odia, Malayalam, Telugu and Tamil

In February 2020, Voot introduces paid subscription service called Voot Select. Voot Original series are made available only to paid subscribers. Some TV shows are being streamed a day before TV for its paid subscribers.

**REVIEW OF LITERATURE**

Adoption of OTT platform in India during covid19 (DR. S. Anbumalar, Brina Antony) The research of this research paper tried to focus on the future propection of the customer towards OTT platform and comparative study of OTT platforms and TV. The researcher with the help of questionnaire prepared , tried to find out the no.of researchers individual spend time using OTT .they also tried to find that people like to watch their favorite show with individual, friends , family, etc. The percentage of which was given by the researcher in the paper prepared by them.

Emergence and future of OTT video services in India (Sundaravel E. And Elangovan N.)

The researcher focused on letting people know about advancement in OTT and also they can be available for regional languages in future.

**OBJECTIVES**

- It aims at finding out if people are aware of OTT platforms, are the users of it or still using TV and if still not a user are they planning to shift.
- Theirs lot of scope in OTT users can watch it anywhere and at any time.
- To find out how many people have changed their preference to these OTT platform and their reason .

**LIMITATIONS**

Due to pandemic the survey was conducted on a small scale and was circulated to know ones through telegram and Whatsapp.

**RESEARCH AND METHODOLOGY**

- Both primary and secondary data were used for research purpose.
- For primary data questionnaire was prepared.
- But due to pandemic it was circulated to only know ones.
- For which researcher received a response of 135 people.
- And for secondary data internet and some research papers were referred.

**ANALYSIS AND INTERPRETATION**

Since there are around 40 OTT platforms in the country people have subscription of various platforms such as Voot, Hotstar, Amazon prime, Sony Live, Netflix, etc. But the maximum people have subscription of either Hotstar, Netflix, Amazon prime. As per the survey conducted by us the following are the results

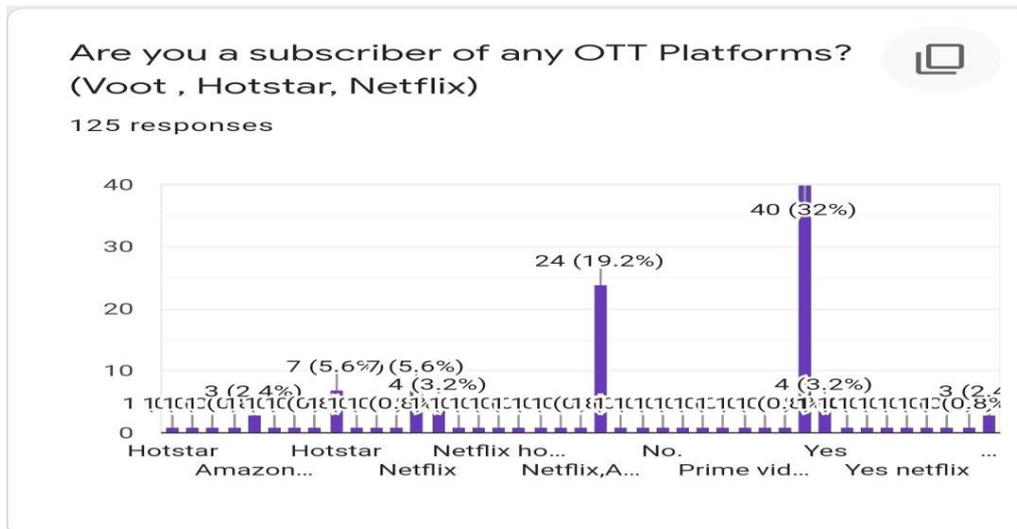
Researcher received 135 responses.

Researcher's first question was – Are you aware of any OTT Platforms?

INTERPRETATION- So it was noticed that out of 135 responses received 85.9% of the people are aware of OTT platforms whereas 8.1 % of people don't have exact knowledge but have heard of it. But there are still 6% of people not aware of OTT platforms

Secondly researcher tried to focus on which platform do people watch their favorite show?





INTERPRETATION – only 32% of the people are subscriber of OTT platforms whereas 19.2% of people had not taken any subscription yet. .

The following table show the preference of people.

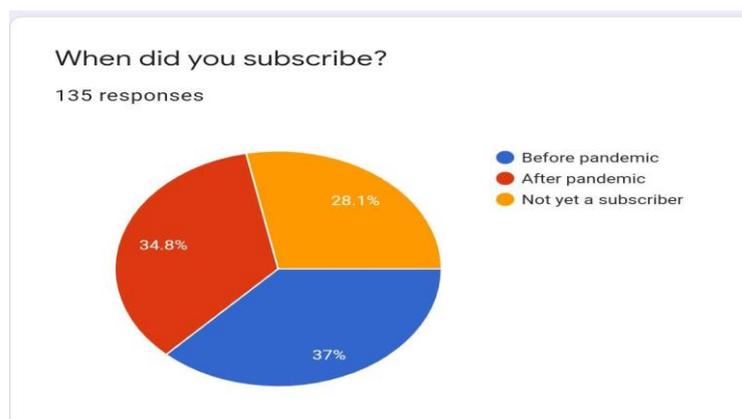
	Number of respondent
HOTSTAR	16
NETFLIX	26
AMAZON PRIME	16
ZEE 5	3
SONY LIV	2
NO	30
MAX	1
FRIENDS A/C	1
VOOT	2
YES	47
MOSTLY ALL	1
PLANET MARATHI	1

(the number of respondent exceeds 135 responses because some people are subscriber of more than one OTT platform

The next question to focus on was the number of years the people had subscribed.

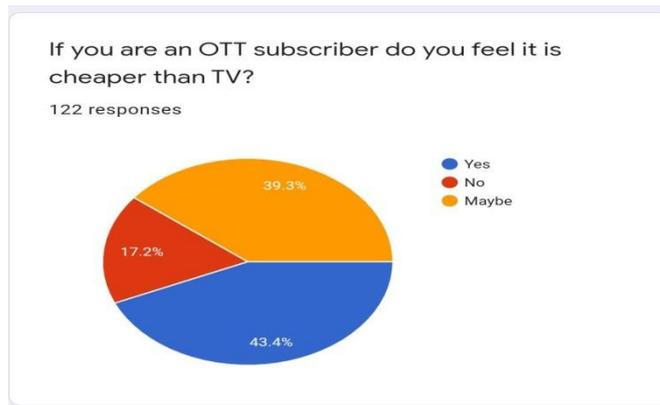
INTERPRETATION – 46.9% of the respondents had taken the subscription before 2 years. This indicated that these subscription had been taken post pandemic which means that the demand of OTT platform observed a rise in demand after pandemic. 23.4% of the respondent are subscriber from 2-4 years. This indicates that they had taken the subscription before pandemic. 4.7% of the respondent are subscriber for more than 4 years.

Researcher tried to find out when did people subscribe to know the exact result



INTERPRETATION – still 28.1% of people had not taken subscription and around 34.8% people had been subscriber after pandemic and 37% were pre pandemic users.

Next question was whether OTT subscriber find OTT platform cheaper than TV

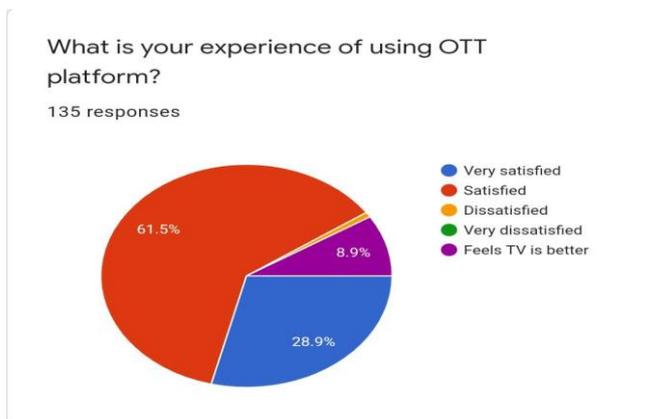


INTERPRETATION – around 39.3% people were not sure and 43.4% find that OTT is cheaper than TV earlier if people wanted to use any one channel people had to take package of whole channels but in case of OTT people can share it with anyone and can watch it multiple times in a single subscription.

Researcher found out various reasons for OTT platforms being better than TV

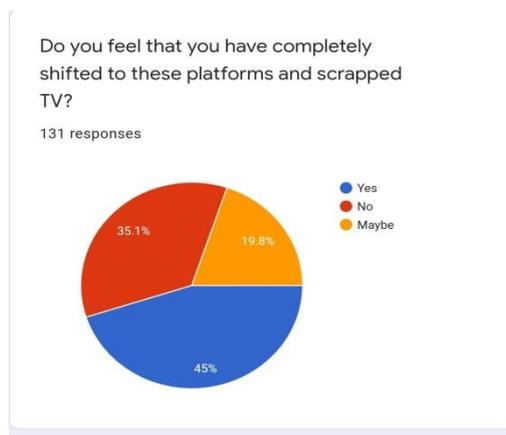
INTERPRETATION – easy access was one of the main reason why people prefer OTT. Other reason are as follow good content, movies and series can be watched on the same date of release , personal space to watch anything, variety of genre from one to choose with no censorship, time reliable, etc.

For OTT user researcher tried to find out experience of using OTT platform.



INTERPRETATION- 61.5% of the OTT subscriber are satisfied by using these platform whereas 28.9% are very satisfied i.e. They feel OTT is an excellent option of entertainment sources. Shockingly 8.9% people feel that TV is better and 0.7% are dissatisfied too.

Then researcher tried to find out whether people had completely shifted to these platforms and scrapped TV

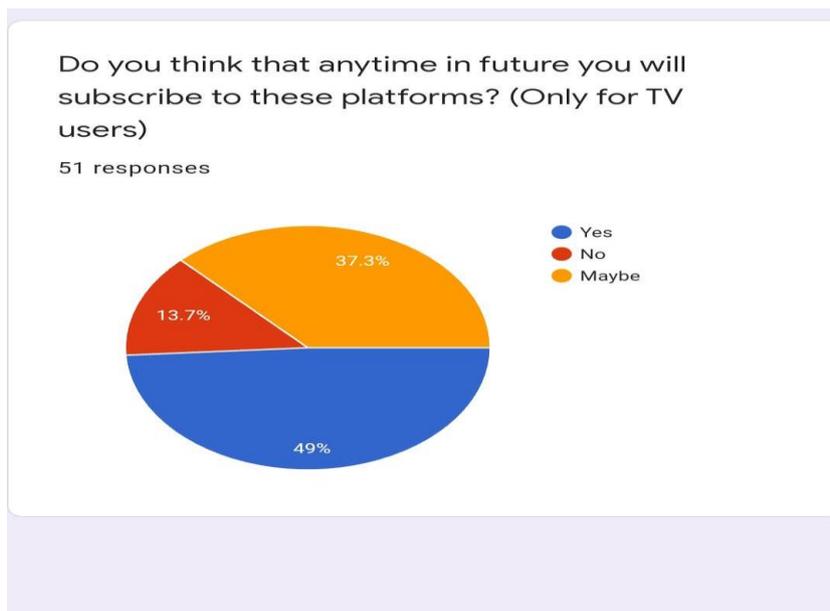


INTERPRETATION- even though there are a number of OTT platform providers 19.8% of the people still felt that they had not completely shifted to these platform. Only 35% of people felt that they had scrapped TV i.e. If they do not get a TV system it will be fine because they have OTT platform available

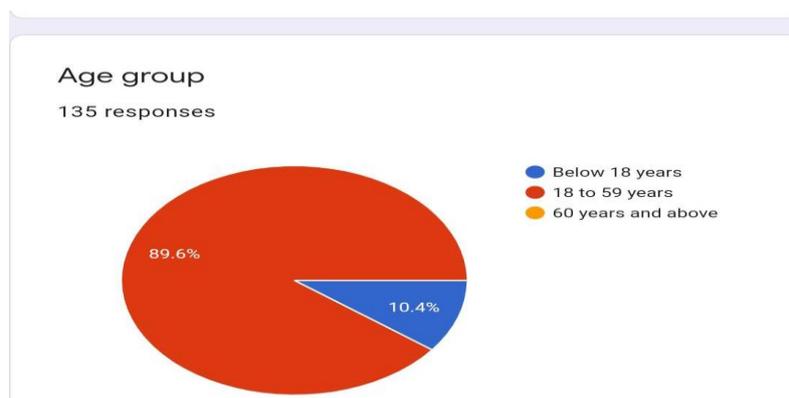
The reason why the TV users were not shifting to these platforms are as follows

INTERPRETATION – some people think it offers a lot of movies, series which a viewer can become complete addictive which is not at all good for today youth, some face issue regarding amount as they are not earning i.e. People under age. Another reason is that people like TV more, latest episode without subscription, small screen give headache, difficult to handle, etc.

Then researcher was curious to find out whether in near future these TV users will shift to OTT or not ( for TV users)



INTERPRETATION- 37.3% may shift to OTT platform and 49% will definitely shift and 13.7% people have not given any thought to shifting to OTT in near future.



INTERPRETATION- from this researcher came to know that people of 18 to 59 age group watch OTT platform alot ( 89.6%) and only 10.4% people who watch OTT are of below 18 years.

**FINDINGS**

- 85.9% of people are aware of OTT platforms.
- 46.7% of people use only OTT platforms.
- Out of 135 responses 94 people prefer Netflix whereas 63 people prefer Hotstar.
- There are people who watch 2 or more OTT platforms.
- 23.4% of the people are subscribers from around 2-4 years.
- 34.8% of the people subscribed after pandemic.

- Easy access, good content, convenience are the main reasons why people shifted to OTT platform.
- 61.5% of the people are satisfied by using OTT platforms.

**SUGGESTIONS**

- There are still people who are not aware of OTT platforms .14.8% of people today also prefer TV for their favourite shows. As 37% of people since have not taken subscription so there is scope for further research whether these people will shift to OTT. In this case there is scope of further research if the TV users have shifted to OTT platforms or not and their reasons after shift whether they are enjoying OTT platforms or not. There is also scope to find about advancement in OTT platforms.

**CONCLUSION**

As per the research 14.8% still choose TV over OTT platforms. Also if demand for OTT platforms will increase then the people who say that it is cheaper than TV may see a hike in prices of OTT platforms. If a lot number of people will depend on OTT platforms then it can have cons too like it may affect the health of people and their work too .Time constraint which people feel as advantage may become a disadvantage.

It can be concluded that there is still some scope of increase of demand or shift towards OTT platforms by the TV users.

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- \* <http://ijceng.com/gallery/cej%203666f.pdf> adoption of OTT platform in India during covid19
- \* [https://www.researchgate.net/publication/341558182\\_Emergence\\_and\\_future\\_of\\_Over-the-top\\_OTT\\_video\\_services\\_in\\_India\\_an\\_analytical\\_research](https://www.researchgate.net/publication/341558182_Emergence_and_future_of_Over-the-top_OTT_video_services_in_India_an_analytical_research) Emergence and future of OTT in India Jan, 2020
- \* <https://docs.google.com/forms/d/1cl5oimbz-7ce3sj70chl7mqtedwf7sylvnremg8c5s3q/edit> this link was used by researcher for the survey.

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**DISRUPTIVE INNOVATION IN ENTERTAINMENT INDUSTRY**

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**ABSTRACT**

*Disruptive Technology can be defined as technology or innovation that creates a new market and disrupts the existing. Innovation has always played an important role in building strategy across every business sector. With the invention of the internet, the digital revolution began in the world, benefitting the entertainment industry to a greater extent. Market giants like Blockbuster faced the downfall and it gave rise to Online Streaming platforms like Netflix, Disney +, MX Player, etc. that disrupted the market of Movie theatres and Television. This Online streaming was not only restricted to movies and cable television, but it expanded to other streams of media like Music – Spotify, Books- Audible and Storytel, and so on. Several benefits are obtained from this online streaming giving a tough competition to traditional methods. Other sectors were also aided out of this innovation, hereby widening its use and making more people dependant on it. This not only helped the entertainment industry but its positive points were also observed in the sector of Education, leading to easy access to an enormous ocean of knowledge available at fingertips. Looking towards the massive growth rate of technology, people's attraction towards such diverse media is not getting ignored. "People buy what everyone else is buying around them" and is often referred to as Cognitive Bias or Consumer Behaviour. Hence, a trend of these multimedia platforms has been emerged and seems to be never-ending. A discussion is being done here regarding the business models of these platforms, their earning methods and how they will impact the traditional methods of entertainment in the upcoming future. We would also be analysing the impact of this innovation by surveying people belonging to the age category of 18-59 years living in Thane & Mumbai.*

*KEYWORDS – Innovation, Digital Revolution, Online Streaming, diverse media, Cognitive bias, Multimedia Platforms.*

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**INTRODUCTION**

Streaming Media can be described as a form of Multimedia that is being continuously consumed, and delivered from sources that have minimal or no storage element involved. Streaming mostly acts as a delivery method of content, rather than the content itself. It can be used as an alternative to downloading the file, i.e., making the content in the file available before using it. Through streaming, an end-user can use their media player to start playing digital video or digital audio content before the entire file has been transmitted. Streaming is not only restricted to Audio and video files now but has spread to other platforms as well, such as gaming. There were attempts made to display media on computers in the early days of computing in the mid-20<sup>th</sup> century, but much progress was not seen. The reason being lack of funds and limited capacity of the computers. Streaming media became innovations as they were having the potential to replace the offline media storage methods, leading to more space available in the device, that too in a cost-effective manner, challenging the other media sharing and storage items like cassettes, CD, DVD, or Floppy Discs. In the early 1920s, George O. Squier was granted patents for a system for the transmission and distribution of signals over electrical lines, which later became famous as "Muzak", a technology that would continuously stream music to consumers without using radio. "Starworks" became the first streaming product to be introduced in late 1992. "YouTube" was also founded in 2005 that became the first video streaming website founded by Steve Chen, Chad Hurley and Jawed Karim in the year 2005. Music Streaming platforms are gaining rapid popularity in these recent years. Spotify was founded by Daniel Ek and Martin Lorentzon in 2006 with an intent to overcome the challenge of Online Piracy, is now one of the most used music streaming platforms with above 300 million users as of 2021(as of Quarter 2). One of the recent innovations in this field was Audiobooks.

**REVIEW OF LITERATURE**

1. Sundarvel. E and Elangoran. N (2020) – The emergence of OTT platforms would harm the emergence of Cable TV in India. Therefore, the TV Stations should prepare themselves for a paradigm shift brought on by the OTT platforms. More importantly, they should work towards making high-quality content that can compete with the material that is available in OTT.

2. Ernst and Young (2021) – Digital and Online gaming were the only segments that grew in 2020 adding on an aggregate of \$26 billion and consequently to the contribution of the media and entertainment industry increased from 16% in 2019 to 23% in 2020.

3. Robeco (2020) – The streaming boom seen over the past decade is far from over, as viewers continue to shift from analogue media to such as television or radio, towards video and music streaming alternatives. While competition is expected to remain fierce and the best exclusive content is likely to continue, current trends suggest there is room for multiple dominant platforms, provided that they can differentiate what they are offering.

**OBJECTIVES OF STUDY**

- To study the impact of the innovation of online streaming platforms on the general public.
- To analyse the impact of usage of these services on their daily life as well as the businesses of these platforms.
- To understand the perspective of people and their opinions towards these platforms.

**LIMITATIONS OF STUDY**

The survey that was conducted by us was restricted to the geographical area of Thane, Mumbai and Sub-urban areas of Mumbai. Also, the research was very well responded by the age group of 18- 25 years youths, hence the perspective of the people aged more than 25 years is covered only to a limited extent. As far as the topic is concerned, we have covered all the OTT, music streaming and E-book’s platforms possible. Emphasis was done more on the paid platforms rather than the ones that are available for free or the free version of these paid platforms, e.g., the free version of VOOT and Disney + Hotstar Free version. Our research did not include any social media platforms or public media platforms where individuals can post self-created content for their followers and friends. Even though these applications are used as a source of entertainment to some extent, apps like Instagram, Tiktok, Facebook, etc. were not studied in this research paper and survey. An interpretation of the study is on the assumption that correct information is provided by the respondents.

**RESEARCH METHODOLOGY**

**Primary Data:** The research is done through the observation and analysis of the data collected through questionnaires.

**Secondary Data:** The data is collected from various websites and pages to develop this theory.

**Sample Size:** A sample size of 110 participants from the districts of Thane and Mumbai was used for the collection of primary data.

**ANALYSIS AND INTERPRETATION**

Age Category of Sample size

AGE GROUP	NUMBER OF RESPONDENTS	PERCENTAGE
18-25	94	85.5
26-35	6	5.5
36-45	4	3.5
46-59	6	5.5
TOTAL	110	100

Q1 – What is the main source of entertainment?

SR. NO	CATEGORY	VOTES
1	OTT PLATFORMS	80
2	MUSIC STREAMING PLATFORM	54
3	E-BOOKS AND AUDIOBOOKS	12
4	TELEVISIONS	42
5	OTHERS	14

Q2- Which OTT Platform do you use the most?

SR. NO	NAME OF PLATFORMS	VOTES
1	NETFLIX	51
2	AMAZON PRIME	50
3	DISNEY+HOTSTAR	51
4	SONYLIV	20
5	OTHERS	43

6	NONE OF THE ABOVE	8
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Q3- Which music streaming platform do you use?

SR. NO	NAME OF THE PLATFORM	VOTES
1	SPOTIFY	69
2	AMAZON MUSIC	11
3	GAANA	14
4	JIOSAAVN	12
5	WYNK MUSIC	19
6	YOUTUBE MUSIC	10
7	OTHERS	4

Q4- If you use audiobooks, which platform do you use often?

SR. NO	NAME OF THE PLATFORM	VOTES
1	AUDIBLE	32
2	STORYTEL	14
3	OTHERS	8

Q5- Do you own paid subscription on any entertainment platforms?

SR. NO	PARTICULARS	VOTES
1	YES	68
2	NO	42

Q6- Did you purchase any subscriptions during the COVID-19 Lockdown?

SR NO	PARTICULARS	VOTES
1	YES	61
2	NO	44
3	MAYBE	5

Q7- In future are you planning to buy another subscription to any entertainment platform?

SR NO	PARTICULARS	VOTES
1	YES	41
2	NO	28
3	MAYBE	41

Q8- What do you prefer?

SR. NO	PARTICULARS	VOTES
1	ONLINE STREAMING	38
2	OFFLINE STREAMING	14
3	BOTH	57
4	NONE OF THE ABOVE	1

Q9- What do you prefer?

SR. NO	PARTICULARS	VOTES
1	MONTHLY SUBSCRIPTION	23
2	OUARTERLY SUBSCRIPTION	13
3	YEARLY SUBSCRIPTION	57
4	NO SUBSCRIPTION	17

Q10- What is your daily data consumption?

SR. NO	PARTICULARS	VOTES
1	BELOW 1GB	26
2	1GB-3GB	64
3	MORE THAN 3GB	20

**FINDINGS**

- The main source of entertainment was the OTT platforms (80 votes) and the traditional source of entertainment Television was 3<sup>rd</sup> with 42 votes.
- The most used OTT platform is Netflix and Disney+ Hotstar (51 votes)
- The most used music streaming platform is Spotify (69 votes). We can also observe Jiosaavn and Wynk Music are bundled with the mobile plan are more used than other music platforms.
- The most used audiobook platform is Audible (32 votes).
- Out of 110 respondents, 68 of them own a paid subscription to an entertainment platform.
- 61 of them bought subscriptions during COVID-19 Lockdown thus we can say that COVID-19 Lockdown accelerated the adoption of these platforms.
- 41 of them are planning to buy another subscription to an entertainment platform and 41 of them may or may not purchase the subscription of the platform.
- 38 of them prefer online streaming, 14 of them prefer offline streaming, 57 of them prefer both and 1 preferred no streaming.
- 23 of them prefer a monthly subscription, 13 of them prefer quarterly subscription, 57 of them prefer yearly subscription, and 17 prefer no subscription.
- The daily data consumption of 23 respondents was below 1GB, 64 of them had a daily data consumption of 1-3GB, and 20 of them had a daily data consumption of more than 3GB. We can observe that majority of them have average data consumption of more than 1GB.
- According to the report published by MICA in the year 2020, on any given day Indians have at least 30 news and entertainment apps on their phone on average.
- According to Robeco report published in the year, 2020 stated that impact of COVID-19 was strongly positive for Online entertainment platforms.
- According to Ernst & Young report published in the year 2021, 28 million Indians (10.5 million in 2019) paid for 53 million OTT subscriptions in 2020 leading to a 49% growth in digital subscription revenue.
- In addition, it also states, 284 million Indians consumed content bundled with mobile plans.

**EXPECTATIONS BY ANALYSTS**

Despite the world being in danger of the spread of the coronavirus, the lockdowns and quarantines benefitted the entertainment industry. The platform owners witnessed a spike in the number of subscriptions and views of many shows available on these platforms were increasing with great speed. Almost 15.8 million subscribers were added by Netflix globally, making the double of what it was expecting around 7.2 million, leading to 22.5% growth.

Contributing to this is the rapid adoption and growth of smartphones, cloud-based services, and more penetrating OTT platforms if compared to television connections and cable TVs, and most importantly, the incorporation of Artificial Intelligence. Hence, we can expect the growth of media streaming markets at an approximate Compounded Annual Growth Rate (CAGR) of 23.2% in the upcoming period of 2020-2025.

Many music streaming platforms are providing people with exclusive content like artist's podcasts and original content, which has started to attract people more towards them, compared to what they were providing earlier.

As per a report published by Deloitte – The future of the TV and video landscape by 2030, digitalization will change the way how the content is produced, distributed and how it is recommended to the public. With artificial intelligence and analytics, smart content discovery and recommendations will lead to people viewing what they wish. Traditional TV and Non-linear content will continue to exist. On-demand videos will become mainstream in all population groups. Advertising will also adopt new formats and increasingly focus on personalized adverts. Overall, there will be moderate market regulation. Lower regulatory pressure will also lead to higher freedom when it comes to cooperation with other market players.

To sum up all these, media has found its way out of all these hurdles to grow this big as it is today. As technology changes with a rapid speed, these media platforms seem to be adaptive to this speed and are going to sustain the market for a long time.

**CONCLUSION**

Streaming media has been booming for the past decade now. People are keener towards the use of these platforms as many find it efficient, cost-effective and easily accessible at any time with any basic internet connection available.

Although platforms like Netflix were introduced in the early 2000s, attempts were made to modify the traditional methods which date back to the 18<sup>th</sup> century. The use of DTH, Cable TVs is still prevailing but the disruptive innovation of online streaming media has impacted it to a certain extent. The youth and working population of the country would prefer the streaming platforms more as it suits their lifestyle and are very flexible.

Just like people want to maintain speed in their life, expectations are that they want early access to all the shows and media, and this expectation is fulfilled by the Online Streaming Platforms.

Music streaming platforms have not only developed drastically, the ways of music and audio consumption, but people are also ready to pay for music again. It has created a win-win situation for the artists as well as the listeners by avoiding the issues of music piracy.

One of the very intriguing revelations that we came across during our research was that people are interested in "Listening" to books as well. We often get to hear how Booklovers like the fragrance of the freshly printed pages of the new books they buy, and how they are a bit reluctant towards the use of E-Books or Audio Books. But our survey tells us that many readers are now moving their focus towards Audio Books and E-Books. This is very good news for writers also, as publishing a book online is very much similar to publishing the book offline. Also, the aspects of environmental harm are being put forward as an online publication of books also contributes to less cutting down of trees, thereby making it a more environmentally friendly decision.

Hence, the conclusion that we came across during the research for the topic of Disruptive Innovation in the entertainment industry is that Online Streaming Media are gradually becoming a part and parcel of our lives. This type of media is going to make a huge impact on the traditional methods of entertainment. With the increasing demand for these platforms, the platforms might also come with a wider range of plans available for the purchase of the subscriptions to make it affordable to more and more classes of society. Online Streaming Media is absolutely the future of the entertainment world, hence it is a worthy Disruptive Innovation and has the potential to capture a huge market in the upcoming future.

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**DISRUPTIVE INNOVATION IN HIGHER EDUCATION**

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**Ms Geeta Kale and Ms Bhagyashree Tendolkar**

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**INTRODUCTION:**

Decade earlier with the book 'The Innovative University: Changing the DNA of Higher Education from the Inside Out' co-authored by Clayton Christensen & Henry J. Eyring, the concept of disruptive innovation was introduced in the field of higher education. Though mainly with the help of MOOCs and other online courses introduced by some newly established educational institutions the disruptive innovation in the field of higher education started growing roots in the USA and some of the developed countries in Europe, in India and many other countries in Asia, online education was mainly recognised as a new platform of education only after the new normal caused by pandemic in March, 2020. As per a survey report of European Association for International Education (EAIE) nearly 58 % of survey respondents report that their institutions are currently implementing a COVID-19 response plan, thereby indicating that a majority of 42% are still not prepared to face such a situation. Even in countries like China, the Education Institutions were found struggling to adapt to the new normal pedagogical changes forced by pandemic. Mostly the attempts made by most of the established institutions in the field of education are unplanned, unprepared. The issues like equitable access to internet, availability of devices to masses, inappropriate IT infrastructure, necessary broadband capacity, etc. are yet to be solved. The faculty & staff is not properly trained to deliver the online instructions effectively. The main stakeholder in this respect being the student, in the paper we have tried to find how far he is coping with the online teaching & learning process in the midst of all these factors. On the basis of the responses collected from the sample population we have tried to judge the future of online platform in higher education in India.

We have evaluated the progress of online education as disruptive innovation in higher education in the last decade in India with the help of statistical data available in this regard. Based upon a survey made among degree and higher secondary students we have tried to find out the impact of pandemic on the whole process.

**OBJECTIVES:**

The main objectives of this paper are to find the answers for the following:

1. Has disruptive innovation in higher education started in India?
2. If yes, when did it start and in what manner?
3. What is the progress made by the process in our country?
4. What are the factors for or against its progress?
5. What is the future of online education in India?

**LITERATURE REVIEW:**

In year 2011 in the abovementioned book co-authored by Christensen & Eyring the term 'disruptive innovation in higher education' was defined & explained for the first time. In developed countries like America where the internet penetration has already reached to around 80 to 90 %, online education as a new way of education was adopted in the last decade as disruptive innovation in the field of education, especially at higher education level. India is also playing a role in it to some extent. In year 2016 IIT (Indian Institute of Technology) Gandhinagar was started as part of the Indian government's plan in that respect. It has the potential of disrupting the Ivy League destinations in near future. More than 1,000 universities which will be focussing on innovation, entrepreneurship making their students the members of global innovation economy are planned in it. It has a well-qualified and motivated teaching faculty who is also part of the innovation programme. The whole programme is equipped with modern technology & the staff competent in handling & using it in training the students.

But what is the overall picture in India as a whole country is concerned? As per the National Sample Survey, 75<sup>th</sup> round (July 2017-June 2018) of Government of India, on 'Household Social Consumption: Education', only 23.8% of Indian households have internet facility & only 10.7% households have own computers. Approximately 8% households have both, the device as well as technical facility which is needed for online education. All this topped with weak bandwidth was a great hindrance in using online education as an innovative disruption in education to start with. Lacking the infrastructure in the form of IT institutions & paucity of resources in the hands of customers, it was tremendously difficult for Educational Institutions in our country to come up with the replacement for traditional education system even in the initial times of pandemic, when it became the only way to continue the education at every level from pre-primary to higher education.

**KEY WORDS:**

Disruptive innovation in higher education, Online teaching & Learning, MOOCs, Higher Education Institutions

**METHODOLOGY:**

This paper is based upon the research through primary as well as secondary data. The primary data is collected from the survey conducted among degree & higher secondary students while the secondary data is obtained from the various papers, articles, books, journals published by important institutions & academics & the statistics provided by them.

**ONLINE EDUCATION IN INDIA:**

Overall scenario in India in online education though not very encouraging the study by KPMG in India & Google conducted in year 2017 regarding the Online Education Market in India in year 2021, has made some interesting predictions. As per their research with technological development in recent past the potential for online education in India has increased to a great extent. Total internet user population has increased between 2011 & 2016 with overall internet use up to 31% in 2016. Present 409 million internet users are expected to grow to approximately 735 million by 2021. This is supported by tremendous increase (290 million in year 2016) in use of smart phones by youth. According to the survey conducted, online education has a potential in following key categories:

1. Primary & Secondary supplemental education
2. Higher Education
3. Test Preparation
4. Reskilling & Certification courses
5. Languages & Casual learning

Today reskilling & certification courses is the highest growing category in India in online education followed by primary & secondary supplemental education & test preparation. As a teacher in higher secondary, in this paper an attempt is made for finding out its future in higher education. Due to lack of clear government regulations in this respect so far it hasn't grown strong roots in India. But, in view of the sudden changes in education platform at school as well as college level throughout the world due to pandemic situation & the response of student community to online learning in the new normal of social distancing, we will like to ponder upon 'what one can expect in this regard in recent future'.

In our country so far demand for institutions providing online education was higher from regions lacking reputed institutions in offline higher education.

The statistical data suggests that the reasons for probable rise in the demand for online education in the field of higher education will be as follows:

1. Accessibility
2. Convenience
3. Flexibility

For Higher Education Students, multi-tasking with their ongoing employment or in some cases even having family responsibilities, the above factors are of utmost importance.

In order to be successful in capturing market, smooth user experience in devices is necessary. In more serious courses providing a valued degree though use of laptop may be common, mostly smartphone is a common device used by most using different kinds of content on different devices. Therefore, online educational institutions will have to customize their courses to supply seamless user experience across devices.

The Challenges faced by students in online education especially in higher education:

1. Authenticity of institutions/courses
2. Authenticity of examinations
3. Recruitment opportunities

In view of the above information in order to find the real mindset of probable students in higher education a survey was conducted among college students.

**Sample & Participant Selection:**

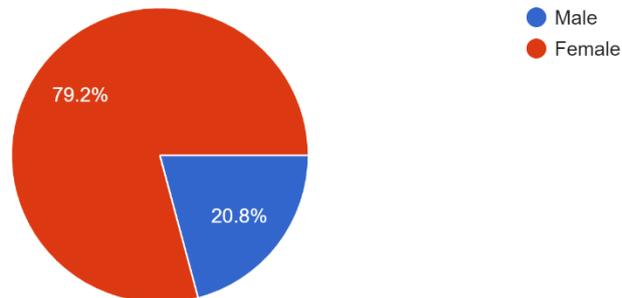
The sample selected of degree & higher secondary students is mainly to find answers for achieving the last three objectives of the paper, namely-

1. What is the progress made by the process in our country?
2. What are the factors for or against its progress?
3. What is the future of online education in India?

403 responses received are analysed on the criteria of their age, gender, qualification & stream.

The charts & pie charts drawn below give demographic distribution among the sample population.

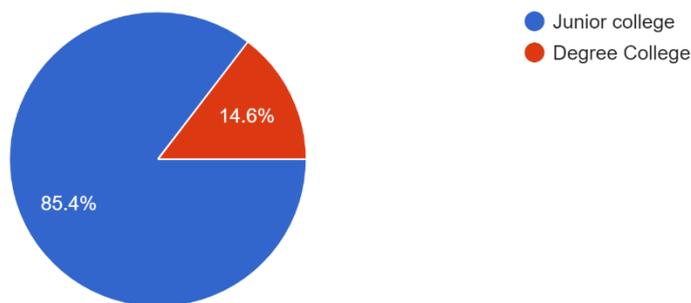
Gender  
403 responses



**Level of experience with E-Learning:**

Responses	Count	% Student Response
Higher secondary	344	84.4
Degree	59	14.6
Total	403	100

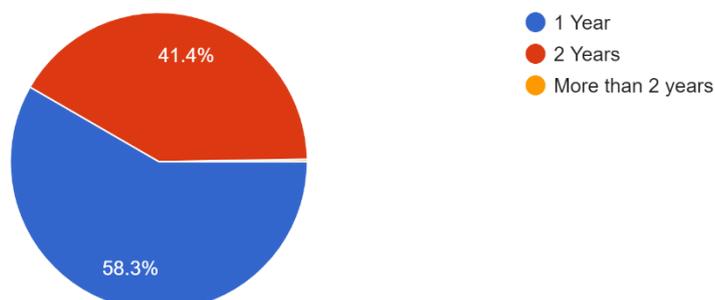
Qualification  
403 responses



The following questions were asked in the online questionnaire which the respondents had to fill.

1. Since how long you are attending online classes?

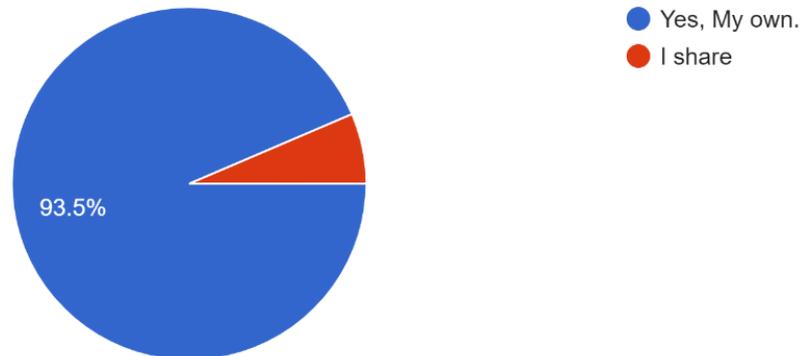
403 responses



From the above pie-chart it's obvious that online education is a recent phenomenon for the sample population due to new guidelines in education during pandemic.

2. Do you have access to device for online learning?

403 responses

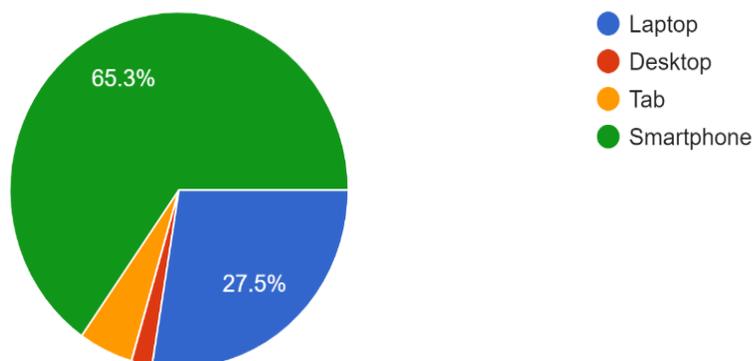


Staggering 93.5% of the students are having their own device in the form of smart phone/laptop/ PC. This is a sure indication of availability of resources at least at urban level of population which is requirement in online education.

The following pie chart gives further analysis in the use of devices for online education.

3. Which device do you use for online learning?

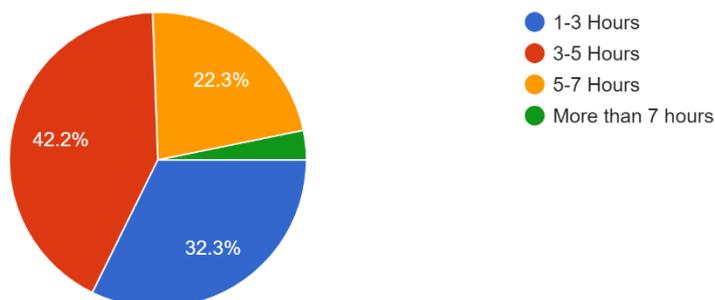
403 responses



65.3% are using smartphone, 27.5% are using laptop & remaining 7.2% are using either tab or desktop.

4. How much time do you spend daily on online learning?

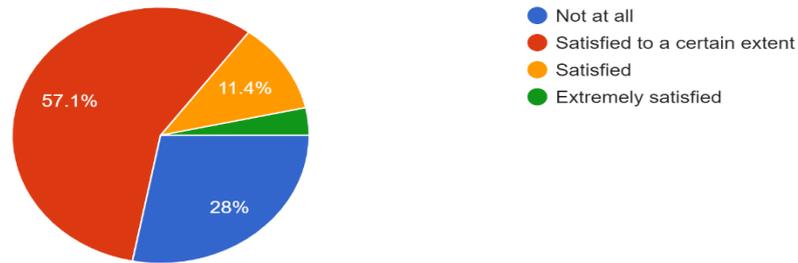
403 responses



More than 3-5 hour spent on online learning by 67.7% sample population clearly shows that students are depending mainly on online learning not only for their college lectures but also for test preparations & self-study.

5. Are you satisfied with the online learning?

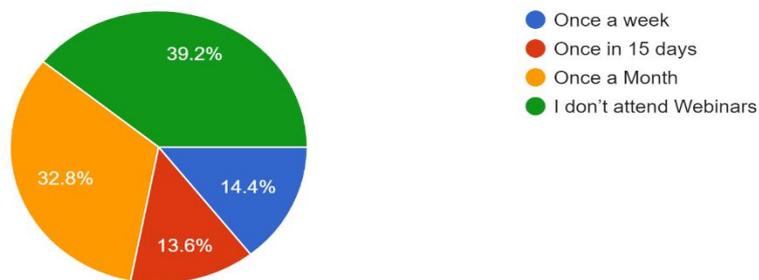
403 responses



72% of the sample population is showing if not complete but some level of satisfaction with online education.

6. How often you attend webinars?

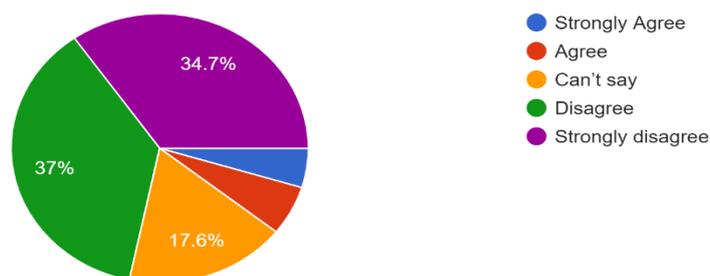
403 responses



Around 60% of students have attended webinars sometime or other which is an encouraging aspect as far as introduction of online education at higher education level is concerned.

7. Online lectures are effective than classroom lectures.

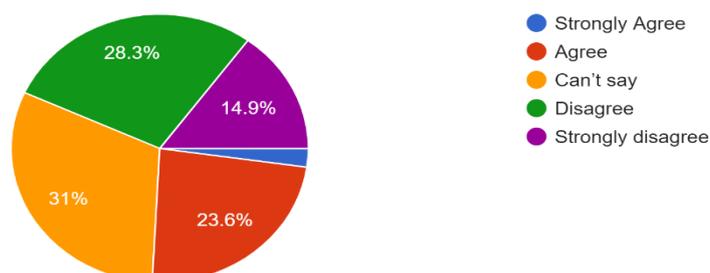
403 responses



Though, 34.7% of students do not find online lectures more effective than offline lectures, remaining may be finding them if not more as good as offline lectures.

8. Online education gives me additional information which helps me learn better.

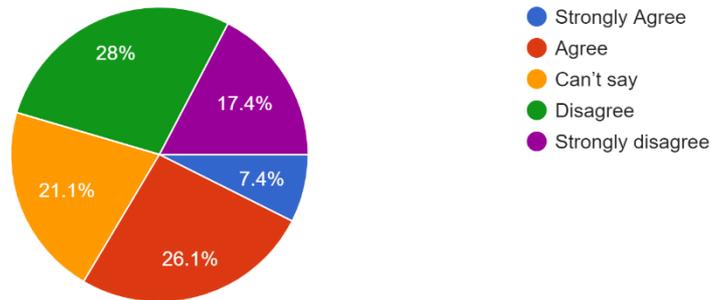
403 responses



At least 66% of students do not disagree that online education gives them additional information which helps in learning better.

9. Online education is more flexible than traditional classroom education.

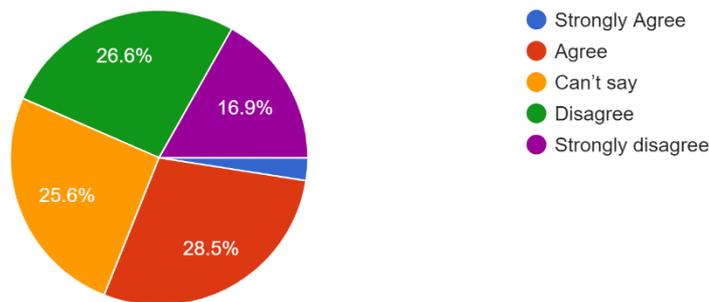
403 responses



33.55% of students find it a flexible method of education.

10. Online education gives me opportunity to discuss my doubts with teacher & colleagues simultaneously.

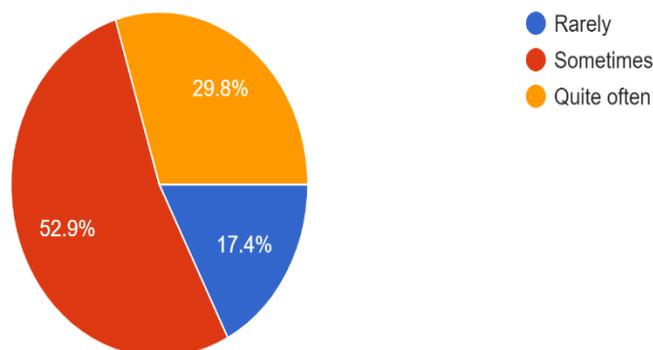
403 responses



Though lack of personal touch or contact is in general considered as a drawback of online education almost 30% students are giving a contrary opinion in this regard.

11. How often do you use videos, e books or any additional online resources for learning?

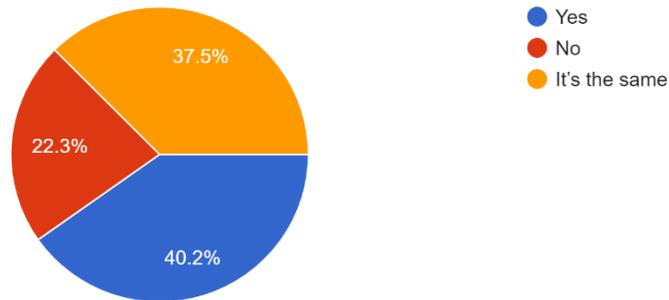
403 responses



Almost everyone seems to be using digital devices & modes in learning which is a sure sign that students now a days are well acquainted with them.

12. Is online education cheaper than offline education?

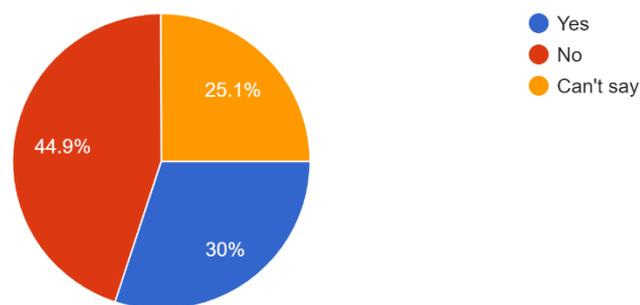
403 responses



If 40.2% of students find online education cheaper while 22.35 find it more or less same as far as costs of online & offline education is concerned it means the basic investment in buying the device & internet facility is already done in most of the households.

13. In terms of time & effectiveness, online learning is better than traditional learning.

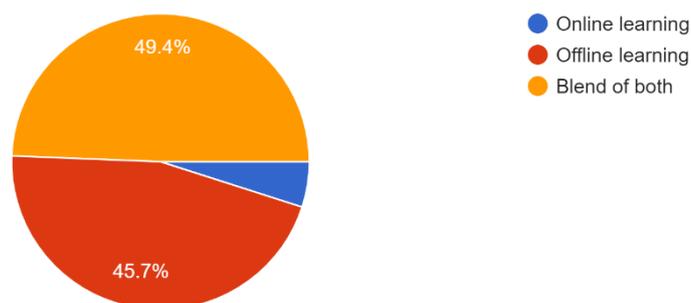
403 responses



30% are saying that online education is better than traditional learning, at least, as far as time & effectiveness is concerned.

14. In future what would you prefer?

403 responses



Though very few are for complete online education 49.4% are ready for a blend of online & offline education which is more than the percentage of population opting for only offline education.

15. According to you what are the benefits & drawbacks of online education?

In answer to above question the responses received are broadly categorized as follows:

BENEFITS	Count	% Student response
1. Saving Time & Energy	269	67
2. Flexibility	190	47
3. Easy Access to All	23	06
4. Better technique helps in qualitative learning	95	24
5. Easy Co-ordination among Teachers & Students	76	19
6. Recording & Repetition easily possible	54	13
7. Economically cheap	21	05

DRAWBACKS	Count	% Student response
1. No Learning Atmosphere	158	39
2. Lack of Personal Touch	194	48
3. Costly- Needs investment in devices required	11	02
4. Difficulty in Understanding	192	47
5. Physical & Mental Stress	99	25
6. Lack of Concentration due to Digital Distractions	83	21
7. Dependence on Technology	146	36

Most of the students are saying that online education is saving their time & energy which is mostly spent in travelling to and back from college. Though lack of personal touch is mentioned by 48% of the students, surprisingly 19% are saying that online education helps them in coordinating & bonding with teachers & students simultaneously. The physical strain in the form of lethargy, fatigue, obesity as well as issues related to eyesight trouble, backache & headache due to postural problems are common in online education. Due to lack of peer presence which is normal in classroom atmosphere, sometimes even mental stress leading to serious cases of depression, anxiety, lack of motivation etc. is found among youth. But the general approach is positive as safety during pandemic period is highly appreciated by almost everybody.

#### RECOMMENDATIONS:

Disruptive innovation in Education in the form of online education has become inevitable in present circumstances. In order to be truly effective in countries like India in the long run the following measures are essential on the part of the stake holders:

- The policy makers & government authorities in the field of education must follow the recommendations of agencies like UNESCO & try to build a new model which can match the best trends followed in online education globally.
- From year 2014, we have started encouraging the private investment in the field of education which should be boosted, so that new entrants with novel technological ideas come up to meet the new needs of higher education.
- The National Education Policy 2020 has already given a policy framework for a blended model that uses technology as a tool. Taking into consideration the problems faced during Covid-19 crisis the necessary steps must be added to overcome them & make the process smooth in future.
- The new online classes should be designed taking into account the advantages as well as drawbacks of the online education. Use of innovative tools & technologies for teaching-learning combined with periodical opportunities for socializing among peers & with teachers in a usual class-room form can make the new mode of education a perfect substitute for the traditional education.

#### CONCLUSION:

Enhanced learning experience can champion support from students to online platform. Once the market gets created the organizations in the field of online education would find numerous learning solutions using alternative technology to meet different demands of the customers. If online education is to be introduced at higher secondary, degree as well as higher education level then Government initiatives would be required for developing the necessary infrastructure especially at rural level where it's still lacking. Post covid we can expect blended education system where online education with offline touchpoints in the areas which need peer presence & participation.

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In India the choice institutions in top 100 ranking by NIRF & Similar agencies are already in the process of transition & will soon adapt to the disruption. However, for the required shift to happen in the Higher Education Institutions all over India, the IT & Telecom infrastructure will need a lot of upgrading especially in rural areas. The process for the disruptive innovation to complete in India & to reach the global standards which would have taken another decade has fastened thanks to the Covid-19 pandemic situation.

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**DISRUPTIVE INNOVATION IN THE CAMERA INDUSTRY**

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**ABSTRACT**

*A Disruptive Innovation is an innovation that creates a new market and value network and eventually displaces established market-leading firms, products, and alliances. The camera industry is one of the best examples of disruptive innovation. Kodak was the undisputed master of the camera industry for almost a century. However, it failed to capitalise on the disruptive innovation of digital photography. The market was subsequently captured by new entrants such as Canon, Nikon and Sony. Soon, the rise of smartphone photography proved to be a giant leap which opened completely new markets and made high-quality cameras accessible to everyone. Smartphone photography has created a huge competition for the leading companies in the digital camera market.*

*Keywords – Camera Industry, Disruptive Innovation, Disruptive Technology, Digital Photography, Smartphone Photography.*

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**INTRODUCTION**

Innovation is one of the fundamental drivers of human progress. The importance of innovation cannot be ignored. Innovations are diverse in nature and they are classified into different types. ‘**Disruptive Innovation**’ is a very important form of innovation. It is a very modern concept which was first coined by Clayton Christensen. It is one of the emerging concepts in the fields of economics, business and commerce. A **Disruptive Innovation** is an innovation that creates a new market and value network and eventually displaces established market-leading firms, products and alliances (Ab Rahman, Airini, et al 2017).

Disruptive innovations bring about new and unprecedented changes in the markets and their structures. Disruptive innovation eventually displaces established market-leading firms, products, and alliances. Disruptive innovation describes a process whereby smaller companies with fewer resources are able to successfully challenge the leading and established firms (Christensen et al, 2015). New revolutionary technologies are coming at a breakneck speed in the 21<sup>st</sup> century. Hence, the continuous emergence of disruptive technologies will certainly lead to many disruptive innovations in the future. Hence, it is very important to study these disruptive innovations.

The camera industry is one of the best examples of disruptive innovations. Kodak was the undisputed master of the camera industry and chemical photography. Because the company did not capitalize on the disruptive innovation of ‘digital photography’. In 2012, the company had to file for bankruptcy protection. Before re-emerging as a significantly smaller company, it exited legacy businesses and sold its patents. Today, the company has a market capital of less than \$1 billion (Anthony, 2016). The market was subsequently captured by new firms such as Canon, Nikon and Sony. The era of digital photography was soon challenged by the tremendous development in smartphone cameras. This was a giant leap which opened completely new markets and made high-quality cameras accessible to everyone. Smartphone photography has created a stiff challenge for the leading companies in the digital camera market. The rapid change in this industry is worth noticing and interesting.

**SIGNIFICANCE**

This research is especially significant because it focuses on the process of disruptive innovation. Rapid technological developments are expected in many industries. Many disruptive technologies will certainly emerge in the future. Disruptive innovations in the future can have a great impact on our lives. The camera industry is an excellent representative example for understanding the whole idea of disruptive innovation. Hence, we must study disruptive innovation in the camera industry. Furthermore, this topic is relatively under-researched. This research can provide directions for future research in the area.

**METHODOLOGY**

This research paper is completely based on secondary data. Relevant information was gathered in the online form due to the covid-19 pandemic. References were collected from different journals, research papers, books, articles and credible websites. Numerical data, graphs and tables used in the paper were prepared and analysed in the MS Excel 2019 spreadsheet program. Conclusions were drawn on the basis of the data.

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## REVIEW OF LITERATURE

- 1) (Ab Rahman, et al, 2017) have conducted a review of emerging technologies with disruptive effects. They have studied examples of disruptive innovation in Malaysia. They have explained the concept of disruptive innovation in their review.
- 2) (Christensen, et al, 2015) have written an article on the concept of disruptive innovation. It is a wonderful article that describes the idea of disruptive innovation. It is credible and noteworthy as the original creator of the concept (Christensen) is one of the authors.
- 3) (Anthony, 2016) has written an article on the reasons behind Kodak's downfall. According to him, Kodak's downfall wasn't about technology. It failed because it failed to capitalize on the innovation of digital photography.
- 4) (Keller, et al, 2005) have given the technical concept of chemical photography in their chapter on photography. It is a scientific chapter focusing on the scientific aspects of photography.
- 5) (Lucas, 2012) has expertly written about the lessons from disruptive technologies in his book. He has written about the early success and dominance of Kodak in the industry.
- 6) (Merrin, 2014) has given the history of the early digital cameras in his book. He has mentioned the rise of consumer photography in the 1990's.
- 7) (Schyeder, Baker, 2011) have explained the downfall of Kodak in their article. They have utilized statistical analysis to explain the process. They have detailed Kodak's falling market shares and market position over the years.
- 8) (Murphy, 2014) has captured the trends in digital camera sales in his article. He has found that, digital camera sales have been declining in a continued manner since 2010, however the decline has bottomed out.
- 9) (Richter, 2021) has given the impact of smartphone photography on digital camera industry. The article states that, digital camera shipments have plummeted sharply due to smartphone photography.
- 10) (Roychowdhury, 2019) has done a case study on Kodak's downfall. He has done a statistical analysis of Kodak's downfall. He has also mentioned that Kodak has failed to capture the importance of digital photography.
- 11) (Vailshery, 2021) has given the market shares of leading camera manufacturers in the year 2020. His article gives us an idea about the nature of the camera industry as of now.

## FINDINGS

### A) History of the Camera Industry

#### 1) History of development of Chemical Photography

The continuous developments in the science of photography in the 18<sup>th</sup> and the 19<sup>th</sup> century led to the creation of 'chemical photography'. Chemical photography or photographic processing is a method by which a photographic film or paper is treated after photographic exposure to produce a negative or positive image. The latent image is converted into a visible image which is insensitive to light by photographic processing. The process also makes it permanent (Keller, et al, 2005).

George Eastman was one of the first people to exploit the commercial value of camera. He was the founder of the famous 'Kodak' company. Earlier, photography was accessible only to professional photographers. Kodak began selling its original camera created by George Eastman in 1888. The ease of use and relatively low cost made photography widely accessible to the common people. Thus, began the modern era of consumer photography. Kodak was the **undisputed master** of the camera market for almost a century. It was like a **monopoly** firm. It followed the **razor and blades business model** by selling cheap cameras. The company also made large profits from consumables such as film, chemicals and paper. In 1976, Kodak commanded **90%** of film sales **85%** of camera sales in the U.S. (Lucas, 2012).

#### 2) Digital Photography – A true disruptive innovation

Kodak itself developed the world's first handheld digital camera in the year 1975. **Digital photography** turned out to be a really disruptive technology. Kodak made a huge strategic blunder by not understanding the disruptive power of digital photography. Thinking that it may threaten the company's main income source of photographic film business, Kodak dropped the product. Kodak's rivals namely **Fujifilm, Canon, Nikon and**

Sony understood the potential of digital photography much earlier than Kodak. The first consumer digital cameras were marketed in the late 1990’s (Merrin, 2014). By the time Kodak had realised its mistake it was too late. Kodak’s revenues started dipping in the 1990’s as its rivals started capturing larger and larger portions of its market share. This led to the emergence of new market leading companies such as Sony, Nikon and Canon. Kodak was displaced from the top position in the industry. Kodak held the second spot in the U.S. digital camera sales, but it lost \$60 on each camera sold in the year 2001. Kodak’s high profit margin giving film business also fell by 18% in 2005. The combination of these two factors resulted in disappointing profits overall. Asian competitors undercut its digital cameras as they were able to produce at a lower cost. Kodak had a market leading share of 27% in the year 1999 that dropped to 15% by 2003. In 2007, Kodak was ranked no. 4 in the U.S. share and by 2010 it had slipped to the seventh position with a market share of 7% (Schieder, Baker, 2011). Finally, Kodak had to file for **bankruptcy protection** in the year 2012.

**B) Why digital photography is considered to be a disruptive innovation?**

Digital photography has truly proven itself to be a disruptive innovation, because it satisfies the following conditions to be qualified as a disruptive innovation.

- 1) Old, established market firms are displaced by new entrants through the disruptive innovation. Digital photography displaced the established market leading firm in the camera industry. Kodak was replaced by new firms such as Sony, Nikon and Canon which were initially smaller.
- 2) The accessibility of a product increases considerably with a disruptive innovation. New markets and value networks are created. Before digital photography, photography was less accessible to the general public. Digital photography considerably increased the accessibility of photography to the general public at relatively lower prices.

**C) Smartphone Photography – Another Disruptive Innovation – Continued disruption in the camera industry**

The emergence of companies driven by digital photography soon faced a great challenge from a new disruptive technology. The invention of ‘**camera phone**’ has completely changed the outlook of the camera industry. A camera phone is a mobile phone with an ability to take photographs and record videos using one or more built in digital cameras. Digital camera market kept going and its sales peaked in March 2012, averaging about 11 million units a month. However, the sales have declined significantly ever since. The sales declined to 30% of the peak sales in March 2014. About 3 million cameras were sold each month. The decline has bottomed out with sales average moving around 3 million per month. The reason for this decline is competition from **smartphones**. Most smartphones have built-in digital cameras which routinely get better. They also record videos (Murphy, 2014). They are much cheaper and convenient as compared to digital cameras. One of the standout features in many new smartphones is the camera. Modern smartphones have cameras which are edging closer to the quality which was previously restricted to only expensive interchangeable lens cameras. Smartphone cameras are not only improving at the high-end of the market but also in general. Hence, general public no longer feels the need to carry and buy dedicated digital cameras. However, professionals and photography enthusiasts still prefer to use high-end cameras and lenses. The rise of smartphone photography has had a devastating impact on the camera and photo equipment industry. According to CIPA, an international industry group of companies which includes leading companies such as Canon and Nikon, camera shipments dropped by 93 percent between 2010 and 2020 globally. It wiped out more than four decades of growth in the industry. The steep decrease was mainly driven by a reduction in shipments of digital cameras with built-in-lenses. Casual photographers relied on these cameras before the rise of smartphone photography (Richter, 2021).

**D) Why smartphone photography is considered to be a disruptive innovation?**

Smartphone photography is considered to be a disruptive innovation because of the following reasons

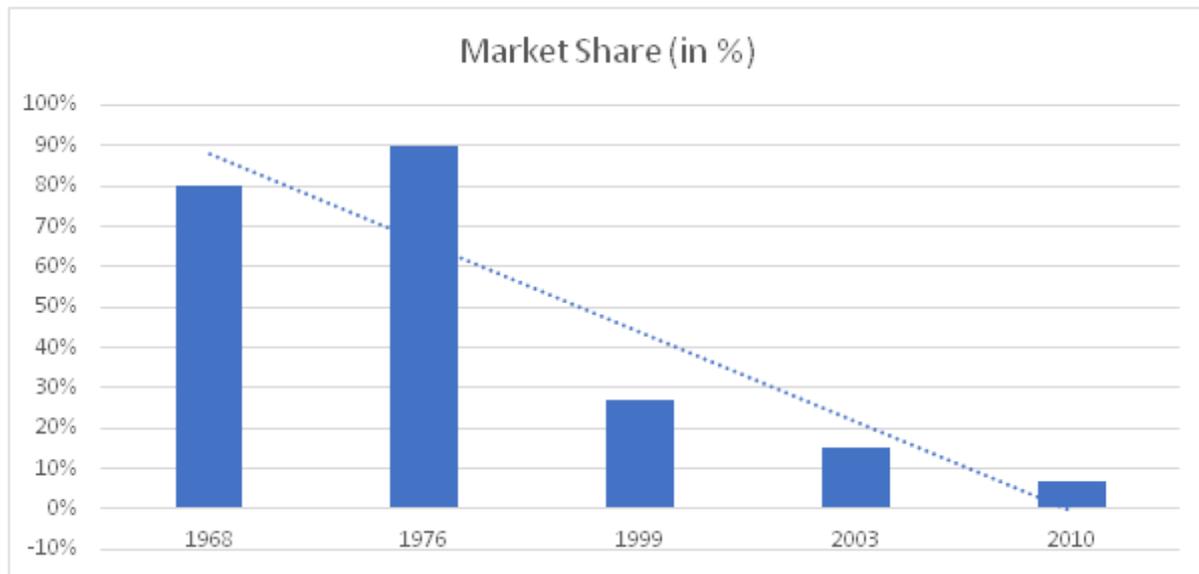
- 1) It has created a challenge for the existing leaders in the digital camera industry.
- 2) It has increased the accessibility of photography to the general public. Smartphone cameras are relatively very cheap, affordable and widely accessible to the general public.

**ANALYSIS**

**A) Market share of Kodak over the years**

Year	Market Share	Position (According to market share)
1968	80%	1st

1976	90%	1st
1999	27%	1st
2003	15%	2nd
2010	7%	7th



Kodak was the undisputed leader of the camera industry for almost a century. As shown in the above graph and table. In 1968, it commanded 80% of the market share which increased to a 90% by the year 1976. However, the digital camera first came into the picture in the year 1975. Kodak’s main competitors such as Fujifilm, Nikon, Canon and Sony exploited the disruptive technology to their benefit much better than Kodak. As a result, Kodak’s market shares started dwindling at a rapid pace. This is shown by the downward sloping trend line. In a matter of 23 years Kodak’s market share plummeted from 90% to 27% by the year 1999, though it still remained the market leader. The first decade of the 21<sup>st</sup> century saw the total downfall of the company, as it kept on losing its market share to its competitors. Kodak was also displaced from its market leading position and it had slipped down to a rank of 7<sup>th</sup> by the year 2010. Finally, in 2012 the company had to file for bankruptcy protection.

**B) Kodak’s gross profits and net sales over the years**

The downfall in Kodak’s supremacy can also be seen from a consistent decline in its gross profit and net sales over the years. Kodak’s profits and net sales have declined continuously until 2012.

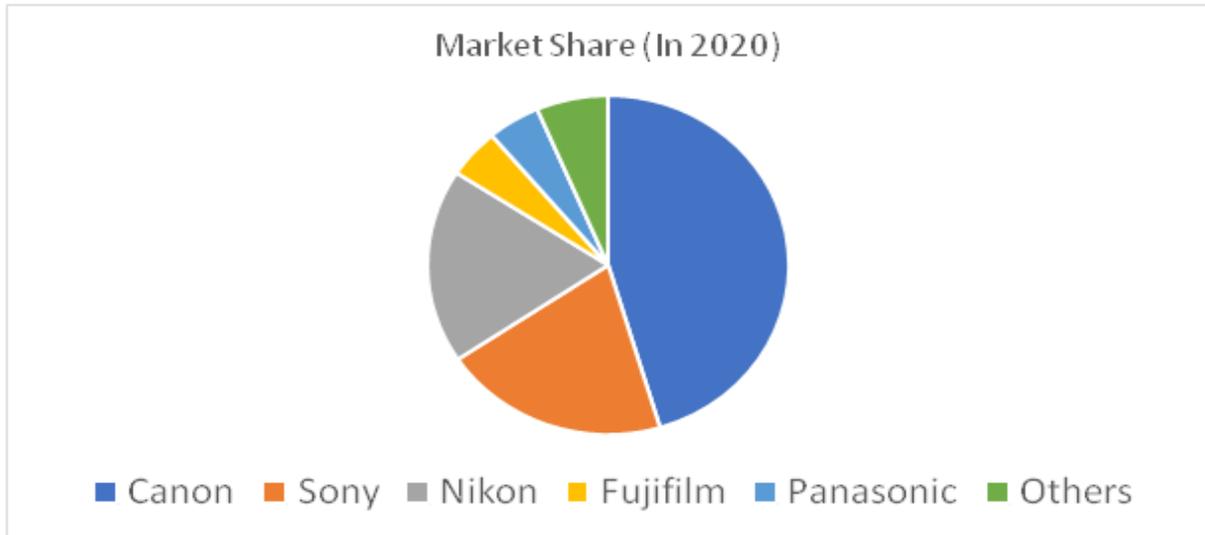
Years	gross profit(in million \$)	Net Sales(in million \$)
1992	8527	16545
1996	7642	15968
2000	5619	14089
2004	3935	13517
2008	2169	9416
2012	591	4114

Source – (Roychowdhury, 2019).

**C) Market shares of current market leading firms in the digital camera industry**

Company	Market Share (In 2020)
Canon	45.4%
Sony	20.2%
Nikon	18.6%
Fujifilm	4.7%
Panasonic	4.7%
Others	6.4%

Source – (Vailshery, 2021).

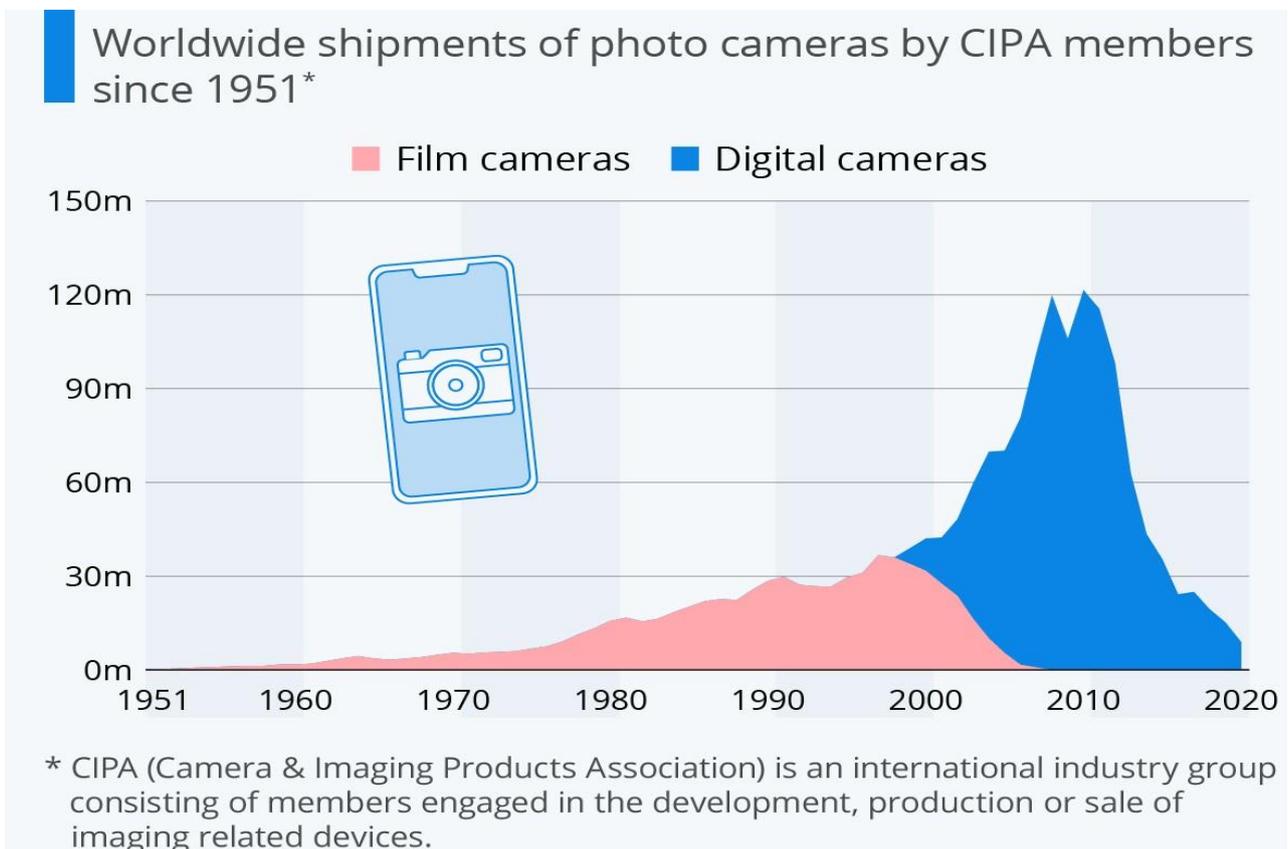


As shown in the table and the pie chart, Kodak’s principal competitors have captured the entire digital camera industry. Kodak’s dwindling market share was subsequently captured by its mainly Japanese rivals. Today, all the leading camera manufacturers in the world are Japanese. Canon is the most dominant company in the industry followed by Sony, Nikon, Fujifilm and Panasonic.

The rise of digital photography has truly been a disruptive innovation. As seen from the above numerical analysis the established firm in the market (Kodak) failed to capitalize on the disruptive technology of digital photography. Digital photography created a new market which was exploited by Kodak’s competitors. The competing firms have displaced Kodak to become market leaders themselves.

**D) Challenge created by the emergence of smartphone photography**

However, the road is not easy for current market leaders in the digital camera industry. Current industry leaders such as Canon, Nikon, Sony, Fujifilm etc. face a huge challenge from another disruptive innovation of smartphone photography. This challenge is can be illustrated as with the help of following graph.



\* CIPA (Camera & Imaging Products Association) is an international industry group consisting of members engaged in the development, production or sale of imaging related devices.

Source – (Richter, 2021).

CIPA is an international group of camera manufacturing companies. Most of the world's leading camera companies are a part of CIPA. The blue region of the graph shows that digital camera shipments have dropped down drastically from their peak around 120 million in 2010 to less than 30 million by 2020. The main reason for this decline is the emergence of smartphone photography. Smartphone photography has helped smartphone manufacturers to gain a foothold in the camera industry as well.

### CONCLUSIONS

Camera industry is one of the best examples of successive disruptive innovation. Kodak dominated the industry for almost a century in the era of chemical photography. The disruptive technology of digital photography was better utilised by new market entrants such as Fujifilm, Canon, Nikon and Sony. These companies became market leaders by capturing Kodak's market share in the subsequent years. Smartphone photography is a very recent disruptive technology. It has produced a huge challenge for the current market leading firms in the digital camera industry. Hence, continuous disruptive innovation can be seen in the camera industry.

As seen in the case of camera industry, disruptive innovations can shake up entire industries. Understanding the process and implications of disruptive innovation is extremely important for all the stakeholders involved in the various industries. It implies that, the established market leading firms simply cannot relax at any time. Established companies should always give proper attention to disruptive technologies in their respective industries. However, it also shows us that disruptive technologies/innovations also present a great opportunity for new market entrants to compete with the vastly resourceful giants of the various industries. It implies that, new entrants and start-ups should focus their attention on exploiting disruptive technologies. Disruptive innovations are extremely powerful and they can have long-lasting impacts on the economy and society at large.

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**ROLE OF GOLD & SILVER NANOPARTICLES IN COSMETICS**

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**Ms. Sulochana B. Parkar and Ms. Yojana P. Kadam**

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**ABSTRACT**

*In Cosmetic products, nanomaterials refer to an insoluble or bio-persistent and intentionally manufactured material. A nanomaterial has one or more external dimensions, or an internal structure, on the scale from 1 to 100 nm. Due to the ability to generate the materials in a particular way to play a specific role, the use of nanomaterials has been widely used in the cosmetics industry. The application of nanotechnology & nanomaterials can be found in many cosmetic products including moisturizers, haircare, makeup products & sunscreens. Gold & Silver are the two most popular ingredients in the cosmetic industry & in their nanoparticle size they have been proven to be more effective & beneficial. Gold & Silver nanoparticles, are the potent & broad spectrum, anti-microbial, anti-ageing, anti-inflammatory agents.*

*Keywords: cosmetics, nanomaterials, bio-persistent, nanotechnology, gold, silver.*

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**INTRODUCTION:**

Nanomaterials refer to an insoluble or bio-persistent & intentionally manufactured raw material. A Nanomaterial has 1 or more external dimensions or an internal structure, ranging on the scale of 1 to 100 nm. Due to the ability to generate the materials in a particular way to play a specific role; the use of nanomaterials has been widely used in the cosmetic industry. The application of nanotechnology & nanomaterials can be found in many cosmetic products including moisturizers, makeup products, hair care, sunblock etc. Gold & Silver are the two more popular ingredients in the cosmetic industry & in their nanoparticles size they have been proven to be more effective & beneficial. Gold & Silver are potent, broad spectrum, anti-microbial agents, anti-ageing, & anti-inflammatory agents. At first when gold & silver was used in their micro or macro particle size the results obtained were not very effective & satisfactory. So in 1970 L'Oréal developed their first Niosomes (niosomes also called as non-ionic surfactant vesicles are microscopic lamellar structures formed on admixture of non-ionic surfactant of the alkyl of di-alkyl polyglycerol ether class and cholesterol with subsequent hydration in aqueous media) and then in 1986 Lancome & Dior simultaneously launched the first nanotech based cosmetics under name Niosome & Capture. In their nanoparticle size they increase the dermal penetration of the active ingredient incorporated, Drug delivery is controlled, it also enhances the physical stability of the cosmetic product increasing the moisturizing power and by providing better UV protection. A lot of research is going on nanotechnology & nanoparticles; but it is still not an everyday term and very less real-life applications are seen. Of all the metal ions used in cosmetics in their nanoparticles size Gold & Silver are used the most.

**JUSTIFICATION:**

Nanomaterial based cosmetics show some unique advantages compared to the cosmetics having ingredients in their micro or macro particle size. Gold & Silver are elementary precious metals & are more promising due to unique characteristics and their wide applications. Various applications of Gold & Silver nanoparticles are that they are utilized in anti-tumor, gene delivery, Cancer therapy, drug delivery, catalytic reactions enhancing analytical performances. The nanoparticles act trans-dermally penetrating the epidermal barrier, i.e. nanoparticles penetrate the barrier layers of the horny skin, dissolving immediately due to their composition. The barrier layers temporary fluidize during this process and the encapsulated active ingredients are released and can penetrate through the skin barrier.

**SOURCES:**

Both primary & secondary sources of data were used in collecting the required knowledge.

Cosmetic products containing silver & Gold nanoparticles were studied. The following products were studied:

1. Cosil Whitening Mask
2. Nano Cyclic Silver Cleanser
3. O3+ Gel Cream
4. Lancome Renergie Night Cream
5. Fem Gold Bleach
6. Orogold 24k Nano Collection

O3+ Gel Cream & Fem Gold bleach were tried on samples and other products were studied with the help of the data available on the online platform.

Also research papers on nanoparticles, reviews of the cosmetic products containing gold & silver nanoparticles were also studied.



Significant Findings: According to the findings, many positive reviews were obtained:

**Brenna H.**  
Bedford, OH  
I have struggled with mild acne all my teenage years. My acne would get really bad if I was stressed out, and when my mom passed away my face became horrifying. Using cyclic has improved my skin majorly, my face is now clearer than it has ever been and even when I become stressed my face doesn't break out how it always used to. I get many comments about my skin now and how it is always glowing. I call cyclic my miracle bar, because really it works miracle. I couldn't live without this little "miracle" bar!! I absolutely LOVE IT!!!!

**Hedie N.**  
I am amazed with this product! I have been struggling with acne for over 8 years. Needless to say it was having an effect on my self esteem. I tried everything- chemical peels, injections, prescription pills, topical creams and nothing worked. I had come to the realization that I would have to live with my acne then I discovered nano cyclic silver and my skin has drastically changed! It has only been a few weeks and the difference is like a dream that I've had for the past 8 years; only this time its real!

**Caedie C.**  
St. Albert, Alberta, Canada  
Thank you for the product, the silver is absolutely fantastic! I haven't tried the pink but would recommend the silver to all my friends and family. Thank You!

**Linda K.**  
Fairfield, NJ  
The first day I used it, I noticed a difference, my skin looked like it does after I get a facial, my pores clear, that is my favorite benefit the product offer.

**Samantha C.**  
New York, NY  
I have had acne my whole life. I have had smooth beam laser, chemical peels, microdermabrasion, pro-active. I've tried everything and spent so much money. None of these things worked and was a waste. I also have scars on my face. The cyclic pink cleared up my acne and improved my scars. AMAZING!

**Carol A.**  
Yorba Linda, CA  
I used cyclic pink on my face and on my psoriasis and it did wonders. Not only did my pores tighten on my face, but my psoriasis has cleared up. I'm going to try it on my hair next. Love it!

## Final Thoughts

I will highly recommend this fem gold bleach cream if your skin is sensitive as this comes with a pre-bleach cream which protects the sensitive skin. This adds glow on the skin and skin appears so much softer. Some sebum and dirt that accumulates on the face. This fem gold bleach also removes that. Now, what else one can ask for. Right girls?

This was the Fem Gold bleach cream review. How did you like it? Have you tried this yet?

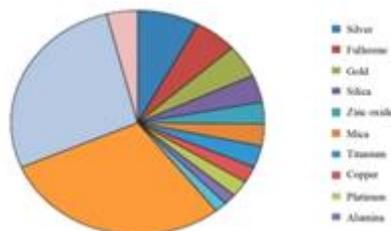
From the above reviews, it is seen that products containing gold & silver nanoparticles have been proven to be beneficial for their users. The products delivered their required aesthetic feels and also helped with the concerns. Also In Europe, under Cosmetic Regulations Law, the testing of Nanomaterials on animals and livestock is prohibited and alternated methods such as Ex-vivo & In-vitro are used. One important thing that came to knowledge was that the toxicity of Gold & Silver Nanoparticles depends on the size of the material. The Effect of AuNPs shows that the smaller the AuNP the higher the probability of it to cause toxicity as well as bind easily on cellular surfaces.

## CONCLUSION:

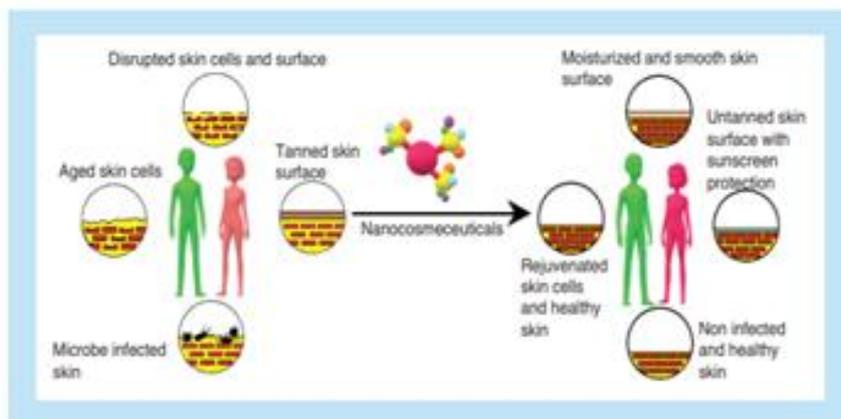
Nanotechnology is considered to be the most promising and revolutionizing field in today's world. By the increase in use of cosmeceuticals, the conventional delivery systems are being replaced by the novel delivery systems. The application of nanocarrier technology in functional cosmetics not only improves the stability and solubility of efficacy components but also overcomes the barrier effects of cuticles, which enables the active

cosmetic ingredients to enter the target site of the skin and realize the functions of the sustained release, controlled releases and long-term release, thus solving various skin problems & skin diseases.

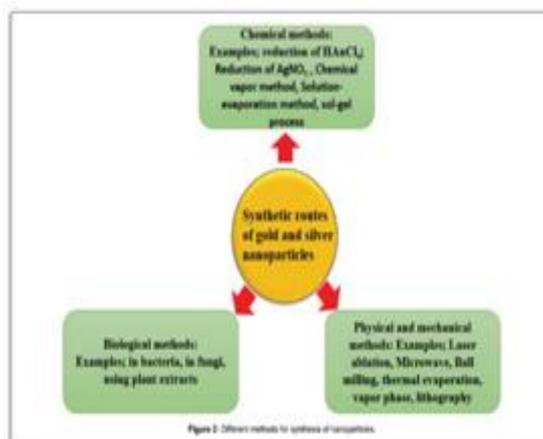
APPENDICES:



- From this it is seen that out of all the elements used in the cosmetic industry, silver is the most widely used elementary metal.



- On an average the normal human skin is tanned, has an uneven skin feel is disrupted and also ageing is seen on the skin, but on the use of nano-cosmeceuticals rejuvenated skin cells and healthy skin is observed, the disrupted skin surface becomes moisturized and smooth. Untanned skin surface is achieved with the benefit of sunscreen protection. Also the human skin is at a very risk of getting infected by microbes, but the use of silver nanoparticles in the formulations reduces the risk and a non-infected and healthy skin is achieved.



- Synthetic routes of obtaining Gold & Silver Nanoparticles:
  - In bacteria, in fungi, using plant extracts:** Sundried biomass of Cinnamomum camphora leaf with aqueous silver or gold precursors at ambient temperature is used to synthesis gold & silver nanoparticles. The leaf extract of Cymbopogon citratus (acts as a reducing & capping agent) was also used in the synthesis of gold nanoparticles. The extract from the fruit of Syzygium cumini was reported to synthesis the silver nanoparticles.
  - Physical & Mechanical methods :** Laser Ablation Method: is a method for fabricating various kinds of nanoparticles including semiconductive quantum dots, carbon nanotubes, nanowires, and core shell

nanoparticles. In this method, nanoparticles are generated by nucleation & growth of laser-vaporised species in a background gas. Ball milling: Ball milling is a method of production of nanomaterials. The mills are equipped with grinding media composed of wolfram carbide or steel. They rotate around a horizontal axis, partially filled with the material to be ground plus the grinding medium, the balls rotate with high energy inside a container and then fall on the solid with gravity force and kinetic and hence crush the solid into nanoparticles.

- c.) **Chemical Methods:** Sol-gel process: is a wet-chemical technique that uses either a chemical solution or colloidal particles to produce an integrated network. It is used as it is able to give uniform & small size particles. The sol-gel process is very cheap. And can be performed at low temperature that allows for the fine control on the product's chemical composition.

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**DISRUPTIVE STRATEGY: USE OF MOBILE-MEDITATION APP DURING COVID -19****Ms Reeta Kamble<sup>1</sup> and Dr. Parmeshwar Abhiman Puri<sup>2</sup>**<sup>1</sup>Assistant Professor, Psychology, V.G.Vaze College, Mulund<sup>2</sup>Assistant Professor, Psychology, Government College of Arts and Science, Aurangabad Maharashtra 431001**ABSTRACT**

*The coronavirus pandemic has led more to focus on the mental wellness, specifically, the mobile -meditation app to deal with the effects of pandemic. According to report from app store intelligence firm Sensor Tower, the world's 10 largest English-language mental wellness apps in April saw a combined 2 million more downloads during the month of April 2020 compared with January, reaching close to 10 million total downloads for the month. Studies of scientists from leading universities have shown the positive effect of meditations (even the simplest ones) on the human body. Besides, it's a great way to "release emotional issues", at least for a while. No wonder meditations are gaining popularity. meditation apps, are a novel method for improving health and behaviours. These apps may be a critical health promotion strategy during the COVID-19 pandemic. However, limited research has assessed whether meditation app health outcomes are associated the effect of pandemic.*

*The aim is to explore the use of mobile-mediation apps during the lockdown as a disruptive innovation to deal with the symptoms of lockdown. We further aimed to explore associations between the usage of mobile-meditation apps and perceived effects of COVID-19 on stress, mental health, and physical activity.*

*Keywords: Mobile-meditation apps, Covid-19, stress, mental health, mindfulness*

Meditation is an ancient practice that attracted many people during Covid-19 pandemic. The COVID-19 pandemic had a negative impact on public mental health as there were intense fear of getting infected and death, loneliness imposed by quarantine, there were disruptions in social interactions due to social distancing, financial distress (Zhou et al., 2020), and increased domestic responsibilities due to school closures (Lee, 2020). These increased societal fears, uncertainties, stress and anxiety levels, served as a catalyst for many people to download the mobile-meditation app during the pandemic. The digital technology has always enhanced the well-being and improved social connectedness through the improvement in social support and engagement in various activities. Thus, the dynamic mobile applications (apps) transformed traditional meditative processes into accessible courses at fingertips and many people used to deal with the negative consequences of the pandemic.

Pre-pandemic lifestyles have changed in number of ways as people stopped going into their offices, businesses were shuttered, and commuting to a halt, people shifting to be with family during challenging times, lack of space for home office, or being able to afford rents. People lost their independence as they shared their personal spaces and altered their routines to fit into the homes of their parents. Others who may not have experienced symptoms of anxiety prior to the pandemic felt anxious during quarantine, which made them increased usage of meditation apps to deal with all these changes during pandemic, which can be called as the disruptive strategy to deal with the COVID-19 pandemic.

Mobile health (mHealth), defined as "the use of mobile and wireless technologies" to support the achievement of health objectives (World Health Organization, 2017, p. 1), emerged as a viable option for nonemergency care and has gained momentum due to widespread forced adoption by health systems during the pandemic (Wang, X., Markert, C., & Sasangohar, F. 2021). The record numbers between 2010 and 2020, of meditation apps were released in the iOS and Android app stores, which was more than 1,500 meditation and mindfulness apps (McGroarty, 2019). One of the mobile-meditation apps, named Headspace, which was launched in 2010, ha thirty-five million users in 190 countries and earned \$56 million in revenue during 2019. Similarly, another mobile meditation app, Calm, founded in 2012, reports over twenty-six million users with fifty-thousand new signups each day, and an estimated \$92 million in revenue in 2019 (Williams, 2020). These strong growth figures illustrate the popularity and disruptive strategy to use meditation apps.

In the year 2020, the growth in users of meditation apps has not only continued but also has been intensified by the current Coronavirus pandemic. Meditation and mindfulness app downloads in the iOS app store reached a weekly record of 750,000 during the week of March 29th, a twenty-five percent increase from one-month prior (Lerman, 2020). The usage of mobile meditation app helped people to train themselves in mindfulness, which is the awareness that arises through paying attention on purpose, in the present moment without judgment (Ruth A. Baer. 2003). The practice of mindfulness gained through meditation has shown significant benefits for health and well-being, and especially for stress reduction and depression (NHS.UK. Mindfulness.)

Davidson et al. (2003) also reported the significant increases in antibody responses to influenza vaccine among subjects who participated in an eight-week meditation educational program compared to an impact group. Grepmaier et al. (2007) found that psychotherapists who practiced Zen meditation had significantly higher therapeutic evaluations. Shapiro et al. (2005) supported the efficacy of an eight-week meditation program in reducing stress and increasing self-compassion among healthcare professionals. Morris et al. (2010) note that mobile apps can also deliver psychotherapy and psychological state interventions during a non-stigmatizing fashion to people that won't otherwise have accessed the therapy. Mindfulness meditation also has an impact on pre-sleep arousal by helping individuals in disengaging from daily worries and reducing rumination and inspiring a greater state of physical relaxation (Garland, S. N., Zhou, E. S., Gonzalez, B. D., & Rodriguez, N. 2016).

The recent development of mobile applications (apps) for smartphones presents a promising opportunity to beat variety of the barriers related to typical mindfulness meditation training (Cavanagh et al. 2014; Mani et al. 2015; Plaza et al. 2013). For example, mindfulness meditation delivered via a mobile meditation app allows an experienced instructor to deliver top quality guided meditation training to much more people than face-to-face training can practically allow (Cavanagh et al. 2014). Further, the portable nature of the mobile can reduce geographical, social and financial barriers to access (Cavanagh et al. 2014). According to Kazdin and Rabitt (2013) the mobile apps have the potential for fulfilment due to their reach, scalability, affordability, and adaptability.

Smartphone ownership is also increasing rapidly. In 2016, 77% of Americans owned a smartphone, up from just 35% in 2011 (Smith 2017). Thus, mobile apps have overcome barriers to introducing mindfulness meditation practice to a wide range of people. Although there are many mindfulness meditation apps available with collectively many downloads, there's a comparatively high employee turnover for mindfulness meditation apps in app stores (Larsen et al. 2016; also see Bakker et al. 2016 on Donker et al. 2013). Given that mindfulness meditation practice is increasingly utilized in psychological state care settings (Brody et al. 2017).

In the previous decade there was an increased use of the internet, which has become more than a simple information and communication tool (Oh E, Jorm AF, Wright 2009). With increasing access to novel information and communication technologies in developed countries, a growing number of users resort to the web for information on, and support for, (Alvarez-Jimenez M, et al. 2017) psychological wellbeing which was one of the resources during pandemic. The rapid development is often easily understood within the context of the many advantages, like accessibility, low stigma, and price effectiveness (Firth J, et al. 2017)

Krusche et al. (2012, 2013) used a web-based intervention aimed toward reducing stress in students. Cavanagh et al. (2013) used a web-based intervention aimed toward reducing stress and increasing mindfulness in university students. Previous research has linked mindfulness with increases in adaptive stress responses and coping resources (Weinstein et al. 2009). Given that the transition to school life are often tumultuous (Fisher and Hood 1987) and young adults are heavily reliant on their mobile phones (Oliver et al., 2005; Smith, 2017), mobile mindfulness may present a promising tool to enhance adjustment to the online school, build resilience, and enhance the power to deal with stressors among the college students. The mobile meditation apps are attractive with younger population since they often associate and express their identity with mobile devices (Longo & Saxena, 2020). Studies conducted with adolescents suggest that they find mobile phone delivery format relevant, familiar, and accessible (Chan et al., 2017; Matthews & Doherty, 2011).

Further, when a health app is prescribed by a health provider (e.g. doctor, counsellor), 30-day retention rates typically increase by 10–30% (Aitken and Lyle 2015). Nevertheless, mobile mindfulness apps could have potential as an adjunct-to-treatment or may function an appropriate homework component in therapy to facilitate the treatment of patients (Kladnitski et al. 2018; Price et al. 2014) with anxiety and depressive symptoms. Wahbeh et al. (2014) examined preferences for the delivery of mindfulness meditation training and reported nearly half of all participants preferred the Internet format as their first choice, for reasons including convenience, privacy, and scheduling flexibility.

Mobile apps allowed individuals to access brief mindfulness exercises at any time, for free of charge or low cost, and without the necessity of a trained provider which was more useful during lockdown. Further, mobile apps with embedded mindfulness components can reinforce sustained practice which is vital for dealing with consequences of covid-19 pandemic. Although mobile apps can deliver meditation across a broad range of health conditions (Mani M, et.al 2015 & Flett JAM, et.al, 2016).

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**CONCLUSION**

The main aim of the research paper was investigating and illustrating empirical information derived from monitoring and measuring usage and its effects of mobile meditation app meditation as a disruptive strategy to deal with the COVID-19 pandemic. Further investigation is needed to explore factors that influence adherence and access to mobile meditation app, with a particular focus on diverse populations.

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**E LEARNING: DIGITALIZATION OF PEDAGOGY IN EDUCATION SYSTEM**

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**ABSTRACT**

*Digital Learning is the concept of teaching and learning outside the traditional settings. It's often used to simply mean online or online courses, but is also the process of changing the methods used for teaching and learning. There is little doubt in the field of education that digital tools will continue to play an important role in teaching and learning. Arguably, this has only begun to scratch the surface in terms of what can be accomplish through leveraging digital tools and technology. There is substantial evidence that supports the benefits of digital learning over traditional classroom settings. Students participating in virtual courses have higher engagement and greater retention than those that do not. Digital Learning has been used to benefit students with their digital literacy skills and students who don't require high levels of verbal comprehension. Digital Learning is now spreading across many colleges and universities throughout the country with many now offering these courses as their main mode of education. It is estimated that digital learning will grow in India from the current \$117 billion to \$225 billion by 2025. EdTech companies like BYJUS and UPGrad are large players in this growing market valuation of over \$2 billion. Digital learning has changed the society and is undoubtedly going to change the future for better or worse. But, as new technologies continue to lead onto a new "digital frontier," also saw the rise of new set of challenges. Technology is changing rapidly with new technologies emerging regularly in the market. The use of new technology increases rapidly with each generation, but learners are ill equipped to prepare themselves. The current education system is struggling to keep up with changing technology. Increased student access only exacerbates the problem by creating an information overload where digital tools are easily made inaccessible to students with less access due to financial status or geographic location. This paper discusses the framework of digital learning, its impact and pedagogical challenges faced as the education industry transitions to a digital age.*

*Key words: e-learning, digital learning, pedagogy, transition to the digital, impact of e-learning, pedagogical challenges, EdTech.*

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**INTRODUCTION**

E-learning refers to the teaching method that is done electronically through computer networks (specifically, via the Internet). The components of e-learning include content delivery in multiple formats, management of teaching learning methodology, experience and a network of communities of teachers, students and management.

E-learning is an emerging disruptive innovation that has the potential to fundamentally transform education by bringing about rapid and disruptive change and introducing new and different ways of teaching and learning

The increase in Edu-tech apps and onset of Covid 19 pandemic, the education Industry has undergone a massive transition which has dramatically impacted this sector. This shift is promising for many reasons, including the increase in autonomy and personalization of education. The advantages of e learning include the ability to reach a wider audience that is flexible and convenient way to study.

Though with a disruptive innovation, stems a new set of challenges in terms of quality control and content design. Another challenge for online courses is that they are difficult to create, review, and analyse.

**STATEMENT OF PROBLEM**

“The transition from traditional campus-based education to robust, computer-based learning has an irreversible impact on the education industry moving forward and has brought up a new set of challenges.”

The shift to digital learning is rapidly accelerating. With the growing impact of online courses, more students are turning to alternatives that are more affordable, convenient, and time efficient. The valuation of E-learning industry is estimated to grow from \$117 billion to \$225 by 2025, in India. This transition is further accelerated by the Covid-19 pandemic, forcing schools and colleges across the country to adapt to the digital regime. However, with these advantages comes new challenges.

1. While the demand for online courses is increasing, the supply doesn't meet the demand. Online courses are hard to predict or predict long term.

2. Online courses are growing rapidly but they don't have standard that can be tracked and analysed. No one knows how many students have been enrolled in an online course or at what period of time, this makes it difficult to assess the growth rate of online courses.
3. The growth rate of online courses is higher than any other education channel. The MOOCs focus on the social networking aspect and not on content which poses a challenge to the traditional education system.
4. With the increasing number of students taking online courses, it becomes difficult to create high quality content since there is no manpower to compensate for it.

The rise of these new issues requires new and unique solutions. This paper will investigate the perspectives of students regarding the framework and pedagogical challenges faced by them in the Mumbai MMR region. The data gathered might help to find out and suggest solutions to solve these challenges.

### RESEARCH OBJECTIVES

1. To evaluate the framework of E-learning
2. To prognosticate the improvements and growth structure of digital education in the future
3. To examine the impact of e-learning on the education industry
4. To identify the pedagogical challenges faced with rise of e-learning

### LIMITATIONS OF STUDY

The study is confined to 16-25 years old. The region of study is confined Mumbai MMR region. This region was aptly selected for its exposure to e-learning and edu-tech platforms. The study mainly focused on Students pursuing Graduation level or post-graduation level studies keeping in mind the difficulties and challenges faced by them. The sample size selected was appropriate so as to analyze the data and make proper interpretation from the collected data.

### RESEARCH METHODOLOGY

The present study employs both primary and secondary research to explore the topic from a holistic perspective. Out of the 7 research types, Survey method was used in order to explore the subject comprehensively. As the paper seeks to understand the behaviour of Students, it is a behavioural research study.

The Primary set of data was obtained from respondents from a age group of 16 to 25 years of age in Mumbai MMR region. A set of 11 questions were framed and asked to the students of across different streams and colleges to effectively find out the effectivity of E-learning. The sample size was of 75 respondents. The segregation of respondents of the sample is presented below.

Nature of respondent	No. of respondents			
	Graduation course	Professional course	Post-Graduation	Other
Male	13	10	11	5
Female	22	6	7	1

The secondary data for the paper was collected from newspaper reports, academic papers, syndicated research reports by various agencies, as well as reports by Ministry of Education.

### ANALYSIS AND INTERPRETATION OF DATA

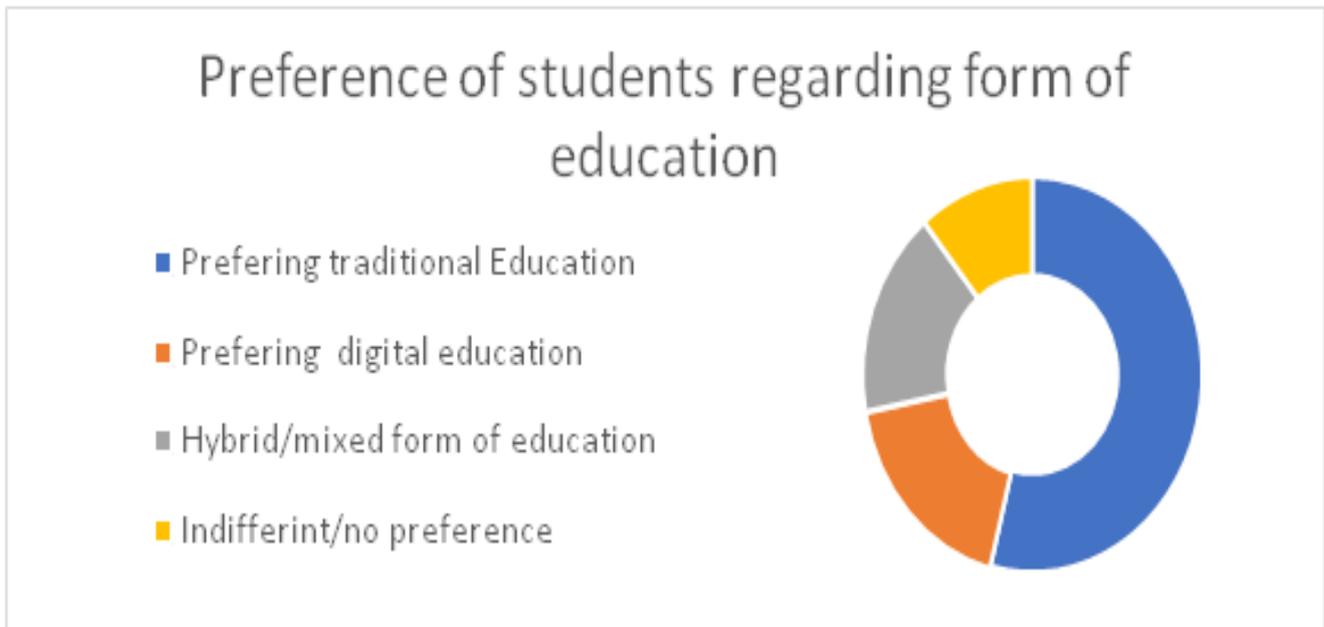
The Study found out that although 83% of the respondents were aware of E-Learning facilities pre-pandemic but 70% of them didn't avail the system. Most of them, that is 58%, didn't felt included in classroom.

A robust and dynamic change is required in teaching-learning methodology so that the students adopt to the new changing environment. Some of the respondent's suggestions were as follows:

- Use of Cameras and microphones by everyone.
- Constant need of interaction by Teachers and students.
- Breaking the class into smaller segments for group activities.
- Use of Quizzes and Small tests

For practical subjects which requires the use of various laboratories E-learning fails to match the requirements. Programming, Designing, & many similar laboratories are so much effective in E-learning mode provided the

student is equipped with proper system. This is because final application or product can be tested as well as used on their own system. But due to ineffectiveness and restrictions of IT infrastructure, it is not possible. Chemistry, Physics, Biology, Electronics, Electrical, and many similar laboratories have lost effectiveness due to E-learning. This is because final application or product can only be simulated and cannot be used.



If the Current Pedagogy is followed, 84.4% of the respondents are unwilling to continue with E-Learning. Most of the respondents face difficulties while accessing exams in digital mode. Poor digital infrastructure, Lack of awareness, high chances of using immoral means to appear in exams, were some of the issues faced by both the students and administrator.

As the area of study was Mumbai MMR region which is one of the most urbanized areas in the country, most of the respondents use personal mobile devices rather than shared devices. But the percentage of using Mobile handheld devices is significantly large than using Laptops or computer devices.

From the survey administered, it was interpreted that there are some advantages as well as some disadvantages of e-learning method. Some of the advantages of e-learning are:

- Higher accessibility
- Flexibility
- Cost effectiveness
- Scalability
- Consistency

While some of the disadvantages of e-learning platforms are:

- High screentime lowers physical ability of students
- Feeling of left out
- Poor infrastructure
- Difficulty in staying motivated
- Lack of actual interaction between students and teacher

As per the report by KPMG and Google research paper 2017, the market size of e-learning business is \$ 117 billion in 2021 and is projected to reach up to \$ 370 billion in 2026 in India with an annual CAGR of 8.56%.



The growth of Internet infrastructure and with an advent of Covid-19 pandemic, it has led to huge growth trajectory for e-learning.

### CONCLUSION

As the research study suggests, there was a multi-fold increase in the use of E-Learning platforms post-pandemic due to various constraints. Even though the study has been confined to 16-25 years old students in Mumbai MMR region, it can be concluded that there is a dire need of robust and positive change in teaching-learning methodology and curriculum designing at large. E-learning allows people and organisations to keep up with the rapid and robust global changes all across the globe and bringing the teacher and learner from a different part of the world to a small digital classroom with the help of internet.

With a view to collect data on the opinion of the students about various aspects of E-Learning, difficulties faced by students, along with practical suggestions from the respondent's questionnaire was developed and administered on 75 students.

There are immense growth opportunities in the E-learning sector and with the advent of rising growth of EdTech startups like Byjus, Unacademy, Vedantu, etc. an unvisited market segment is starting to rise in India. With the help of Augmented reality (AR), cost effectiveness, flexibility and 24\*7 availability, digital education is bound to have a dynamic and robust change in the coming future. E-Learning is changing the way the education system in India works. It is changing students' approach to look at various subjects and their actual use in real life.

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**EYE BLINK DETECTION IN CAR USING PYTHON****Snehal Saurabh Rane**Assistant Professor, Information Technology, Adarsh Vikas Mandal's Karmaveer Bhaurao Patil Degree College, Thane

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**ABSTRACT**

*Security is very important in all perspectives. While travelling, the security of passengers highly depends on their driver's ability. Many times because of driver's mistake, major accidents happen but we can provide the solution on this by providing face detection and eye detection on driver's face.*

*During a long drive, the driver might feel sleepy. If his eyes are closed for long duration, a buzzer will be activated to make the driver alert and a major accident can be averted. This can be implemented easily using Face recognition & Eye detection technique. We can detect driver's eye moments and check whether they are open or closed. If it is closed for more than 30 seconds, then some alert will be given to the driver in the form of buzzer. Artificial Intelligence (AI) is used to create such applications.*

*Python's simple and clean structure, modular design, and extensive libraries make it a perfect solution for creating security applications. Different difficult algorithms can be easily converted in python programming language. Python is used widely in Artificial Intelligence & Machine learning. Its wide range of libraries make it easy to create such difficult applications.*

*Keywords: Face Recognition, Eye Detection, Python, Artificial Intelligence (AI).*

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**INTRODUCTION**

Travelling and exploring new places is a very interesting thing humans do, but while travelling on the road some precaution need to be taken. It is observed that mostly accidents happens because of drivers' mistakes. During a long drive, the driver of the vehicle might get sleepy, and close his/her eyes and due to this, major accidents might happen.

We can detect driver's eye moments and check whether they are open or closed. If they are closed for more than 30 seconds, driver will get some alert in form of buzzer using latest technology like face detection, eyes detection and eye blink. Artificial Intelligence (AI) is used to create such techniques. Driver drowsiness detection, eye blink locks, eye detection, face detection can be achieved easily using the haar cascades usage with the OpenCV library.

**Haar Cascades:**

It is an Object Detection Algorithm which identifies faces in an image or a real time video. The algorithm uses edge or line detection features proposed by Viola and Jones. They had published their research paper "Rapid Object Detection using a Boosted Cascade of Simple Features" in 2001. We generally provide the algorithm with hundreds of positive images consisting of faces, and hundreds of negative images not consisting of any face as input to train on them. The OpenCV GitHub repository [https:// github.com/opencv/opencv/tree/master/data/haarcascades](https://github.com/opencv/opencv/tree/master/data/haarcascades) contains the model created from the training mentioned above.

The models are stored in the repository as XML files. They can be read with the OpenCV library methods. Models for detection of face, eye, upper body and lower body, license plate etc. are included in the above repository.

**ALGORITHMS**

An algorithm is a set of instructions for how to solve a problem. It is a set of rules that governs a process and provides step by step instructions for performing that process. They appear in mathematics, computer science, and data structures as well as in data processing, and automated reasoning. They're the heart of AI, ML, computer science and a source of deep intellectual inquiry. Nanotechnology can be processed and the universe can be examined on a massive scale with the help of different algorithms. Analysis of algorithms helps you re-examine long-standing beliefs about the universe and its structure.

**Python Implementation**

The challenge is to implement AI & ML algorithms with higher security to preserve data integrity. IT professionals must efficiently write applications and scripts. The Python language provides unmatched ease, flexibility, and functionality for both new and proficient coders.

Python code follows and supports multiple programming paradigms including imperative, functional, procedural and object-oriented. Nowadays, the number of corporate giants including Microsoft, Google, Red Hat, IBM, Amazon, and many others are using Python language for various high-performance computing applications. Python is a free and open source, and provides the implementations and interfaces for many other languages and platforms.

Python programming works with the IDE platform on which coding can be done.

Python implementation	Supporting platform and language
IronPython	.NET Framework
CPython	C
Jython	Java
MicroPython	Microcontrollers
PyPy	Just-In-Time Compiler

Figure 1

Any IDE can be included to write, debug and execute the code by IDE based programming with Python. In the figure below, is a list of Python IDEs where a graphical user interface is provided for easy programming:

IDLE	IntelliJ IDEA
Koding	Anjuta
Eric	Geany
Komodo IDE	Ninja-IDE
PIDA	KDevelop
MonoDevelop	PyCharm
Spyder	PyDev
PyScripter	SourceLair
Stani's Python Editor	Python Tools for Visual Studio
PythonAnywhere	Pyzo
Understand	Thonny

Figure 2

**CONCLUSION**

Using latest techniques like face detection, eyes detection and eye blink, driver drowsiness detection, eye blink locks we can decrease the number of accidents. This can be achieved easily using the Haar Cascade Detection with the OpenCV library which is easily available in python programming language.

Haar Cascade Detection is one of the oldest and powerful face detection algorithms invented. It has been there since very long time before Deep Learning became famous. Haar Features were used to detect faces and also for detecting eyes, lips, license number plates etc. Python’s open source and wide range of library help to implement difficult algorithm very easily. The models are stored on GitHub, and they can be accessed with OpenCV library methods.

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**RESEARCH PAPER ON RELIANCE JIO INFOCOMM LTD.**

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**Shriniwas Shrikant Bhawe**

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**ABSTRACTS**

*This research paper is the detailed study of past, present, and future of Reliance Jio Infocomm Ltd. which is owned by an Indian conglomerate Reliance Industries Ltd. Reliance Jio entered the market with a mind blowing market penetration strategy of providing unlimited free voice calls, high speed data and roaming for 6 months. This was the event when the whole telecom sector was under panic. Earlier in India with the population of 130 crores had a mobile connections of 105 crores out of which only 10-20 % people availing the mobile data services. So Reliance Jio focused on the unsaturated market i.e Mobile Data. Reliance Jio kept voice calls as a complementary services and mainly focused on the high speed 4g data. Reliance Jio analyzed the need of the customers and was launched commercially on 5<sup>th</sup> September 2016.*

*Therefore here we are going to study the various strategies applied by the management like Gun and Bullet Strategy, Growth Hacking Strategy. We are also going to analyse the condition of the whole telecom sector of India before and after the entry of Reliance Jio in the market. My research findings indicate that the customer experience of Jio is very satisfying still it requires some improvement in some zones in India. The result obtained talks about the potential of the industry as well as the strategies the other players should apply for the market retention.*

*Keywords- Jio strategy, Reliance Jio story, Effects of Jio on telecomm Industry, Reliance Jio Analysis*

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**INTRODUCTION**

The Reliance Jio Infocomm Ltd. is a Telecom Service Provider owned by an Indian Conglomerate Reliance Industries Ltd lead by the Chairman Mr. Mukesh Ambani. Reliance Jio has revolutionised the whole telecom sector in India with it's Optic Fibre Cable Technology. Reliance Jio operates LTE(Long Term Evolution) in the whole country which helps it to connect the voice calls. Reliance Jio is the only company to own 4G spectrum in the all 22circles across the country. Reliance Jio was successful in acquiring 100 million users within just 170 days of launch.This was the impact of the Free Unlimited Voice Calls and High speed Data services. In four years India climbed up to No. 1 from 155<sup>th</sup> in Mobile Data Consumption.

According to the statistics it has been observed that monthly data consumptions of India are nearly 30 times of the pre-Jio levels. In India approximately 6 exabytes of data is consumed monthly. If we try convert it into Gigabytes then the figure will be around 6000,000,000 GB/month. Before Jio in India there were selected people availing internet services but Jio allowed the poorest person in this country to experience the High speed Data. Reliance Jio owns 4G spectrums of 800Mhz,1800Mhz, and 2300Mhz in the country.

Now let us understand What is spectrum ? Spectrum refers to the invisible radio frequencies that wireless signals travel over. Those signals are what enable us to make calls from our mobile devices, tag our friends on Instagram, call an Uber, pull up directions to a destination, and do everything on our mobile devices. The frequencies we use for wireless are only a portion of what is called the electromagnetic spectrum.The government auctions the spectrum for various generations like 2G,3G and 4G .The ownership of the spectrums gives the Telecom operator an exclusive right to operate on these spectrums and interchange their network from one device to another.The more the spectrum ownership of Telecom operator the more will be the access of the Telecom operator for interchanging networks.

Reliance Industries has invested approximately 60,000 cores as the Spectrum Charges and 2.5 Lakh Crores Rupees for building the whole infrastructure of Optic Fibrer Cable through the gateway of Bay of Bengal. And with this huge clout Reliance Jio entered the telecom market commercially on 5<sup>th</sup> September 2016.

**HISTORY**

Reliance Jio infocomm Limited was incorporated on 15<sup>th</sup> September 2007 in Ambawadi Ahmedabad Gujarat. Further on June 2010 Reliance Jio infocomm limited bought 95% of stakes in Infotel broadband services Limited (IBSL) for nearly 4800 crores .Although it was a unlisted company Infotel broadband services Limited(IBSL) was the only company in India to own the 4G spectrum for broadband services in all 22 circles in the country. Later in January 2013 the same info till broadband services Limited was renamed as a Reliance Jio infocomm Limited (RJIL).

**Non – Compete Pact :-**

Non compete pact is an agreement in which both the parties agrees to not to enter in a similar business or a profession. In Non-Compete Act both the parties agrees to not to do competition in the similar business to each other.

Ambani brothers were in the non-compete pact since the death of Mr. Dhirubhai Ambani the Founder of Reliance Industries. After the company was split between the two brothers they were in the non-compete pact which was the main hurdle in front of Mr.Mukesh Ambani for the launch of Jio. In 2010 both the brothers officially scrapped the non-compete pact and now the way was cleared for Jio for its massive entry in the market . After the success of Jio Reliance Communication Industries owned by Anil Ambani Ambani decided to focus on its real estate business.

The Reliance Jio also paved the block for the first collaboration between Mr.Mukesh Ambani and Mr.Anil Ambani for the use of RCom’s Optical Fibre Cable for the launch of Jio.

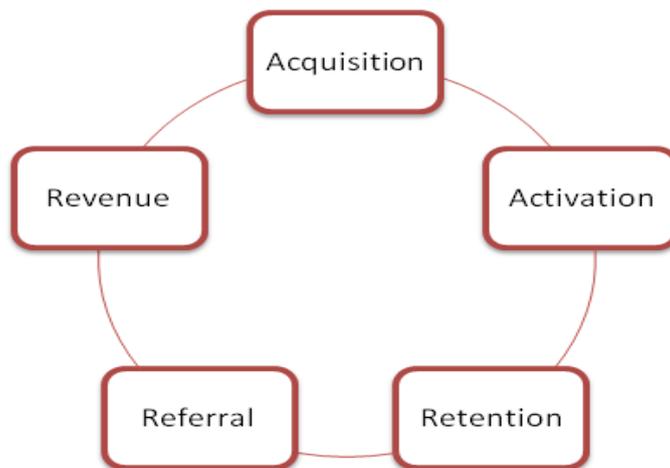
**TECHNOLOGY**

Optic fibre cable Technology gives us a very high speed data service because the optic fibre converts the network into the light and transmits the data at the speed of light which gives the experience of the very high speed data. The Reliance Jio Infocomm Limited uses the long term evolution( LTE) which is responsible for high definition voice calls(VoLTE) and high speed internet services. The Optic Fibre Cable network has been laid down in the whole country through the gateway of Bay of Bengal. Reliance Jio is deploying the world's largest submarine cable system which includes 2 next generation cables for the future. These 2 cable projects India Asia Xpress (IAX) and India Europe Xpress(IEX) will connect India to Singapore and India to the Middle East and Europe respectively . It will increase the connectivity from Mumbai and Chennai to Thailand ,Malaysia and Singapore as well as Middle East and North Africa .These two cable systems will be connected with the Reliance jio Global fibre network beyond asia-pacific and Europe.

**STRATEGIES**

**Growth Hacking Strategy :-**

The Growth Hacking Strategy algorithm is based on 5 steps



**Acquisition-** Acquisition talks about acquiring the customers from the existing market players.

**Activation** - When a customer decides to buy your product it is called as activation it will be the main stage when the customer will actually start using your product.

**Retention** – The high speed data service and best in class services will retain the consumers in the business.

**Referral** – When the customer turns into promoter it is said to be Referral. It helps the company to acquire the consumers from other market players.

**Revenue** – Jio didn’t focused on the revenue at first, it made the people of India habitual to the use of high speed data. It made the consumer behavior analysis and concentrated on the need of the customer.

**Gun and Bullet Strategy –**

Reliance Jio started giving the free 4G sim cards to the consumers. Earlier in India there were very less people using the 4G enabled smartphones. The greed of using free unlimited data forced the customers to buy 4G

enabled smartphones. Now people were having the 4G sims, access to free unlimited 4G data but were not having 4G enabled smartphones.

Therefore LYF smartphones was founded by Mr. Mukesh Ambani .LYF is an Indian brand that produces Smartphones, laptops and consumer electronics goods. It manufactures the 4G enabled smart phones which runs on Android . It is a fully owned subsidiary company of JIO which was established in 2015 .Mr. Mukesh Ambani was aware of the fact that very less people in India can afford expensive 4G enabled smartphones and therefore LYF was established

Life has become the fifth largest Smartphone producer in the Indian market capturing the 7% of its share in the January in March quarter of financial year 2015-16 .

#### **Loss Leading Strategy :-**

When the product or services are sold below cost price levels it is called as Loss Leading Strategy. Even though it is not profitable the firms apply this strategy to gain the market share and attract new customers or to sell additional products and services to those customers. Loss leading is a controversial strategy that is considered predatory. This Loss Leading strategy mainly affect the small businesses as they cannot bear temporary losses to survive in the market. And due to that when the small businesses continues to sell products and services in the selling prices it results in loss of customers.

Before the entry of Reliance jio infocomm Limited in India the telecom service tariffs were so high that the common man could not afford the high speed data. The use of telecom services were just for the sake of necessity.

With the help of loss leading strategy Reliance jio infocomm Limited triggered a predatory price war where the tariff was so low that anyone can afford them ,it help the Reliance Jio to capture huge part of the market in a very short period of time

#### **Industry Analysis :-**

The one who will enjoy biggest benefit in every competition will be the customer.

There was a time when we used to pay 16 rupees for SMS maybe the people born after 2000 don't know the happiness of free incoming calls .When Indian telecom industry shifted from 2G to 3G it felt like heaven and now we are talking about 5G.

All sim data is very cheap and people have mobile phones even in the smallest part of the country this industry has seen a lot of development. If we talk about the industry overview India is the world's second largest Telecom industry it has a subscriber base of 1.16 billion and have seen good growth in the past 10 years if you see if the total internet users in India comes at the second position number of Internet subscribers in the country has increased at CAGR of 21.3 6% from FY16 to FY 22 reach 740 3.19 million in FY20

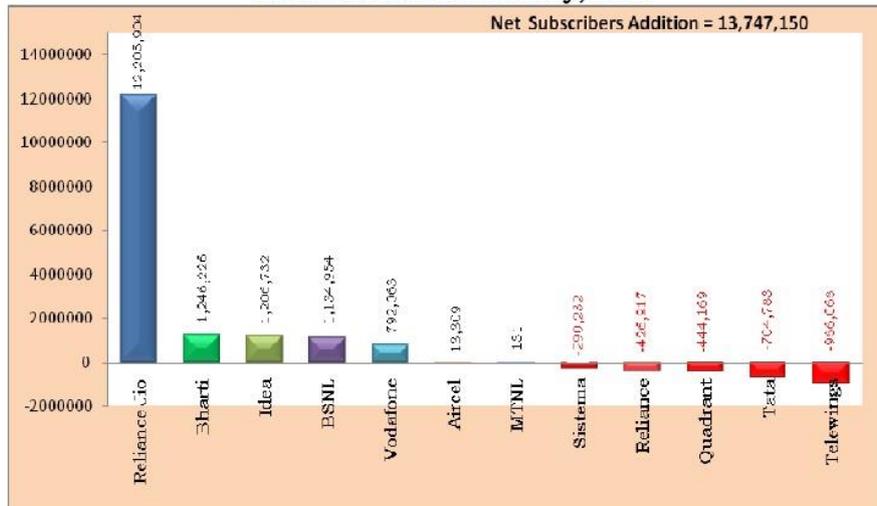
According to statistics due to the cheap internet rates and increasing mobile phone usage 500 million new users will be added that will generate opportunities

The Reliance Jio has revolutionized the whole telecom sector by unleashing the power of optic fibre cable. It is launched a Predatory price war to gain the market share which reduce the prices of telecom services the price was disrupted the whole market and resulted in the closure of many private players like their cell Telenor and many more and at last only three private survivors are remaining in the market that is jio Airtel and Vodafone Idea(v i bracket

According to Kotak institutional equities the industry levels data volumes rose 4160 % to 20.3 billion GB in the July-september 2019 full stop this is the comparison to the Opera July 2016 quarter

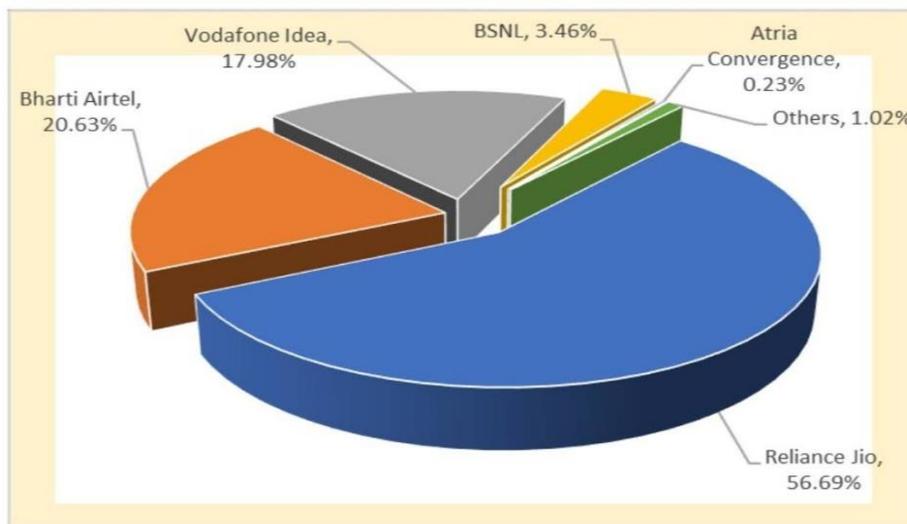
Compared to 2016 the Per user data consumption has rose from 500MB from 10.6 GB

**Net Additions in Wireless Subscribers of Access Service Providers in the Month of February, 2017**



The above chart displays the Jio effect on the market. Out of 1,37,47,150 of total additional subscribers 1,22,05,934 are the subscribers added with Jio.

**Service Provider-wise Market Share of Broadband (wired + wireless) Services as on 31.10.2019**



In just 3 years of launch Reliance Jio has captured the 56.69% market share. This is the result of the price war initiated by Jio.

	Before Jio	After Jio
Rates of Data Services	250-270/ GB	5-10/GB
Data use per subscriber	5-10 GB	140GB

**COMPANY ANALYSIS OF OTHER MARKET PLAYERS**

Indian telecom sector 25 years to develop its 2G infrastructure but jio developed the 4G technology in just three years and after that jio entered the market within mind-blowing penetration strategy of giving the unlimited voice calls and high speed Data Services.

This Predatory price war initiated by Reliance jio resulted in bankruptcy of many private players, and at last only three telecom service providers left i.e Jio, Airtel and Vodafone Idea.

Following are the fundamentals of Airtel and Vodafone Idea. This data represents the financial condition of these two companies.

	Mar 2015	Mar 2016	Mar 2017	Mar 2018	Mar 2019	Mar 2020	Mar 2021
Sales +	31,571	35,949	35,576	28,279	37,092	44,958	41,952
Expenses +	20,771	24,281	25,348	22,224	32,976	30,042	25,006
<b>Operating Profit</b>	<b>10,800</b>	<b>11,668</b>	<b>10,227</b>	<b>6,054</b>	<b>4,116</b>	<b>14,916</b>	<b>16,946</b>
OPM %	34%	32%	29%	21%	11%	33%	40%
Other Income	497	641	746	703	1,789	-36,964	-19,563
Interest	1,060	1,803	4,010	4,847	9,545	15,393	17,998
Depreciation	5,304	6,256	7,827	8,409	14,536	24,356	23,638
<b>Profit before tax</b>	<b>4,933</b>	<b>4,250</b>	<b>-863</b>	<b>-6,499</b>	<b>-18,175</b>	<b>-61,797</b>	<b>-44,253</b>
Tax %	35%	36%	54%	36%	20%	-20%	0%
<b>Net Profit</b>	<b>3,193</b>	<b>2,728</b>	<b>-400</b>	<b>-4,168</b>	<b>-14,604</b>	<b>-73,878</b>	<b>-44,233</b>

**FINANCIAL FIGURES OF VODAFONE IDEA (VI)**

Vodafone idea is a telecom service provider which provides 2G ,3G and 4G services Vodafone Idea is a third largest mobile telecommunication network in India

Vodafone Idea was born on 31st August 2018 when Vodafone India merged with Idea Cellular to form a new entity named Vodafone Idea Limited .Vodafone India holds the stake of 45.1 % in Vodafone Idea and Aditya Birla Group also owns 26% of stakes in the company. Vi owns spectrum in 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2500 MHz bands across the country. In the 4G spectrum auction 2021 Vodafone Idea but 11.8 0 mhz spectrum for 1993 crores which was the the cheapest bid in the whole auction.Vodafone Idea was the company that suffered the most due to the wave of Reliance Jio. Vodafone was not able to compete with the price war initiated by Reliance jio and due to which it is currently under The loss of 44,233 crores.

The Vodafone Idea has recorded a sharp down fall in its figures after the entry of Reliance Jio in the Market. The company which was a profit making company with good amount of cashflows became a loss making company due to the price war. Currently Vodafone Idea is under a total debt of 1.75 lakh crores Rupees.

	Mar 2016	Mar 2017	Mar 2018	Mar 2019	Mar 2020	Mar 2021
Sales +	96,532	95,468	82,639	80,780	84,676	100,616
Expenses +	62,548	60,138	52,560	55,016	51,086	55,337
<b>Operating Profit</b>	<b>33,984</b>	<b>35,330</b>	<b>30,079</b>	<b>25,764</b>	<b>33,591</b>	<b>45,279</b>
OPM %	35%	37%	36%	32%	40%	45%
Other Income	4,858	1,713	1,756	4,474	-35,600	-4,215
Interest	8,546	9,547	9,326	10,622	14,073	15,091
Depreciation	17,450	19,773	19,243	21,348	27,094	29,404
<b>Profit before tax</b>	<b>12,846</b>	<b>7,723</b>	<b>3,267</b>	<b>-1,732</b>	<b>-43,177</b>	<b>-3,432</b>
Tax %	46%	45%	33%	197%	29%	-260%
<b>Net Profit</b>	<b>6,077</b>	<b>3,800</b>	<b>1,099</b>	<b>410</b>	<b>-32,183</b>	<b>-15,084</b>

**FINANCIAL FIGURES OF BHARTI AIRTEL**

Bharti Airtel is the company owned by Bharti Enterprises. It is a company with a huge financial clout but instead of that it suffered a lot after the launch of Reliance Jio. The figures indicate that the company's

financials were in sideways for a long period of time. But due to the entry of Jio the company suffered huge losses as the company which reported the profit of 6077 crores in the financial year 2015-16 reported a loss of nearly 15,084 crores in the financial year of 2020-21. But now the company is coping up with the situation and giving a head on competition to Reliance Jio. Bharti Airtel recently conducted first 5G network demonstration in a rural geography. The demonstration took place in Bhaipur Bramanan village on the outskirts of Delhi/NCR using 5G trial spectrum allocated to Airtel by the Department of Telecom.

**TELECOM OPERATORS V/S GOVERNMENT**

Whenever will Telecom operators earn money the government ask for a licence fee. These operators earn money through various channels. For example Airtel charges a small fee if you connect with another operator it is called as IUC (Interconnect usage charges). This cannot be kept with Airtel themselves and has to be transferred to the other operator so they bill you this charge and then transfer to the other operator. Airtel recognises this in its revenue but it is actually not theirs.

Now the government can ask for a small part from the IUC as it is Airtel’s revenue but this will turn into a controversial matter so the ideal way to deal with problems like this is to adjust it downwards meaning to remove them.

After adjusting we get **Adjusted Gross Revenue (AGR)** and the government takes their part from it. The operators feel that the government cut should only come from the Telecom business revenue and not from any other revenue. The telecom companies feel this is unfair and on the other hand government wants there cut from every revenue.

Telecom operators approached the court and the Court ruled in favour of the government.

So if we see the timeline in October 2019 the order was ruled out and companies were given time till January 2020 to clear all dues. Airtel, Vodafone and others missed the deadline except Reliance Jio which cleared all its dues of 195 crores.

In March 2020 the government said that they will consider their payments in installments

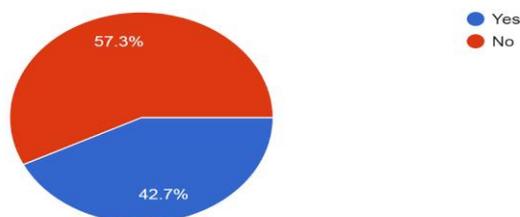
In September 2020 the supreme court gave the companies ten years to clear their dues, in this time period 10% had to be paid by March 2021 and the rest in annual installments till 2031

Total AGR dues of Airtel 43,990 crores were as Vodafone Idea have AGR dues of 58,254 crores.

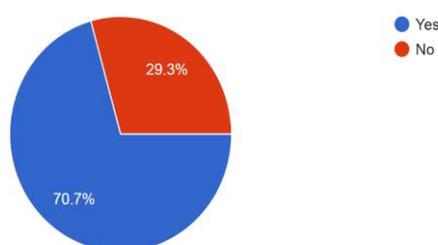
The AGR issue between government and telecom operators has not been resolved yet.

**RESULTS OBTAINED FROM A SURVEY**

Were you using the Jio sim during the free offer?  
75 responses

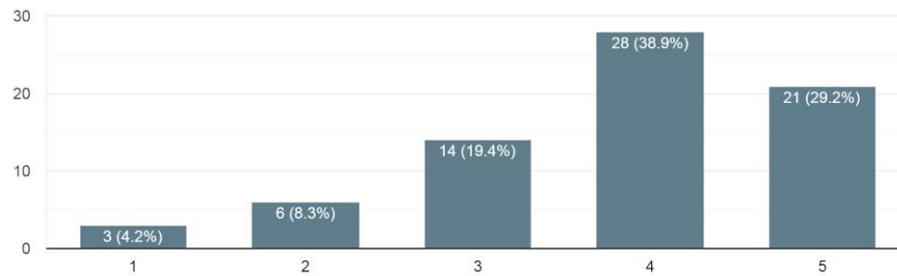


Do you avail services from Reliance Jio now?  
75 responses



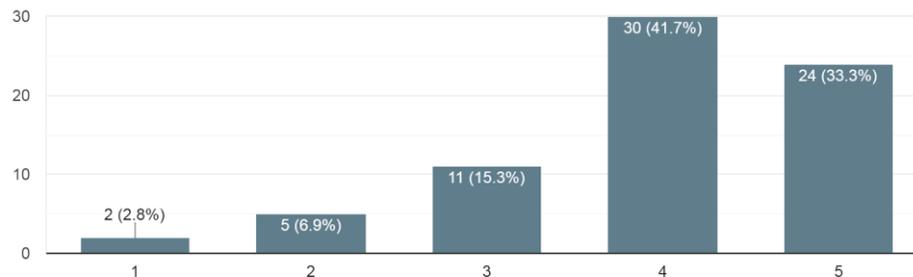
How much will you rate the services of Jio

72 responses



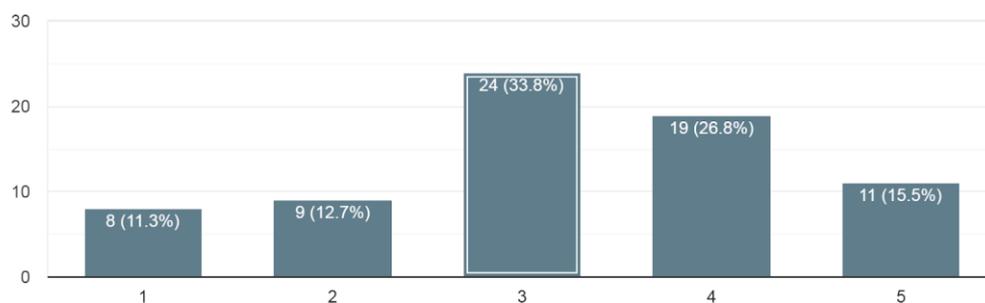
How was your experience of Jio services in Urban Areas?

72 responses



How was your experience of Jio services in Rural Areas?

71 responses



### SOME SUGGESTIONS FROM PUBLIC

- Sometimes it get very difficult to find network in rural areas. Else this all are good.
- Services must improve in some areas
- As currently I am using jio services I would expect them to adopt data saver method so that excess data is utilised
- Extremely slow internet . Needs to pay attention to customer problems . They should have loyal employees at least their employees should have faith in their product.
- Try to provide jio fibre service everywhere in country
- Can give the facility of roll over data
- Should charge less money for recharge

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**PERSONAL SUGGESTIONS**

- The company should focus more on advertise as T.V advertise of the company are very low in number. The customer likes to buy what he watches and so advertisement does continues bombarding on the customer which pressurizes him to buy the products.
- The Company should improve its service in rural areas as the infrastructure is lagging in some remote areas of the country.
- The company should take care of the environment with improving telecom infrastructure as it's a corporate social responsibility.
- The Company should provide the other unique features like weekend data rollover, Unlimited Night Binge etc as it can rise as a key service.
- The company should take care that the 4G services reach every corner of the country before unleashing the 5G technology.

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**ONLINE CLOTHING RENTAL PORTAL AS A DISRUPTIVE INNOVATION IN CLOTHING INDUSTRY AND SUSTAINABLE FASHION**

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**Akshaya Raju**

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**ABSTRACT**

*Sustainability is a concept which has gained popularity in the recent years, and while it's a great initiative for saving the planet, many have a misconception that it is only limited to avoiding plastic packaging and recycling. Fashion sustainability is an unheard topic for a lot of common public especially in India, where the streets are filled with people buying and selling cheap clothes and unknowingly encouraging fast fashion. While the breakthrough in the concept of sustainable fashion which is renting clothes online is getting popular in the west, Indians are not very aware of the existence of online clothing rental portals. This research paper aims to know how many people around us are aware of the concept of renting clothes especially online. After understanding the current position of the online clothing rental industry, it explores the possible reasons behind the problem and proposes solutions and ideas in order to solve the problem. It also aims to understand the stigma around renting clothes which seems to be really widespread in India.*

*Key words: Fashion Sustainability, Online Clothing Rental Portals, Fast Fashion, Clothing Industry.*

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**INTRODUCTION**

Sustainability is living a happy and comfortable life while being thoughtful about the impact being created on our planet. In 21st century being sustainable is the need of the hour, many people are living as well as promoting the zero-waste lifestyle. A zero-waste lifestyle is when a person produces almost zero landfill waste, while this sound really tough and expensive the least one can do is try to minimize their share of landfill waste, which basically comprises of plastic, paper, glass, metals and fabrics, while some of these can be recycled i.e., paper, glass, cotton, etc. others like plastic, silk, wool and polyester cannot be recycled. Also, nowadays with increasing trend of fast fashion the amount of clothing in landfill waste is increasing. And the clothes which are generally wasted or used the least are ethnic wear and party wear as repeating them is generally frowned upon and especially in an Indian society, the purchase of new clothes for almost every festival, event or function is mandatory. Not only does buying new outfits every now and then cause harm to the environment, it is also not very economical, and renting clothes is the brilliant idea which can solve this problem and make fashion sustainable. And with our world switching into the online mode, online clothing rental portals if get publicized, popularized and be made easily accessible to all can be a disruptive innovation in the clothing industry and fashion world.

**REVIEW OF THE LITERATURE**

While many researchers have written numerous papers with similar topics, majority of those papers date back to the early 2000's and studies which were conducted so many years ago are not very useful for analyzing the current condition. From the few research papers written in the last five years in the similar topic space, many won't be relevant to India as they are written by people outside India studying either the international clothing rental market or that of their own country. Though some of those research papers gave some eye-opening information like the effects of the pandemic on the clothing rental industry brilliantly explained by Taylor Brydges, Lisa Heinze, Monique Retamal and Claudia E. Henninger in their case study, 'Platforms and the pandemic: A case study of fashion rental platforms during COVID-19' or contamination concerns of the consumers due to the pandemic aptly stated by Eunsoo Baek and Ga-Eun (Grace) Oh in their paper 'Diverse values of fashion rental service and contamination concern of consumers', the literature relevant for this study were the journals, case studies or papers written by Indian researchers in the last 5 years about the clothing rental market condition in India. Out of this very tiny subset two papers named 'Sustainability through online renting clothing: Circular fashion fueled by instagram micro-celebrities' by Archana Shrivastava, Geetika Jain, Sachin S Kamble and Amine Belhadi & 'Instagram Influence on Clothing Purchases -An Eye-opener' by Sirisha Deepthi Sornapudi and Meenu Srivastava explained the relationship between clothing rental and Instagram really well. But the gem of a paper which helped this research a lot was 'Clothing Disposal and Sustainability' by R Rathinamoorthy. It explained a lot of terms used in this paper in very minute detail and with great accuracy. These research papers, case studies and journals were accessed with the help of Google Scholars.

**STATEMENT OF THE PROBLEM**

As the fashion attitude among the customers increases the growth of unwanted clothing items in their wardrobe also increases. This extra clothing material creates a trend called "Throwaway" fashion attitude among the

young generation customers specifically among the fashion leaders. A recent trend in the fashion industry is fast fashion. As the name suggests, it is a process or phenomenon that encourages the consumer to choose new trendy products in a very short span of time. As this method targets not only the fashion innovators but also the remaining general public, the issue becomes more somber. This fast fashion technically motivates the manufacturers to deliver the product in a short span of time with cheaper price. Commercial retail chains like H&M, TopShop, and Zara have already adapted this and deliver new, cheaper products every month. In turn this system also induces the customers to go for a new product instead of repeated use. This is one of the major drawbacks of the system which results in a huge quantity of cloth waste dumped in landfill.

### **OBJECTIVES OF THE STUDY**

As stating the results, conclusion or solution for any problem is not possible unless a proper analysis of the current condition is conducted, the first objective of the research is to figure out the answer to the question 'How many people chose to rent clothes?'. And to get a peek into the local scenario of the clothing industry surveying the consumers is the most relevant method.

From the sample space of the people surveyed if there is a subset of people who chose to rent apparel there also exists a subset of people who chose not to rent, and finding why these people don't rent clothing becomes the next objective.

After analyzing the condition, recognizing the problem and studying the reasons that cause the problem the next objective has to be finding the solution to this problem and hence the third objective of this study is finding ways to encourage more people into renting clothes. Even though this is the third and the last objective of the study this is the most important objective as the aim of every research paper comes down to finding new solutions and ways to implement them.

### **HYPOTHESIS OF THE STUDY**

As the study will gather information through a survey, the first question will ask for the personal details of the individual participating in the survey which can't be assumed as that information will differ from person to person and will be unique for each response.

The next question will be about the frequency in purchasing of new clothes and this is very subjective and difficult to analyze without understanding the whole scenario because one can buy 50 pieces of clothing together while only shopping once every year but they will still exceed the amount of clothes bought by someone who buys 1 piece of clothing every month. Even though one will think that the person who shops every month buys more clothes than the person shopping every year.

The third question is to know the method of disposal of clothes each individual participating in the survey chooses to opt for. As this study will be conducted locally, assumption can be made that majority of the people responding will be from a middle-class background, and people belonging to the middle-class part of the society usually pass their clothes on to their siblings/cousins, sell them to street hawkers or reuse them as waste cloth and throw them away while the upper class either donate their old clothes or choose to just dispose them off. So, more responses will say that they pass their clothes on to their siblings/cousins, sell them to street hawkers or reuse them as waste cloth and throw them away.

The next question will directly go to the main topic of the research which is renting of clothes, so the answer for the question 'Have you ever rented clothes?' can be assumed to be leaning towards the negative side as renting clothes isn't very popular in India especially for the common people. Majority of those who might have rented clothes can be those who have rented dance costumes or fancy-dress costumes but people who have rented normal clothes like suits or ethnic clothes can be assumed to be low. While people who have rented clothes is assumed to be low this will result in people who have rented clothes online to be significantly low.

After this the only remaining question is to know the reason behind people not opting for renting clothes which can vary from lack of opportunity to rent clothes to unavailability of size/style or lack of accessibility or awareness regarding the topic of clothing rental. But assuming that many people wouldn't have ever encountered a situation where they felt the need to rent clothes wouldn't be wrong. So according to the above assumptions the results are quite clear that the lack of growth in the Indian clothing rental market is mostly due to lack of awareness about the topic. The solution to which is to spread proper awareness of the topic through advertisements and even education.

### **RESEARCH METHODOLOGY**

The sampling method chosen for this study is surveying and as this research was conducted between the pandemic the information was collected online by circulating a google form. The survey had a sample size of

105 individuals as the google form received 105 responses. The questionnaire excluding the questions asking for the personal information of the people responding and thanking them for recording their response are listed below.

### **QUESTIONNAIRE**

How often do you buy new clothes for yourself?

How do you dispose your old clothes?

Have you ever rented clothes?

If yes, where do you rent them from?

If you rent clothes from online rental shops/websites/portal, then which platform do you use?

If you haven't rented your outfit ever then why?

### **ANALYSIS AND INTERPRETATION OF DATA**

The responses received were quite similar to the assumptions and estimations made in the hypothesis of the study. The first question which was, 'How often do you buy new clothes for yourself?' received all variety of mixed responses and was quite difficult to analyze as a sub topic of the study as this study mainly focuses on clothing rental, online portals to be specific. As the study comprised of people from both upper class as well as middle or the lower class of the society the responses of the second question, 'How do you dispose your old clothes?' showed almost a fifty-fifty result between the two responses expected by the upper class i.e. donate them to the poor (33.3%) and simply throw them away (13.3%) & the three responses expected by the middle class or the lower class i.e. Pass them on to siblings/cousins (19%), Sell them to street hawkers (21%), Reuse as waste cloth then throw them away (11.4%). The slight difference was due to 2% of the people who chose to write their own answer to the question by choosing the other option.

The next question is very important as it dives right into our topic by asking, 'Have you ever rented clothes?' to which as expected we received a pretty negative response due to unpopularity of clothing rental in our country with 67.6% people saying that they haven't ever rented clothes and out of the other 32.4%, 29.5% have rented only fancy dress/ dance costumes not real outfits. And if the number of people who have rented clothes are so low the number of people who have rented clothes online will be extremely low which is reflected in the next question, 'If yes, where do you rent them from?' where we saw that only 3.8% of people have rented clothes online. The next question, 'If you rent clothes from online rental shops/websites/portal, then which platform do you use?' also got a 96.2% of people saying no or never did.

The last but actually the most important question was, 'If you haven't rented your outfit ever then why?' for which the assumption wasn't very accurate. The expectation was that the majority of the responses will say 'A situation where I would need to rent clothes hasn't arrived yet' but there was a tie between two responses for the majority, and the response which had a tie with the expected response was 'I don't want clothes worn by someone else'. This gave our study a new topic to think on which is the stigma around renting clothes which exists in our Indian society. Though this is an interesting topic, it couldn't be covered much as sub topics cannot be studied to depth while writing short research papers due to time as well as word restrictions. These two reasons (both at 26.7%) were followed by 'I don't get my size/style (19%)' and 'It isn't accessible to me (15.2%)', which convey the message that renting clothes isn't possible for everyone due to problems of accessibility as well as the problems of lack of size and style varieties.

### **FINDINGS & CONCLUSIONS**

After analyzing the received responses, the obvious conclusion we come to is the fact that renting clothes is really unpopular in our country while online clothing rental is quite unheard of. In the western countries, the popularity of clothing rental shops, portals and websites are increasing rapidly as environmental consciousness is also increasing. The world is realizing that the concept of renting clothes can help us to incorporate the sustainability aspect to the fashion industry and with the world becoming virtual, online clothing rental portals can make this renting process a lot easier. As the existence of this concept is becoming visible to us, many initiatives or start ups related to clothing rental are sprouting from our country as well. But in order to make such initiatives big, we need to tackle a few roadblocks we discovered during this study.

Problem such as lack of awareness and education about clothing sustainability/ clothing rental, lack of accessibility, lack of availability of sizes and styles, lack of hygiene and sanitation are the reasons that this idea isn't a big disruptive innovation yet. If the websites/online portals advertise attractively along with providing important information, service all over the country, and provide nice quality clothes in all sizes and styles which

are hygienically dry cleaned after every client's use this idea can prove to be effective. Also, schools and colleges should talk about the amount of clothing which ends up in the landfills and they should motivate students to choose a sustainable way of life by recycling, reusing and renting their apparels. The stigma around renting clothes which is deep rooted in our country is also a major reason for the lack of success of this idea. Many people don't want to wear used clothes even if they are dry cleaned because they think who all must have worn that piece of cloth and call it dirty while forgetting the fact that we all are humans. This social evil needs to be battled in order to make the whole country a consumer who rents clothes and saves the earth and their pockets.

### SUGGESTIONS/RECOMMENDATIONS

As this study was conducted in a very short span of time, it was mainly only focused on the topic which is, 'Online Clothing Rental Portal as a Disruptive Innovation in Clothing Industry and Sustainable Fashion'. Numerous interesting subtopics were encountered during the study but their in-depth analysis wasn't possible due to time and word constraints, out of which the most interesting was the stigma around renting clothes or used clothes which was seen when majority of the people surveyed said they don't want clothes used by someone else. The reason behind this mindset in our country as well as the origin and the wide spread nature of this thinking is a vast topic which can be solely studied in a research paper in the future.

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**DISRUPTIVE INNOVATION: THE NEW EDUCATIONAL POLICY 2020**

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**ABSTRACT**

*It is very important to coordinate both school education and higher education. Although the subject is very old and much talked about, the New National Education Policy 2020 for Higher Education and the 2019 Nobel Laureate in Economics, Professor Abhijeet Banerjee, has pointed out the dire impact of school education on the higher education and this has already started reflecting in the form of data.*

*It is important to see if the children have mastered the expected mathematical, verbal and writing skills in each class. Counting just the number of years of schooling as it's been done in case of Human Development Index (HDI) measurement will not convert the growth into development per say. Many children in different classes are many years behind the class level. They find it difficult to learn what is going on in the classroom. This reinforces educational inequality in the classroom. Pandemic has further widened this educational inequality. Students' preferences to pursue higher education, depends largely on the quality of their school education. According to the new National Education Policy 2020, the total enrolment ratio of higher education is currently 27.1. The goal is to increase the overall enrolment ratio of higher education to 52% by 2030.*

*This paper tries to focus on the disruption in school education and how is it going to further bring out the disruption in the higher education in India by referring to the latest statistical data.*

*Key Words: School education, higher education, disruption, skills, quality inputs, etc.*

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**INTRODUCTION**

Government of India is targeting to achieve 100% gross enrolment at the school education level by 2030 and a target of 52 percent gross enrolment in higher education by 2030, as stated in the National Education Policy (NEP) 2020. The first target covers the very bottom of the pyramid of the educational system and the second target covers the top end of the pyramid. Education is an outcome of learning and it is true in both the sections of the educational pyramid. At the very base of the pyramid, which can also be referred to as a foundation of the education, linguistic skills, vocabulary or some mathematical calculation, i.e., numerical skills, logical reasoning, all this will contribute largely in their higher education. In fact, all these skills will determine their interest for specific streams, like core science, commerce or humanities and social sciences. As sponge imbibes water well, whether these learnings have imbibed among the students well or not, will be clear when we will cross-check the outcomes of the learnings. So, this entire teaching-learning process is directive and experimental and pedagogy plays an important role in the outcome-based learning.

When we refer to the top section of the pyramid of the educational system, we refer to the system of higher education. Objectives of higher education as per the NEP 2020, incorporates creation of knowledge, storage of knowledge (in the form of publication, books, research papers, etc.), reviewing the facts, research gaps and fill up those gaps. dissemination of knowledge, creation of wealth through this knowledge, for example, patents, intellectual property rights, etc. utilization of knowledge to improve quality of human life, etc. Educational experts have certified the NEP 2020 having a holistic and multidisciplinary view with respect to higher education and it becomes very evident that India is moving from the stage of elitism to massification in higher education.

Schools have been closed for more than 18 months. Children are now accustomed to being out of school. These are the children who will give India the 'Demographic Dividend' approximately by 2050. The future of any country can be predicted from the various options for higher education that children would choose after their schooling. You don't need an astrologer for that! But here it is very important to coordinate both school education and higher education. Although the subject is very old and much talked about, the New National Education Policy 2020 for Higher Education and the 2019 Nobel Laureate in Economics, Professor Abhijeet Banerjee, has pointed out the dire impact of school education which has already started reflecting in the form of data.

According to a study and survey by Professor Abhijeet Banerjee and his colleagues, it is important to see if the children have mastered the expected mathematical, verbal and writing skills in each class. Counting just the number of years of schooling as its been done in case of Human Development Index (HDI) measurement will not convert the growth into development per say. These observations apply to all developing countries.

Speaking of India, an example is given in the Indian Annual Educational Report, 2018-19, where only 30% of third graders can read and write what is expected at that class level. The same story continues in case of mathematics. Many children in different classes are many years behind the existing class level. They find it difficult to learn what is going on in the classroom. This reinforces educational inequality in the classroom. Pandemic has further widened this educational inequality.

### **MASSIFICATION OF HIGHER EDUCATION**

Students' preferences to pursue higher education, depends largely on the quality of their school education. Gross enrolment ratio of higher education was 18.8 percent in 2012, 26.3 percent in 2021 and now the NEP 2020 targeting to go up to 52 percent by 2030. It is very evident that India is moving from the stage of elitism to massification in higher education. Massification of higher education forces us to confront the challenges such as ensuring equality, improving and maintaining quality of higher education, ensuring the output-based learning and should get convert into industrial requirements, market demands, etc.

Overall higher education has improved across all segments of the population thanks to progressive state policies of affirmative actions, the rate of progression has varied, resulting in widening of regional inequalities and persisting socio-economic inequalities. The prevalence of inter-group inequalities in access to opportunities for pursuing higher education, in turn, determines employment outcomes, earnings, and social inequalities among the subsequent generations. (N.V. Varghese, Nidhi S. 2020) Access to elite institutions and study programmes such as in the fields of science and engineering is restricted to those from the most privileged backgrounds. It means those who get the education stream and career related inputs well in advance, those who get the proper guidance to crack the entrance exams of those elite institutions, are able to avail the higher education from core institutes. There is one more, very important angle to the selection of different streams at the higher education level, and that is the quality inputs at school level.

### **SCHOOL EDUCATION SCENARIO**

Human Development Index (HDI) is an Index that measures the key dimensions of human development. First one is long and healthy life- measured by life expectancy, second is access to education- measured by expected years of schooling of children at school-entry age and mean years of schooling of the adult population, and third and last one is a decent standard of living – measured by Gross National Income per capita adjusted for the price level of the country. HDI data is regularly published by the United Nations Development Programme. (<https://ourworldindata.org/human-development-index>)

Above parameters and calculations look very ideal and perfect, but now there is a twist in the given story of HDI calculations. According to a study and survey by Professor Abhijeet Banerjee and his colleagues, it is important to see if the children have mastered the mathematical, verbal and writing skills required in each class, not just counting the years of schooling. These observations apply to all developing countries. Speaking of India, the Indian Annual Educational Report shows something similar. To give an example, only 30% of children in class III can read and write what is expected at that class level. The same story is with mathematics.

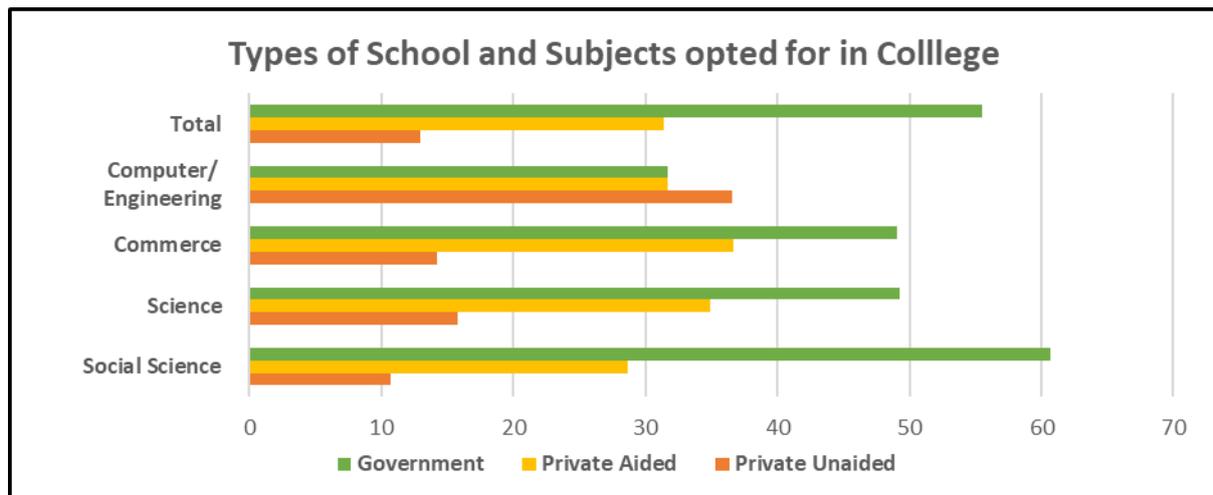
Many children in different classes are many years behind the class level. They find it difficult to learn what is going on in the classroom. In Maharashtra, it goes on like this till 8th because we are all passing students till 8<sup>th</sup> standard. This reinforces educational inequality in the classroom. The Covid-19 epidemic and digital education have exacerbated this educational inequality. Mathematical, verbal and writing skills are the basic foundation of school education. Which students will choose to pursue higher education depends largely on the quality of their schooling?

Government of India's Unified District Information System of Education (UDISE) has been released recently and data shows that enrolment at the primary level has reduced from 13.5 crore in 2012-13 to 12.2 crore in 2019-20. If we compare the total primary enrolment between 2017-18 and 2019-20, it has come down by over 72 lakh. This is a serious matter of concern, especially since this would be even higher now due to Covid.

### **PREFERENCES FOR HIGHER EDUCATION**

India has the second largest higher education system in the world, which is now trying to reach out to the masses. Many good practices need to be adopted for higher education as a driver of competitiveness and economic growth. The next few years will see a larger and growing role for the private sector. More universities are needed to match supply-demand. Earlier, the Centre for Policy Research in Higher Education (CPRHE), Delhi, had compiled and analysed the areas in which Indian children prefer after schooling. According to this study, the total enrolment in higher education for major sciences, technology, engineering is much less than the enrolment in social sciences (arts and humanities), commerce. And the same pattern has been seen over the years.

Fig.-1 Type of School and Subjects Opted for in college



Source: Sabharwal and Malish, 2018

Following table shows the same trend: -

Educational Program	Percentage of total enrolment
Bachelor of Arts	25.84
B.Sc.	12.60
BCom	11.14
B. Tech	5.75
Degree in Engineering	4.00
MA	4.29
B.Ed.	3.67
MSc	2.10

Source: AISHE (2019-20)

If our goal is to enhance higher education, then the journey from school to graduation should have combined goals and learning-outcomes. The main reasons for the lack of interest in science, technology, engineering, medicine are hidden in school education. If during the school days the student is lagging behind the current class, his mathematical, verbal and writing skills are not developed enough and he is afraid of subjects like mathematics, science, then the same student goes ahead and chooses subjects like arts, commerce, social sciences. If the majority of the country's children choose this option for higher education, where will the new discoveries in science and technology come from, where will the new equipment, resources be discovered and created? This is of course a country-wide view that we have. This does not mean that we only want to create doctors and engineers. But even in their personal life, lack of mathematical, verbal and writing skills, lack of knowledge of science, will surely not imbibe the combination of rational and scientific thinking among students. Then how will they be able to think outside the box? The accumulated effect of all this translates into job creation, ideas for new industries.

This is specifically true in case of India, wherein, state language has been emphasised at the school level and this could also be one of the reason of students not opting of core science streams. Since the medium of instruction in most of the institutions, especially those offering STEM, is English, a lack of competency in the English language poses many challenges for students from the disadvantaged groups. (Nidhi S. Sabharwal, C.M. Malish, 2018) Some studies of engineering colleges report that in the initial stages, students who may be academically under-prepared fail in their papers, which then cumulates as 'back-papers' to be cleared, and ultimately lead to a longer time for completing a degree or even students dropping out mid-way through the course (Sivasankaran, 2004).

Two colleges from Maharashtra have received permission from AICTE to start undergraduate engineering degree programmes in Marathi. They are among 14 institutions across the country which applied to launch the course in vernacular languages after the apex body for engineering education invited applications as part of the NEP. Now in this case students completing their core specialization, i.e. engineering in vernacular language,

will surely restrict their capabilities specific to that region and won't make them flexible enough in tapping the country-wide as well as world-wide opportunities.

### INFERENCES

For this, along with higher education, the quality of school education should be at different levels. Children's mathematical, verbal and writing skills, their love of science, can be tested in small groups of different classes. For this, many educated unemployed can be taken up to conduct such surveys and draw the inferences based on the results. Such a pattern of schooling has been investigated in Kenya, Brazil, and nearby nations. In India too, it is quite possible to carry out such a campaign at the state level and immediately deploy the consequences. Teachers play a very pivotal role in this case. Emphasis can be placed on training them in the right way and at an appropriate interval will bring out the best in them. Such trainings are conducted today, but their quality, the need for time, and the amount of material involved are crucial issues. The issue of quality of schooling must be raised before raising the overall enrolment ratio of higher education. Teacher recruitment, their good work needs to be acted upon as early as possible at various levels.

As higher education seeks to reach out to the masses (52 per cent by 2030) under the new education policy, it is worthwhile to look at how much quality schooling is rooted in the masses. What you learn later builds on what you have learned before and with the same logic, at primary school, no child should move up a grade unless he/she has learnt 100 percent of what he/she is supposed to learn in that grade. If educators will insist on full mastery of the basics before graduating to a higher grade, then the child would be well equipped to go for understanding the next stage of the discipline. Being well equipped for the next grade is going to be an empowering experience for students as well and that will also contribute in boosting their confidence and enhancing their self-esteem. This strong foundation of the future labour market will definitely help India to reap the benefits of demographic dividend up to its fullest.

Considering the Indian population and students-teacher ratio, it is not possible for a teacher to track the individual progress of every single student in the class. This is where education technology will bridge this gap and help in monitoring the students' case by case and then based on those results remedial teaching can be done to students who are lagging behind. Covid-19 pandemic, if looked from some positive angle, has created this opportunity to incorporate technology in our education system and that too from the primary education itself. Today, school being shut, educators are forced to use Information and technology in a more creative manner to reach up-to students of the given grade.

'Pedagogy' is a method and practice of teaching at school level and 'Andragogy', refers to the structured pattern of techniques applicable for higher education. When it comes to higher education in India, it is very important to increase the number of universities in higher education, to ensure that the quality of education is degraded while giving autonomy to private institutions. Many private institutions attract students on the strength of their state-of-the-art infrastructure, and degrees are seen as being sold in shops. It has to be pressed somewhere. There are many conundrums on this subject and according to experts. But the above reality can remain the same if we remain inactive. It is argued that favourable public policies and institutional strategies can help equalise opportunities for pursuing higher education and promote equity in student learning and labour market outcomes. What is emphasised at the institutional level is the need for devising strategies to address diversity and consequently, develop socially inclusive higher education campuses in India.

Apparently, state governments started taking the cognizance of this gap and have started with required initiatives to reduce this gap. For example, The Pune Knowledge Cluster (PKC) and the District Institute of Education and Training (DIET), Pune division started three months course for zilla parishad and Pune Municipal Corporation school teachers focussed on clearing science concepts. And experts from various colleges, universities and scientific institutes will act as their trainers.

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Book, titled as 'Future Shock', written by American futurist Alvin Toffler in 1970, wherein Toffler stated about the enormous structural change the society will go through and the accelerated rate of technological and social change will leave people disconnected. In his later writings he analysed the phenomena of information of overload. (Rise in automation, advancement in ITC...)

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**A STUDY ON TRENDS AMONG NEW STARTUPS**

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**ABSTRACT**

*Demands arise and streamline business practices which paves the path for innovation, aka startups. Startups are all about making a difference by turning ideas into reality. They have been key drivers for job creations and contribute to the economic growth of a nation. Living in the age dominated by Gen Z, also known as the entrepreneurial generation, spikes the diverse and progressive trends that align with the growing needs and technological advancements. Even with the increasing competition for capital funding, startups operate in a wide variety of fields like Fintech, Gaming, Edtech, Healthcare, AI, and so on. A world hit by the pandemic affected major economic downturns which challenged startup businesses and questioned their survival but also pushed them to think bigger and better. Hence, understanding the trends among startups will not only help us understand the current economy and demand scenarios but will also enclose what the future breakthroughs would look like.*

*Keywords: startup trends, entrepreneurial, capital funding, future breakthroughs, economy and demand scenarios, economic growth, job creations, business practices, innovation, startup, trend, Gen Z, competition, pandemic, Fintech, Gaming, EdTech, Healthcare, wide variety.*

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**INTRODUCTION**

The inception of an idea is the moment that inspires one to build a business that would help solve a particular issue, influence the current system or use technology to make a difference in the community. The idea becomes the roots to build the startup on and acts as the vision the organization stands for, that helps them carve the mission they have to achieve. The new founder usually starts off financially with his own/ family/ friends' money or a bank loan. The startup once stable pitches its notable ideas to venture capitalists, angel investors, or IPO to receive funding. The founder then becomes the co-owner as with every funding received the investor obtains a part of the organization.

Trends in startups are directed by the ever-evolving demands in the market, the increasing digitization of functions as well as change in social needs. Understanding the types of startups helps us realize how trends are crafted in different models.

There are various kinds of startups that help us understand the motive of the business and its future. It is usually divided into six types as given below:

- i. **Lifestyle:** These are self-employed individuals who work for themselves, to do and contribute by doing something they love like freelance designers, coders, writers, and so on.
- ii. **Small Business:** These businesses are not built with an intention to scale instead are more family-centric i.e., built to sustain the financial well-being of one's family. E.g., bakery, grocery stores, electricians, travel agents, etc.
- iii. **Scalable:** These are the startups owned by founders who believe they can transform the world with their business model and also hire the best talent to do so. They also focus on increasing business and look for venture capital investors for funding. E.g., Google, Facebook, Uber, and so on.
- iv. **Buyable:** These are businesses/ startups made with an intention to be sold for real good cash instead of building their own multimillion-dollar company. Over the past 5 years, this trend has exceeded extensively where large organizations buy web solutions or ideas that help them add more value to their organization. E.g., Two of the biggest acquisitions made by Facebook were WhatsApp (\$19 Billion) and Instagram (\$1 Billion).
- v. **Large organization:** Large organizations need to constantly reinvent services or innovate new products in order to adhere to the changing customer preferences and advancing technology. The evolving laws and new competitors also drive large companies to develop new startups to attract new customers from new markets. E.g. Google.
- vi. **Social:** Social startups are built not for monetary reasons but these are passionate individuals aiming to build a better community. What drives them is the social cause they stand for and help society become

more aware of an issue. E.g., FAIR that is built to support farming communities, and HealthSetGo brings health education to millions in India. Startups do not require a well-built office to start in as most startups do not receive proper funding in the beginning, in fact, according to studies 69% of startups initiated their operations from home.

Demand plays a major role in the progress of an organization. The most complicated aspect of building a startup would be understanding the demands, knowing the current trends in the market they'll be exploring, and being able to analyze how to incorporate their ideas into a business model to create a process and build an organization that'll not only attract the customers and builds a community that helps increase brand awareness but also increases company profits. Demands help the founder comprehend who the target audience is and what are the process, tools, and talent one will have to perceive to drive the organization. When you know what you're doing and where you need to head, it helps the team determine the challenges the business might face and prepare in advance for the circumstances that might occur or one can now make a necessary change that will help improve the current plan. Interpreting demands is very critical because according to studies 42% of startups fail due to their lack of understanding of the demand that led to their services being no longer required in the market. Other factors why startups fail are because 29% run out of funding, 23% did not have the right team, 17% to 18% had poor pricing and marketing plans, and 19% due to a competitive market. In accordance with data collected over the years through different studies by individuals, it is said that 9 out of 10 startups do not succeed, 50% of startups stop functioning after 5 years, and that nearly only 40% of startups turned out to be profitable. Hence, one should remember that recognizing demands, apprehend trends i.e., what the customer's or market needs are; will give them a new perspective to probably reimagine the way they promote their services or reinvent their products in a way that matches the public demands.

**Objectives of the study:**

- i. To evaluate the level of awareness in terms of startups, i.e. the process to get started.
- ii. To understand individual perspectives towards building or working in a startup.
- iii. To recognize the trends in the market from the eyes of the consumers
- iv. To comprehend the knowledge present among people from different aspects of life and their outlook regarding startups

**REVIEW OF LITERATURE**

Witnessed by millions, this century has seen small startup ideas turn into large technology giants like Instagram, Airbnb, Uber, Twitter, etc. Startups progress through a Lifecycle starting from bootstrapping stage with individual effort and low investment, their seed stage with average investment and teamwork till they work in an environment with functional organizational structures funded by venture capitalists.

Countries with governments that evidently struggle with unemployment consider the startup's sector to help bridge the gap and create jobs opportunities and also making progress in terms of contributing to the economy of the nation.

However, some studies also talk about the relative magnitude of destruction and creation by the early-stage businesses.

The world's worst economic downturn caused by the unforeseeable effects of covid19 pushed many top economies to recession. The crisis affected the performance and functioning of startups. An innovative startup or a well-planned business model duly addresses the need to adapt or resist the possible crisis conditions. But, startups couldn't possibly recognize the dynamic of the covid19 effect to stand prepared and the investors themselves were stuck in a haze with undependable changes in the market needs and shares. Hence, encountered the aftermath of the crisis and found themselves descending to the brink due to unstable funding, uncertainty in terms of demands, and an initial lack of federal help.

In regards to the trends in the startups, many factors play accountable like the changing investment models, culture-centric startups, a blend of social and profit ideas, and digitization.

**RESEARCH METHODOLOGY**

The researcher has conducted a digital survey in order to study more about the subject. The mode used to conduct the survey is Google Forms. The survey is a set of questions shared with individuals from different age groups in a random sampling method. The survey is done with an intention to determine the awareness of the startup concept, recognize the trends from their perspective, and understand their mindset in terms of building or

working in a startup. The research has been conducted in the month of September 2021. A total of 110 individuals participated in the survey and the data has been collected to analyze and comprehend the results.

**Method:**

The survey was shared in a google form format and distributed to individuals from different age groups varying from 20-50 years old, gender, and career ladder.

Q.] Age of Respondents

Age	20-25	25-30	40-50
Respondents	79.3%	17.2%	3.4%

Q.] Gender of Respondents

Gender	Male	Female
Respondents	33.8%	66.2%

Q.] Do you own a startup/business?

Options	Yes	No
Respondents	17.2%	82.8%

Q.] Are you aware of how to start a startup/business?

Options	Yes	No
Respondents	51.7%	48.3%

Q.] What according to you is the Trend in startups?

Options	Fintech	Edtech	Healthcare	Ecommerce
Respondents	13.8%	27.6%	6.9%	51.7%

Q.] Do you think startups make a valuable contribution to the economy of a country?

Options	Yes	No	Maybe
Respondents	75.9%	0%	24.1%

Q.] Do you think startups create a new source for job opportunities?

Options	Yes	No
Respondents	100%	0%

Q.] What would you do as an Experienced Professional?

Options	Start your own business	Work in a Startup	Work in a MNC
Respondents	65.5%	6.9%	27.6%

Q.] What would you prefer as a Fresher?

Options	Start working at a Startup	Start working at an established organization	Start your own business
Respondents	55.2%	41.4%	3.4%

Q.] Would you invest in a startup, now or ever?

Options	Yes	No	Maybe
Respondents	34.5%	3.4%	62.1%

Q.] Any thoughts you'd like to share? Some unfiltered thoughts by respondents:

- > Start up requires a lot of planning and thorough research. So before taking the plunge it is better to work under an experienced organization so as to know the systematic workings and planning that goes behind starting something new.
- > I think startups are really important for employment
- > Time is changing, so does the ideas
- > Startups are a risky investment for money and time but if you think your idea is unique,are confident about it

and know the process to start a company then why not give it your best try!

- > Startup creates job opportunity
- > As a fresher and a small business owner I've experienced and heard from many people that it's risky to own, work at or even invest in a startup. I feel it's necessary to know the person who's behind the startup and it's ability to get their business on a bigger platform is something that should be taken under consideration by the viewers before working in that company.

## RESULTS

As we analyze the survey, we notice that 17.2% of the respondents own a startup, whereas 82.8% do not own any form of a business. A majority of the respondents are between 20-25 years old with 33.8% male and 66.2% female. 51.7% of respondents are aware of the processes involved to start a business while 48.3% are uninformed. According to the survey, 51.7% of people say Ecommerce is the most common trend in startups, 27.6% say Edtech, 13.8% say Fintech and 6.9% say Health Care. In the study so far, we've covered how Startups contribute to a country's economy but do the people think the same way? 75.9% say yes, startups make a valuable contribution and 24.1% are not sure if they do. However, 100% of respondents are sure that startups become a source for new job opportunities.

Most of the experienced professionals prefer to start their own business/startup, i.e. 65.5%, while 27.6% would want to work in an MNC and only 6.9% would want to work in a startup.

However, the Fresher respondents, i.e. the people who have no work experience or have just graduated say, they'd prefer to start working at a startup with a 55.2% vote. Whereas 41.4%

would prefer starting their career at an established organization and only 3.4% would like to start their own business.

When asked if they would invest in a startup now or the future, 62.1% answered 'Maybe' i.e. there is a possibility and they are open to considering the scope, 34.5% were certain they would invest in a startup and 3.4% were not planning on investing in an early-stage business.

### Interpretation:

The research states that the younger generation is much more open to start their career at a startup though due to lack of expertise in a field many wouldn't prefer starting their own business at the beginning of their career. On the other hand, People with prior experience are more open to start a business and invest in it. The survey sheds light on the trends in the startup according to the consumer's perspective.

In 2014, 70,000 new firms were created which increased to 80% in 2018 with 1,24,000 firms. According to the consumers, the most trending startup niche is Ecommerce, i.e. businesses selling products and services to customers directly like Amazon, Shopify, eBay, etc. However, startups operate in a variety of industries teeming excessively in technology and after studying the global distribution of industry startups, one realizes that Fintech takes up 7.1% of the global populous of startups i.e. the industry in trend which is closely followed by Healthcare with 6.8

% and A.I. with 5.0%, followed by gaming(4.7%), Adtech(3.3%), Edtech(2.8%) and so on.

The USA stands no.1 housing the most number of startups in the world with 65,703, followed by India on no.2, then UK, Canada, Indonesia, Germany, and Australia in descending order respectively. When discovering trends, one needs to understand what parameters are considered to shape these trends into reality and initiate the change in the present system.

Living in a progressive world an individual's daily routine involves using various startup products and services, like exchanging texts on WhatsApp, scrolling through Instagram, hopping in an Ola or Uber to reach your office, or simply using Paytm to send in the money you owed your friend. This explains how a person's everyday needs affect market trends. Ideas need to be innovative but in a way that it helps one to ease or transform their life

Some of the factors that affect trends are as follows:

- i. The changing models of investments are new arena founders have started to believe in. i.e. One does not need a venture capitalist to succeed which is a debatable subject but to offer assistance to the point let's take Uber as an example. Venture capitalists focus on generating capital rapidly to gain market shares hence invest in organizations that are scaling faster, which is risky. Their investment in Uber isn't reaping

enough profits but they know that one unicorn will help them overcome the losses. On another hand organization like Mailchimp does not rely on venture capitalists at all, it's an email marketing service funded by its customers with \$490 million in annual revenue.

- ii. Building more adaptable or replicable business models considering crisis management and drafting precautionary outlines. When covid19 hit economies drastically many startups struggled for stability, although the pandemic did push the founders to think better and bigger. The right startup should consider risk management in regards to the possible finance, market demands, or in case of an unforeseeable pandemic, at least have a proactive mind to shift the gear and modify the plans or services according to circumstances. Like, the pandemic forced many companies in terms of working in partnerships. For example, the government worked in partnerships with many transportation companies to transport vaccine kits locally and globally.
- iii. The advancing thought process of individuals, that is, not looking at starting a business as just another career step but understanding the amount of hard work, time, and finance required to build. Most people now are focused on building startups with long-term goals.
- iv. In a world run by the internet, digitization is unavoidable and the increasing innovative ideas in AI and machine learning are shaping a new domain and by 2030 this will be commonplace for founders to venture into.
- v. A digitized world is not going to forget its human nature. The need for personalization, understanding human behaviour, thought and missions that focus on social impacts will be an important factor to configure the market reach. E.g. organic and natural products

### **CONCLUSION**

Living in a generation that's more open to start their own venture and bring their ideas to reality enables the world to witness innovative products and services. Trends in startups today to 5 years from now may vary but we can see where we might be heading towards. Today, Fintech is the most populous sector globally but in terms of the fastest-growing industries measured by investment volume Health Care is the fastest-growing sector with \$41.2 Billion, dropping finance to number three with \$24.6 Billion, Transportation on number two and others would include AI/Machine Learning and E-commerce. HealthCare being endorsed now could be the effect of the pandemic with online prescriptions, online doctor consultations, etc. Another factor boosted by the pandemic is remote working which has definitely changed the way people think, work, and live. With cashless transactions being the heat of every conversation, fintech will seem to stay on top. Whereas, with an increase in food delivery business, people buying groceries online, and quality of food, companies like, Zomato, BigBasket - Foodtech has seen steady growth as well. Other booming sectors are Biotech and Edtech,

Trends in a startup will be an evolving subject because it depends on demand, finance, and social prospects but, as long as passion-for-change lives, innovative products and ideas are going to change the way we live our life.

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**THE IBUYER MODEL – A POTENTIAL DISRUPTIVE INNOVATION**

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**ABSTRACT**

*The study intends to understand the potential of the iBuyer model in the real estate market and to find out whether it possesses the ability to become the innovation that will disrupt the role of the intermediate agents and the current business model. The objective is to collect reliable data to comprehend the limitations of the existing business model in light of the understanding derived from it. We compare the iBuyer model with traditional intermediate firms to establish results required to understand the capability of the model and its innovative approach in offering a seamless and cost-effective solution to both the sellers and buyers in the real estate segment. We evaluate and analyze data acquired through a survey of 30 respondents and interpret the customer reaction to the model. The further analysis of the survey suggests that the majority of the respondents find traditional real-estate selling and buying challenging and tedious which motivates them to opt for iBuying. The other criteria that potential clients prefer is close parity in the service cost in comparison to the traditional model with a nominal premium for speed in the transaction and the acceptable range indicated by the survey is 2-5% of the transaction value. Most respondents also consider the model a viable threat to traditional brokerages. The facts derived from this study suggest and conclude that the iBuyer model would be a potential Disrupter in the traditional business model accelerating the buying and selling business in quantum leaps subject to the condition that firms in the market have substantial operating capital.*

*Keywords: housing, liquidity, real-estate, disruptive innovation*

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**INTRODUCTION**

The process of buying and selling homes is subject to many challenges, making housing property quite a difficult asset to monetize or possess. Most first-time buyers and sellers are reluctant to decide on buying or selling decisions due to the various pitfalls on account of lack of validated data for decisions. The other reasons that contribute towards this lack of certainty is the absence of transparency in pricing and the uncertainty of the time period for the entire process to complete which sometimes extends to indefinite periods causing anxiety and financial losses. The uncertainty around the process contributes as a major cause for hesitation among the home buyers and sellers. This trend of reluctance has changed with the advent of the iBuyer model, a recent technological innovation which has shown a promising scope of Disrupting the existing business model in the real estate market.

The iBuyer model is the revolutionary system for instant buying and selling of real estate, which is much faster, convenient, and cost-effective than its traditional counterpart i.e., Realtors and intermediary firms. This model uses artificial intelligence (AI) to deliver instant asset valuation based on intelligent logic. Using the data collected from the property and mathematical algorithms, the iBuyer generates through the automated valuation model (AVM) a precise valuation that can be used to fix the pricing issue of any asset comprehensively considering variable factors. The valuation model uses advanced analytics, such as machine-learning models, to analyze data for a given property to compute a property's current or future valuation in the shortest possible time. Similarly, all purchased inventories in this model are refurbished in a cost-effective framework and monetized within short periods through pitching comprehensive offers to serious buyers looking for an instant and hassle-free buying experience backed with the best-unbiased advice available in the market. The deals made within this model can be closed in as little as seven days with comparatively fewer errors in data and pricing. Convenience plays a key role in this process, also the risk of uncertainty is substantially eliminated. The potential of this technological model to disrupt the intermediary firms is recognized by companies such as Zillow, Open door, RedFinNow and other companies who have adopted this model to harness the opportunity available in the real-estate segment.

A Previous study of this model indicates that the benefits include greater geographic mobility for homeowners and increased liquidity of their real-estate wealth. The benefit of increased liquidity provided by the model has encouraged homeowners to pay a higher transaction value for their homes. To conclude this model facilitates quick monetization of properties across the globe which forms the crux of the iBuyer model which the existing intermediate agents have failed to accomplish.

Along with the benefits, there are certain limitations that acts as a deterrent to the market penetration rate of the iBuyer model in the real-estate segment. iBuyer business model avoids homes that needs extensive repairs and

unique or luxurious homes that are difficult to evaluate and liquidate due to the lack of the voluminous data which is an essential for comprehensive analytics. The major drawback in this model is its preference for homes with basic essential characteristics based on location and construction quality that is sought by majority of buyers which leads to ease in monetization.

In this paper we have attempted to document the capability of the model to constitute it as a potential disruptive innovation to the existing intermediary firms and to analyze its ability to expand and grow further.

### **RESEARCH METHODOLOGY**

To comprehend the potential of the iBuyer model and its ability to disrupt the existing business model we organized a survey which constituted of 30 participants and their feedbacks. The participants comprised of individuals from varying profiles viz: academics, professional backgrounds, income groups and from a broad spectrum of age groups. They were further validated as homeowners, renters and individuals who have had a firsthand experience of buying or selling house properties and also those individuals were included who were indirect witness of the primary group. This study being derived from a broad spectrum of respondents has led to a comprehensive opinion that can be applicable to all individuals buying and selling home properties. To ensure the quality of the responses and to establish authentic results for the purpose of analysis, special care was taken to eliminate irrational responses. The respondents who failed to satisfy the said criteria were excluded from the study.

The central aim of this research is to study the preference of the homeowners when provided with a choice to buy or sell house property through traditional intermediary firms or the iBuyer platform. All data pertaining the limitations of the iBuyer model was highlighted to all participants to ascertain an unbiased response in terms of preference or hesitancy to opt for this model when it comes to buying and selling of home properties.

To enhance the accuracy of the conclusion drawn from the collected data in the light of the Covid pandemic and the current new normal collective sentiments and trends validated by established sources has also been considered to develop a comprehensive analysis and report.

### **ANALYSIS**

The analytical conclusion accrued from the survey report is the foundational argument in terms of the comparison and merits between the traditional and the iBuyer business model which is a potentially disruptive business model to buy or sell residential house property in the contemporary scenario. The conclusion elaborates the pros & cons of this business model to arrive at the forecast of the coming trends. The strong need for this business model in the current times seems to be imminent in the light of the data collected from the homeowners and renters who are potential stake holders, buyers, and sellers of house properties. The main reason highlighted is the acceleration of the process of both buying and selling in the aegis of the accuracy of data science and simplification of process. The lack of transparency in pricing and the uncertainty around the transaction time has been effectively dealt in this business model. This model has effectively resolved process hesitancy and ambiguity around the buying and selling process .

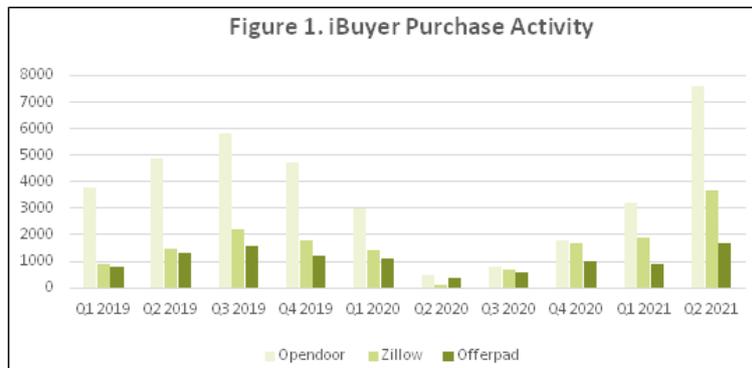
The survey shows that 83% of the homeowners faced challenges regarding home prep through the traditional intermediaries before selling. The major constituent consists of 69% of the sellers involved in minor repair and pre-listing inspections. The other 14% of sellers were those who were involved in major repairs and the process of clearing the clutter. The iBuyer model addresses both the constituents of this focus group by eliminating the prep process for all sellers by ensuring the safety and functionality of the home before finding the next buyer.

Further study shows that homeowners would be attracted to use the iBuyer platform if provided with the following features 1. Fair & validated offer price in line with best in market for both buyers and sellers. 2. Single visit site assessment. 3. Unbiased advice for quick decisions 4. Elimination of the need to negotiate with different buyers or sellers 5. No traditional costing, Inspections, and title search. The participants of the survey indicated a positive response in terms of opting for the iBuyer model instead of traditional realtors and intermediary firms if given a choice. Results also show that 75% of the respondents also felt that the iBuyer model posed a viable and real threat to traditional brokerages and that real estate professionals should be aware of this rising innovation on the horizon .The model has proved its worth even as the real- estate market is facing uncertainty in the current times of the pandemic and lock downs.

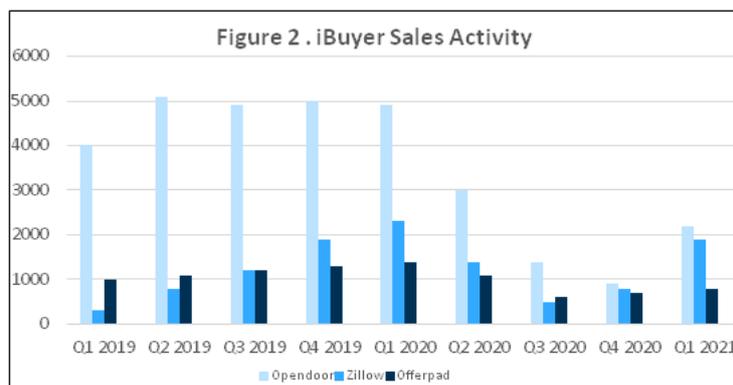
In the early phase of the pandemic period there came a time of diminishing business in all sectors, but the iBuyers have managed to make a strong turn around and has consolidated their buying and sales activity levels that compare more closely with their levels prior to the pandemic. The iBuyers model have an advantage that is

time specific especially in the current pandemic as the concept of the model works on low human interactions providing clients with a fully digital and contact free experience in comparison to the traditional model.

**Figure 1 and 2 shows the recovery made by the model during the pandemic after the dramatic halt at the early stages of the pandemic**



Purchase activity of the iBuyer has made strong recovery this is because iBuyer have an unintended advantage as the concept of the model works on low human interactions providing clients with a fully digital and contact free experience. The figure shows that iBuyers have bought more houses, at higher prices, in Q2 2021 than in any other quarter.



From the sales perspective the iBuyer model has still not reached its pre-pandemic activity . Time is the only factor that will consolidate its influence in market, as the ibuyer purchases more homes and rebuilds its inventories , sales will also make a strong recovery .

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**INFLUENCE OF 3D PRINTING ON MANUFACTURING INDUSTRIES AND SUPPLY CHAIN**

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**ABSTRACT**

*Change is necessary and inevitable. Industry 4.0 is what we are witnessing due to latest disruptive technologies. Which comprises of Robotics, AI, Internet of Things, 3D Printing, Quantum Computing. This paper presents the influences of 3D printing technology on manufacturing industry and supply chain. The prime motive of the paper is to study the impact of 3D printing industry on Automobile, MedTech (medical), Fashion & Jewellery, Furniture, Construction & Architecture sectors. Second motive of this paper is to evaluate the impact on supply chain due to available facility of 3D printing. The paper is built on secondary data. The lucid result of the research states any intricate design or structure can be made with ease by the help of 3D printers. This technology carries the power to reduce company's production cost significantly by decentralizing it. Many after sale service can be easily provided with minimal spending. Rapid advancement in technology such as 3D printing will revolutionize or merely enhance the process of the supply chain and one cannot ignore it.*

*Keywords: Disruptive technologies, 3D Printing, Industrial Revolution, Manufacturing Industries, Supply chain.*

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**INTRODUCTION**

From labour to machines and now transforming our industries into digitalised one. 3D Printing, is one of the disruptive technologies of Industrial Revolution 4.0. The technical term for 3D printing is Additive Manufacturing. It is slight advance form of it. In this technology a digital file or a design is created into a solid object [1]. It allows any complex structure to be manufactured easily weighing light and strong. By using various materials particularly plastic and plastic types, powders, metals, resins, carbon fibre, graphite & graphene, paper [3], 3D Printing gives flexibility to produce any shape, structure or intricate designs of the product. The unstoppable growth of 3D Printing can be seen among various industries globally. Since the paper studies about the influence of 3D Printing on manufacturing industries and supply chain and to understand also to create awareness about the same. Industries like aerospace, automotive, robotics, medical and dental, architecture, construction, fashion & jewellery, entertainment and more have started using the service of 3D printing in their field leaving back the traditional way of producing goods or products. No doubt this technology carries potential to breaks down the chain of supply and reduces the cost for the company as well as the customer. As a conclusion one has to pay attention to this technology and its pros and cons.

**REVIEW OF LITERATURE:**

According to several studies conducted states that 3D Printing gives numerous of benefits over traditional method of manufacturing. The worldwide market for 3D printing products and services was valued at around 12.6 billion U.S. dollars in 2020. The industry is expected to grow at a compound annual growth rate of some 17 percent between 2020 and 2023 [4]. 3D Printing technology carries the power to cut down several cost like assembling, disabling, joining, tooling, middleman costs, inventories, transportation. It gives flexibility for the shape, structure and personalized design of the product and supply chain [5], [6].

**STATEMENT OF PROBLEM**

Previously, printing huge product & in mass was a challenge but now the technology has overcome it. This paper studies how industries have accepted this technology.

**OBJECTIVES OF STUDY**

- To study the impact of 3D printing industry on Aerospace, Automobile, Medical & Dental, Furniture, Construction & Architecture, Jewellery & fashion industries.
- To evaluate the impact on supply chain due to available facility of 3D printing

**RESEARCH METHODOLOGY**

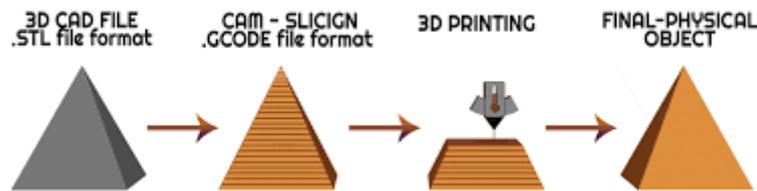
The research paper is solely based on secondary data. Thus, Author have considered several blogs, articles, research paper, websites. With the help of it have built the paper and have brought it to conclusion.

**Hypothesis of the Study**

3D printing is a revolutionary technology and it is already creating disruption in manufacturing industries. Also, it breaks down the supply chain.

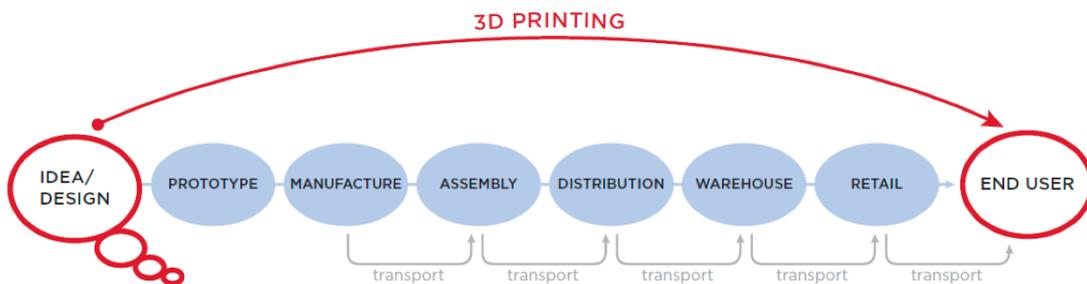
Analysis and Interpretation of Data

1. 3D printing process



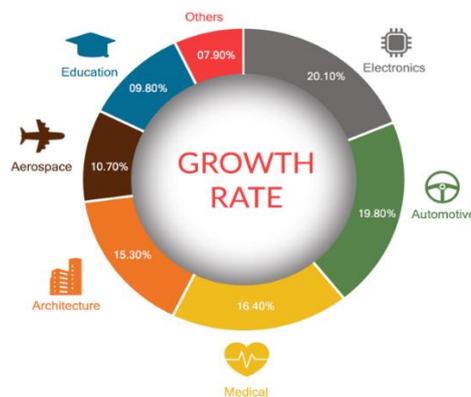
Source: my3Dconcepts

2. Impact on Supply chain



3. Influenced Industries

INDIA 2016 - 17  
TOP 6 INDUSTRIES EMBRACING 3D PRINTING TECHNOLOGY



www.3ding.in

Source: Morphedo / Sudeshna Das

FINDINGS AND CONCLUSION

(Findings)

<p>Aerospace Industry Light and strong interiors of aircrafts. Benefit in cost reduction and fuel consumption</p>	<p>Construction &amp; architecture: Prototyping (models)  3D Printed Homes Tools</p>	<p>Jewellery and Fashion  Accessories Footwears Intricate Jewellery</p>
<p>Automobile: 3D Printed auto parts Cars, Reduction in cost of tooling/assembling</p>	<p>Medical &amp; dental: Braces, caps Anatomical Pre-surgery models, Surgical tools.</p>	<p>Supply chain: Reduction in cost Reduction in middleman Business to Consumer relation</p>

- ❖ In 3D Printing Sentiment Index, 2021 US ranked first followed by United Kingdoms and Germany among 12 countries [2]. The global 3D printing market is estimated to be USD 12.6 billion in 2021 and is projected to reach USD 34.8 billion by 2026, at a CAGR of 22.5%.

**(CONCLUSION)**

- ❖ Earlier production of huge objects was suspicions. But today right from an ear ring to a big double floored house is printed.
- ❖ 3D Printing gives efficiency in production, lower downs the production cost, as well as supply chain.
- ❖ It allows any shape and size to be produce with ease.
- ❖ However, India is a country with huge population. Thus, this technology might affect our country in terms of unemployment. On other hand, skilled people in tech shall get the employment boom.

**RECOMMENDATION**

- The further research can be done on impact of 3D Printing industry on employment. Since it eliminates several roles in the manufacturing industry and supply chain.
- Also how does manufacturing with this technology will impact our environment as plastic usage is currently quite popular.

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**INNOVATION IN EDUCATION SECTOR**

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**ABSTRACT**

*Innovation in education means doing best for all students. In other words, we can also say that 'innovation' means changing the regular ways of doing things and doing the regular things in a better way. Teachers, lessons, and curriculum have to be flexible. The role of a teacher in current era has remarkably changed due to of the various factors such as Environmental, social, cultural, economic and technology developments across the world. Teachers must be innovative, imaginative, and resourceful and have thorough knowledge of the subject and adopt new techniques to teach effectively and in variety of ways. Teachers should give the opportunity to their students for thinking and asking their doubts. Students can develop and increase their curiosity with the help and support of their teachers. We have to give the students to all tools that will make them productive in their future careers. Innovation helps our students to think in different ways and also find out the best solution for the problems which they are facing. Education also tries to improve the thinking capacity of the students. Some students learn through movements and hands-on training, but some need visual information for to understand the topic very well. A successful and dedicated teacher is the one who does not only disseminate knowledge and encourage learning but can also identify the learning styles of students and give the guidance based on the individual difference. We cannot assess the innovation, but we can measure the effect of innovation through the performance and achievement of our students in their personal and career life. This study tries to understand how innovation brings improvement in education and society.*

*Key words: Education Sector, Innovation, Creativity, Curriculum, Disseminate*

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**INTRODUCTION**

Innovation in education means solving a real problem in a new, simple way to promote equitable learning. Innovation in education matches the scale of the solution to the scale of the challenge. We can use innovation by integrating different subjects and giving hands-on experience in science, technology, engineering, art, and mathematics. We also understand that every student is different and so, we assign projects to individual students based on their interest and capability. Innovation in education can be a rather intangible concept and can mean different things to different people. However, there are very real and tangible benefits of innovation in education. Innovation cannot be tested or graded, but it can be inculcated and built up in students. In this environment of high-stakes testing, it can be incredibly difficult to introduce innovation and creativity in the classroom.

**Creative Teaching**

The act of teaching in a noble and powerful way that promotes and enhance student's growth and development of original thought. Creative teaching means how a teacher can express their content in their own styles for improve the thinking ability of students and for producing better outcome. Learners should understand that teaching creativity includes taking responsibility for both success and failure. Creativity is very important because, it is a heart of motivational class room, it can definitely empower the students and teachers and it can improve active learning .

**Audio-Video Tools**

Education is very important and without education no one can achieve a better life. Teaching and learning are the important elements in education. The teacher use different methods and materials to teach their students and helps in their effective learning. With the passage of time, different methods and techniques have entered in the field of education and teacher use different kinds of aids to make effective teaching. Teaching aids arouse the interest of learners and help the teachers to explain the concepts easily. Audio visual aids are important in education system. Audio visual aids are those devices which are used in classrooms to encourage teaching learning process and make it easier and interesting.

**Real world learning**

Making real-world connections promotes student achievement through the authenticity of the learning. The learning and the results of the learning are directed to audiences beyond the school. It supports character education as relationships between the community, the school and students are enhanced. In education, the term relevance typically refers to learning experiences that are either directly applicable to the personal aspirations, interests, or cultural experiences of students (personal relevance) or that are connected in some way to real-

world issues, problems, and contexts (life relevance). The lessons a teacher implements should have relevance to a student's life. If they can't see the point in learning a topic or are totally uninterested in it, they won't sit quietly and attentively, patiently waiting to be filled with knowledge. At the start of any topic or lesson, you need to give your students as many reasons as possible for listening to what you're about to tell them. When you give them enough reasons as to why they need to hear something, there is more chance they will listen.

### **Brain storming**

Brainstorming is a method of generating ideas and sharing knowledge to solve a particular commercial or technical problem, in which participants are encouraged to think without interruption. Brainstorming is a group activity where each participant shares their ideas as soon as they come to mind.

Some of the advantages of brainstorming for businesses and individual productivity include:

1. Brainstorming allows people to think more freely, without fear of judgment.
2. Brainstorming encourages open and ongoing collaboration to solve problems and generate innovative ideas.
3. Brainstorming helps teams generate a large number of ideas quickly, which can be refined and merged to create the ideal solution.
4. Brainstorming allows teams to reach conclusions by consensus, leading to a more well-rounded and better informed path forward.
5. Brainstorming helps team members feel more comfortable bouncing ideas off one another, even outside of a structured session.
6. Brainstorming introduces different perspectives, and opens the door to out-of-the-box innovations.

### **Teaching outside the Class room**

Education does not always mean studying in school, college giving exams and passing that. There is a big world outside the classroom to learn and practice things, improve skills. The world is itself a classroom giving good and bad experiences and in return gives wisdom. There are many things that people learn and practice except study like hobbies, develop skills, extracurricular activities, sports, adventure, etc. learning outside the classroom develops new behaviour skills and management tips in children. Learning, practicing and dealing with actual things is a whole new learning process which gives you wide ability to grasp and nurture creativity and imagination.

### **Role play**

Role-play is a technique that allows students to explore realistic situations by interacting with other people in a managed way in order to develop experience and trial different strategies in a supported environment. Depending on the intention of the activity, participants might be playing a role similar to their own (or their likely one in the future) or could play the opposite part of the conversation or interaction.

- Develops communication and language skills.
- Allows children to act out and make sense of real-life situations.
- Allows children to explore, investigate and experiment.
- Develops social skills as children collaborate with others.

### **Welcome new idea**

It is important that the teachers set a blueprint for the students to ensure the sessions are conducted seamlessly. Teachers should aim towards planning in advance so that the pace of teaching is aligned to the syllabus that needs to be covered within a set timeframe. It is important that teachers involve students in classroom discussions and help them become self-regulated learners. Self-regulated learning ensures that the students are proactive in their learning approach, which is essential in both offline and online classroom environment, to think positively and empower them in developing lifelong learning skills.

### **Stimulating classroom environment**

In a stimulating classroom, students are able to move around, learn new ways of receiving knowledge, and are encouraged to question everything around them. Because of this, it's easier for them to become involved in the learning process.

A stimulated classroom environment is a combination of all of these things; it refers to the way students' minds are stimulated while in their learning environment. This can come from: Visuals throughout the classroom, Hands-on activities with physical movement, Multi-modal means of learning each new concept, Opportunities for higher-order thinking/questioning, Exciting and stimulating teachers.

### **Work together**

Collaborative learning has been shown to not only develop higher-level thinking skills in students, but boost their confidence and self-esteem as well. Group projects can maximize educational experience by demonstrating the material, while improving social and interpersonal skills. Teamwork teaches essential communication and social skills, such as active listening and effective speaking.

When working as a team, students learn how to listen to their leaders and coaches in order to perform their individual roles. Students learn how to listen to one another in order to function as a cohesive unit. Teamwork teaches students how to respectfully and confidently express their ideas and opinions effectively in a group setting. It's important for students to recognize that speaking is not the same as talking. Speaking is about understanding how to communicate with an audience. The way in which a student speaks to other group members demonstrates her level of understanding and respect for others. Teamwork teaches students that their voices are respected and valued. Knowing that she will be heard helps build a student's self-confidence, while encouraging further participation in group activities. This becomes a self-sustaining cycle: participation in team activities teaches students how to be better communicators, which in turn helps every member of the team feel valued and respected. As a result, even the most introverted and quietest members of the team can become active participants and learn to enjoy team activities.

### **Start School Club and group**

To give students an opportunity to showcase and hone their talents and also prepare them for intra school competitions, various club activities are conducted through the year. Club activities not only help students shape their personal interests and hobbies but also improve their leadership and social skills. At first, if academic education is optimistic about getting better results and eventually a better career, then think about taking part in Co-Curricular Activities or club activities in school. Academic education and club activities make the study complete. In some cases, the importance of club activities in schools is more effective for a career than academic education. Many great people in the world have become outstanding career leaders through club activities. For example- Sachin Tendulkar played school cricket that is a Sports Club Activity.

Club activities will make you more qualified, enough confident as well as a capable person who can lead the situation. For example-if, you participate in the debate club, you will be able to speak beautifully. Moreover, your thinking would be rational & acceptable among other people.

### **Innovative Trends in Educational Technology**

#### **Artificial Intelligence:**

The use of artificial intelligence in today's classrooms has really transformed the quality of education. It can provide a great insight into student learning and improves the overall process with better communication. Teachers can make use of its possibilities to speed up the grading and other daily chores and utilize the saved time for quality teaching. It acts as a personalized learning companion to meet a variety of student needs and help teachers to act as learning motivators. The automation in classroom can help both students and teachers to stay more productive in the daily chores.

#### **VR/AR in Classrooms:**

By accommodating the possibilities of visual learning and overcoming language barriers, augmented reality has made learning more effective. As the price of AR and VR equipment are showing a downfall, more of teachers are now making it a part of their teaching strategy. Virtual field trips are one of the most effective benefits of VR in classrooms. This helps students to go deeper into various subjects at the comfort of their classroom. Moreover, this technology has enhanced creativity among students through imaginative play and thinking.

#### **Social Media Influence:**

Social media has a great influence in almost all industries now and. It is in fact playing a crucial role in shaping today's classrooms. This platform is helping teachers and students to globalize the classroom and connect easily with others with similar interests and mindsets. The right use of this social platform is giving opportunities for students to think about the lessons outside the classroom.

**Online Courses and Learning:**

The present education industry is more inclined to online courses and learning than just the classroom education. Students are largely utilizing the possibilities of online courses to study their preferred field of interest and research on their favorite subject areas. Students are also utilizing similar online courses to have an additional educational support on their tough subjects.

**Digital and Media Literacy:**

As students are spending a considerable amount of their study time online, it is high time for the teachers to understand the importance of digital and media literacy. The school authorities are taking initiatives to guide them on how to behave online which includes rightly processing information they encounter online and communicating online by respecting others' views. In fact, the inclusion of digital and media literacy in the curriculum is aimed at helping students to learn how to responsibly utilize online resources.

**Embedding Innovative Resources:**

Educators who are looking to incorporate digital content to the classrooms can now make use of the vast array of educational resources available online. However, selecting the right set of teaching materials from this wide array of information is the key. Today's technology is giving them options to access refined and well-researched digital materials that are relevant for their purpose.

**Gamification and Gamified learning:**

Creatively engaging students in learning is one of the smartest means of getting their attention for a longer time. Understanding the importance of games to engage students, schools have shifted their strategy to gamification and gamified learning in classrooms. This not only improves their interest for learning but also instills a friendly competitive mindset and invokes their creative thought process to win situations.

Gaming through digital platform also improves their social behaviour and problem solving skills.

**Wearable Technology:**

This technology is creating a big bang in the school campuses as wearable devices are not only making the kids safe but also improving their quality of life. As it can track the location, students are safe inside the campus and parents and teachers can easily track them. The options to make payment through these smart devices avoid theft and bullying while facilitating paperless transactions.

**Data Privacy and Cyber Security:**

In this modern educational system, one of the major areas of concern is the data privacy and cyber security of students. So authorities are making serious steps towards preventing cyber bullying and maintaining their desired privacy in the digital platforms. This is in fact a shared responsibility and only a mass campaigning can make a vital improvement in the areas of concern. School authorities are now more focused on providing lectures and campaigns in schools led by scholars to educate students about data protection and cyber security.

**Flipped Learning:**

The modern educational technologies are putting forward the possibilities of inverting traditional teaching methods to enhance learning process. In this teaching strategy, students are making use of the advanced educational technologies to have a look at lessons beforehand. They go through tutorials or videos to study the lessons at home and utilize the classroom time to do assignments. They can work out problems under the supervision of teachers and clarify their doubts if any. Moreover, having an idea about the subject beforehand makes it easy for students to easily catch up what teachers are talking about.

**Analytics and Data Driven Decisions:**

More than getting drowned in large collection of data, educators are now more focused on understanding the analytics and coming up with data driven solutions. With the advancements in technology, they are not just conducting analysis and keeping data aside but making serious steps to ensure that the results are relevant and diagnostic. Effectively utilizing the wealthy information we have is the key to experience positive results and changes.

**Relevance to STEM Materials:**

As advancement in technology has made many remarkable changes in today's education system, schools are slowly changing their focus to science, technology, engineering, and math (STEM) subjects once again. This in fact places a platform for institutions providing higher education to develop a more engaging curriculum for coding, robotics and programming. Moreover, the possibilities of integrated learning are helping educators to provide the best possible learning experience for students. With the rise in technology and innovations, it is

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normal for students to expect seamless technology in school. There is nothing surprising to see if machine learning overcomes other learning aspects and school systems can turn more scalable.

**CONCLUSION**

As outside the classroom learning is becoming more important, the collaboration tools will become more prevalent. Moreover, the big data analysis helps schools to learn the areas where the students excel and identify the areas in which they struggle and thus provide additional support. Innovation involves a different way of looking at problems and solving them. It also improves education because it compels students to use a higher level of thinking to solve complex problems. Innovation does not just mean the use of technology or new inventions, though these can contribute to innovation. Innovation involves a new way of thinking, thereby helping students develop their creativity and problem solving skills.

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**MACAULYISM VIS-À-VIS TRANS-DISCIPLINARY EDUCATIONAL SYSTEM: A STUDY ON THE OPINION OF SENIOR TEACHERS IN KDMC REGION****Dr (CA) Vishwanathan H Iyer**

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**ABSTRACT**

*The National Education Policy (NEP) 2020 is a well thought, well designed educational system promoting trans-disciplinary choice based education system at par with the developments in education system happening in the world. However, this result is the end result of various phases of research and development in the educational sector for the past century.*

*The Indian education system during the medieval age was “Gurukul” system. This system was rich in cultural values. However, it lacked consistency and there was no universal medium of communication. Taking a note of these shortcomings and strengthen its hold over its colonies, the Britishers introduced their system of education through Universities. Lord Macaulay introduced the British system through English language in India. His purpose was to create a common medium of instruction to train people and create a labour force to support the British administration rule effectively.*

*Even the post-independence era saw the educational policy revisited many times. However, the skeleton of the policy remained same. The nature of education was same with a few changes incorporating the updates around the world but the outcome was same, more emphasis on selecting one stream of education, scoring marks, clearing exams without concentrating on skill development of students.*

*The National Education Policy 2020 throws light on these shortcomings of Macaulayism and provides a wide range of options for choosing stream and course of education. The shift from one discipline to multi-discipline and further to trans-disciplinary opens a wide array of options for the student community.*

*This paper through primary and secondary data studies the opinion of senior teachers in KDMC region regarding this shift from Macaulayism to Transdisciplinary education system.*

*Keywords: #Macaulayism #Changeineducation #Nationaleducationpolicy #NEP2020 #Transdisciplinaryeducationssystem*

**INTRODUCTION**

The Indian education system was rich in cultural values since time immortal. The Gurukul system was an unique concept where students choose a ‘Guru’ and went to his place to acquire knowledge. The entire emphasis of education was value driven. Apart from knowledge sharing session, life lessons were imparted along with practical work being done. This system of education was perfect for overall development of any student. However, this system has its share of demerits which included only a handful of students being admitted at ‘Gurukul’. These students generally belong to royal families and the ordinary people were deprived of this basic rights of life. Also, this system of education lacked consistency as each ‘Guru’ had his own learning and thereby his own sharing technique. No standards were set for imparting knowledge. Also, there was no common medium of communication. In a nutshell, though this medium was highly effective model, it lacked reach amongst the common people.

When Britishers invaded and sought control, they took note of these shortcomings. With an intention to strengthen its hold over India, the Britishers introduced their system of education through Universities.

Lord Macaulay introduced the British system through English language in India. His purpose was to create a common medium of instruction to train people and create a labour force to support the British administration rule effectively. After an exhaustive study of the ‘Gurukul’ education system, he analyzed the drawbacks, and his system of education was a remedy for the same. He made the English language the medium of instruction and launched the “downward filtration method” for educating the Indians. This 2-way attack shook the very foundation of the ancient Indian civilization and the strong pillars of the “Gurukul” system came crashing down.

Lord Macaulay was highly successful in implementing the British system of education in India through his strategies. He succeeded in his mission of creating a work-force to complement the British officers. Even, the post-independence era saw the educational policy revisited many times. However, the skeleton of the policy remained same. The end result was through the education system underwent a change, the outcome remained

the same. More emphasis was laid on selecting one stream of education, scoring marks, clearing exams and entering the system without concentrating on skill enhancement techniques and development of the same.

The present situation in which India exist needs more dynamic entrepreneurs than mere work force. To strengthen its human resource policy and concentrate on the HR development, Macaulyism failed on many fronts. To overcome many of the shortcomings of the Macaulyism, the National Education Policy (NEP) 2020 was proposed. This education system throws open lots of opportunities for the younger generation to choice based graduation system. Rather than selecting one stream for graduation, this system proposes trans-disciplinary options. Though the policy is in proposal stage, the recommendation suits the modern day requirements for development of the country. As it has been seen in the past, the effectiveness of any policy depends largely on the perfect implementation of the same.

This paper attempts to make a study of the opinion of the Senior teachers residing in KDMC region on implementation of the proposed Trans disciplinary education system vis-à-vis the existing Macaulyism

### **REVIEW OF LITERATURE:**

- 1) V.Kumar through his article, "Destruction of the Indian system of Education", published in "Bharati", the cultural magazine of IIT-Madras, opines that India can strengthen itself by designing an educational system coming out of Macaulayan traits and obtain a fresh and untainted understanding of the need of the hour.
- 2) Mangesh M Gonge, Rohit Bag and Aniket Singh through their paper, "Indian Education: Ancient, Medieval, and Modern", submitted to [www.intechopen.com](http://www.intechopen.com), conclude that in the modern era, where every Industry is growing at a fast pace, the need for young minds having dynamic thought process is on a rise. The current education system failed to deliver such thought process and Government intervention regarding the same was very necessary to bring about an educational system that would encourage overall development of students and make them future-ready to face real-life critical situation.
- 3) Muhammad Tufail Chandio, Saima Jafri, Komal Ansari through their paper, "The Advent of British Educational System and English Language in the Indian Subcontinent: A Shift from Engraftment to Ultimate Implementation and its Impact on Regional Vernaculars", concluded that introduction of English as a medium of instruction has its own merits and demerits. They strongly opined that introduction of English had adversely affected the vernacular language. The advantage was English opened the opportunity to go through the volumes of research in the field of science keeping up the trend with universal developments which would have otherwise kept the nation deprived of the same during those days.
- 4) Kalyani, Pawan. (2020) through his paper, "An Empirical Study on NEP 2020 [National Education Policy] with Special Reference to the Future of Indian Education System and Its effects on the Stakeholders" published at [www.jmeit.com](http://www.jmeit.com), concluded that the education system has shifted the focus from learn what the system want to provide to learn what the students wants to learn according to their choice and preferences. However, the closing remarks in the paper hinted that NEP 202 was yet a proposal ready for implementation. The implementation and execution of the plans in real ground level will yield the actual results that are projected in the proposal.

### **OBJECTIVES OF THE STUDY:**

- 1) To understand the Macaulyism (Educational) System.
- 2) To understand the National Education Policy, 2020.
- 3) To analyse the opinion of senior teachers on the National Education Policy, 2020
- 4) To analyse the opinion of Senior Teachers on the change in the educational system to Trans-Disciplinary system

### **HYPOTHESES:**

- 1) Based on Gender:  $H_0$  – There is no significant difference between the Gender and opinion on Educational System.  $H_1$  – There is a significant different between the Gender and opinion on Educational system.
- 2) Based on Age:  $H_0$  – There is no significant difference between the Age and opinion on Educational System  $H_1$  – There is a significant difference between the Age and opinion on Educational System
- 3) Based on Geographical Area:  $H_0$  – There is no significant difference between the Area of Residence and opinion on Educational System  $H_1$  – There is a significant difference between the Area of Residence and opinion on Educational System

**RESEARCH METHODOLOGY:**

- ❖ The Research is Indicative and Analytical in nature.
- ❖ The population includes Senior teachers (Above 40 years) in the Urban and Rural areas of Kalyan-Dombivli region, Thane District.
- ❖ Sample size was small (Response was collected from 28 respondents)
- ❖ The Stratified sampling technique was used for collecting data
- ❖ The Primary data was collected by floating a Structured Questionnaire through Google forms and personal interviews
- ❖ The Collected data was edited, classified and tabulated.
- ❖ The Normality test was applied to check Normalcy of data
- ❖ Since the sample size was small and the data was found to be normal. Hence, t-test was applied for testing of hypotheses.
- ❖ SPSS package was used.
- ❖ The Secondary data was collected through various research papers, websites

**ANALYSIS OF DATA:**

Considering the Objectives of the study, the variables of the study included The Gender, Age and Area of Residence of respondent.

The ‘Gender’ bifurcation of data was as follows:

Gender	Frequency	Percent
Female	11	39.3
Male	17	60.7
<b>Total</b>	<b>28</b>	<b>100.0</b>

The ‘Age’ bifurcation of data was as follows:

Age	Frequency	Percent
40-50 years	15	53.6
Above 50 years	13	46.4
<b>Total</b>	<b>28</b>	<b>100.0</b>

The ‘Area of Residence’ bifurcation of data was as follows:

Area	Frequency	Percent
Urban	18	64.3
Rural	10	35.7
<b>Total</b>	<b>28</b>	<b>100.0</b>

Testing of Hypotheses:

1) Based on Gender:

H<sub>0</sub> – There is no significant difference between the Gender and opinion on Educational System.

H<sub>1</sub> – There is a significant different between the Gender and opinion on Educational system

Tests of Normality based on Gender:

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Overall view	Female	.206	11	.200*	.894	11	.154
	Male	.101	17	.200*	.968	17	.791

The data is considered Normal data as the Significant value is greater than 0.05. Since the data is normal, t-test is conducted for testing the hypothesis.

The t-test yielded the following results:

Independent Samples Test									
	t-test for Equality of Means								
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	2.579	.120	1.244	26	<b>.225</b>	2.84492	2.28666	-1.85538	7.54522

Interpretation:

The above table indicates that p value is 0.225 which is higher than 0.05.

As the P-value is higher than 0.05, t-test is accepted. Hence, Null Hypothesis is accepted.

Conclusion:

This indicates that there is no significant difference between the Age and opinion on Educational system.

2) Based on Age of Respondents:

H<sub>0</sub> – There is no significant difference between the Age and opinion on Educational System

H<sub>1</sub> – There is a significant difference between the Age and opinion on Educational System

Tests of Normality

Age of Respondents		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Overall view	40-50 years	.104	15	<b>.200*</b>	.949	15	.508
	Above 50 years	.179	13	<b>.200*</b>	.899	13	.128

The data is considered Normal data as the Significant value is greater than 0.05 . Since the data is normal, t-test is conducted for testing the hypothesis.

The t-test yielded the following results:

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.281	.601	.062	26	<b>.951</b>	.14359	2.30478	-4.59396	4.88114

Interpretation:

The above table indicates that p value is 0.951 which is higher than 0.05.

When P-value is higher than 0.05, then t-test is accepted. Hence Null Hypothesis is Accepted.

**CONCLUSION:**

This indicates that there is no significant difference between the Age and opinion on Educational system.

3) Based on the Area of Residence

H<sub>0</sub> – There is no significant difference between the Area of Residence and opinion on Educational System

H<sub>1</sub> – There is a significant difference between the Area of Residence and opinion on Educational System

Tests of Normality

Area of Residence		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Overall view	Urban	.144	18	.200*	.952	18	.451
	Rural	.161	10	.200*	.968	10	.873

The data is considered Normal data as the Significant value is greater than 0.05. Since the data is normal, t-test is conducted for testing the hypothesis.

The t-test yielded the following results:

Independent Samples Test									
	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.341	.565	-.991	26	.331	-2.3333	2.35503	-7.17416	2.50749

Interpretation:

The above table indicates that p value is 0.331 which is higher than 0.05.

When P-value is higher than 0.05, then t-test is accepted. Hence Null Hypothesis is Accepted.

Conclusion:

This indicates that there is no significant difference between the Area of Residence and opinion on Educational system.

**FINDINGS OF THE STUDY**

- ❖ The data collected indicates 39% were female while 61% were male respondents.
- ❖ 54% of the respondents belonged to age category of 40 yrs to 50 years and 46% were above 50 years
- ❖ 64% of respondents belonged to Urban area while 36% belonged to Rural area.
- ❖ There was no significant difference in the opinions of Senior teachers
  - Between the age of 40 -50 years and above 50 years.
  - amongst Male and Female respondents
  - Amongst Urban and Rural respondents
- There is a positive opinion of senior teachers towards National Education Policy and changes proposed within, which is moving towards Trans-Disciplinary Educational system.

**SUGGESTIONS OF THE STUDY:**

- ❖ The onus of implementation of the proposed Educational reforms through National Education Policy, 2020 falls on the Government prima facie.
- ❖ Hence, the Government must act with proper authority to supervise and control the implementation of this Trans-Disciplinary Educational System.
- ❖ The senior teachers have reflected a positive opinion about the expected changes. It is their responsibility to motivate junior and/or fellow teachers and also, create awareness amongst them.
- ❖ The entire teaching fraternity must take the responsibility to create awareness among other stakeholders of education system viz. Students, Parents and corporates about the positive impact of implementation of the desired Trans-Disciplinary Education System for it to be successful at National level.

**CONCLUSION:**

- ❖ The transition from the Macaulay system of Education which was introduced by the Britishers to create students with a fixed mindset to a flexible trans-disciplinary educational system through National Education Policy is a break through revolution in the educational field. (proposed)
- ❖ The effective implementation of proposed policies will bring about the desired results of Disruptive Innovation.
- ❖ This change carries good vibes, a positive opinion and the awareness will be beneficial to all stakeholders of the system viz) the Teachers, Students, Parents, Corporates and the Government as well.

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**E-BOOKS AND AUDIO BOOKS AS DISRUPTIVE INNOVATIONS**

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**ABSTRACT**

*The arrival of technological innovations in everyday lives is not a recent reality, but it has had a drastic expansion in terms of application and adaptation. This advent of easy-to-use apparatuses has drastically changed our traditional thought, belief, action, and communication. Literary socialization, beginning from the basic storytelling to reading, has also withstood a similar technological wave. The electronic book, as a trend since the 2000s and the audiobooks together have conditioned the printed book publication and readership. Mobility, accessibility, and usability are the highly weighed positives of this user-friendly set-up. This shift particularly focused on the conveniences and comforts of the readers, at the same time negatively affecting traditional reading and storytelling habits. Especially under the light of pandemic and quarantine life, this technological intrusion is considered a labour-saving arrangement.*

*This paper examines the impact of the advent of e-books and audiobooks on the traditional readership patterns. It also throws light on the opinions of readers, as well as literary purists on this paradigm shift among the reading audience. This paper is the analysis of a survey of suburban Mumbai college students, of the age group 18-22 years. The objective of this paper is to analyze their reading patterns under the influence of technology. Particularly in discussion is the review of these young adult readers about this electronic substitute to printed books. A detailed analysis of the responses of undergraduate and postgraduate readers is the scope of study in this paper.*

*Key words: socialization, e-books, audiobooks, easy-to-use, book publication, readership, storytelling, impact.*

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In the 11th century, a Japanese noblewoman known as Murasaki Shikibu wrote “The Tale of Genji,” a 54-chapter story of courtly seduction believed to be the world’s first novel. Nearly 2,000 years later, people all over the world are still engrossed by novels — even in an era where stories appear on handheld screens and disappear 24 hours later. Why this readership? Why are so many people engrossed in a book? Research says reading increases your ability to empathize, strengthens your brain, builds your vocabulary, helps prevent age-related cognitive decline, reduces stress, helps alleviate depression symptoms; all these including being a major source of entertainment, education, and empowerment.

Interestingly, over 9, 00,000 books are printed and published each year. The electronic book, as a trend since the 2000s and the audiobooks together have conditioned this printed book publication and readership. According to an article by Alison Thoet, “Audiobooks first emerged in 1932 with the establishment of a recording studio by The American Foundation for the Blind, which created recordings of books on vinyl records. The following year, Congress passed an amendment that allowed the Library of Congress to begin producing audiobooks”. [1] Mobility, flexibility, accessibility, and usability are the highly weighed positives of this user-friendly set-up. These arrangements aimed at the conveniences and comforts of the readers, but as any other technological innovation, altered the traditional patterns and habits of reading and storytelling.

These easy-to-use apparatuses have affected the young adult reading class, as the major consumers of ebooks and audiobooks. Thus this paper examines the alterations in their reading habits, the frequency of reading with these devices at hand, and their opinions on these appliances as a disruptive innovation. To mark things clear, this paper is not concerned with evaluating different devices, neither websites of reading, nor a review of any particular app, site or blog.

Considering these aims and objectives, a survey was conducted among the undergraduate and postgraduate students of age group 18-22 years via Google forms. The survey gathered the opinions of 152 such students from colleges across the University of Mumbai. These responses helped to map the opinions of young readers who addressed the positives and negatives of these innovations.

At the outset, audiobooks and ebooks have together increased the availability of choice, both for readers and for budding authors. Contemporary research focused on the choice and benefits which are now opening up for the readers. For instance, Lotta C. Larson’s research titled - ebooks and audiobooks talks about an advanced combination of both ebooks and audiobooks for the convenience of young readers. [2] The Impact of ebooks on the Reading Motivation and Reading Skills of Children and Young People by Irene Picton, analyzes the user demography, its proportion and content with respect to reading behavior, skills and enjoyment. [3]

The impact that these discoveries had on traditional reading habits are yet to be discussed and addressed. Nevertheless, some of the studies were worthwhile for this study, as cited under:

According to Linda McMaken and Anthony Battle in their article titled - *E-Books vs. Print Books: What's the Difference?* "In the last several years, e-books have become a mainstay of the publishing industry. However, the demise of printed books as a result of the introduction of e-books has not materialized as predicted". [4] On that account, though the trend has affected physical book readership, it has not completely put an end to it. The prevalence of e-book and audiobook reading is markedly growing, but printed books still dominate the world of book readers. Besides, the article also revealed "While e-books are helping the publishing industry, they can be a bit daunting for readers. If you are used to going to a local bookstore, browsing the aisles, and perhaps reading the first chapter before purchasing, you still can with e-books, albeit with a little adjustment." [4] This statement was later emphasized by many respondents in the survey. The author interprets this as a matter of personal experience and emotional attachment associated with physical books.

Further, Michael Kozlowski in his article titled - *Audiobook Trends and Statistics for 2020* mentioned, "Digital audiobooks continue to be the fastest growing segment in publishing. Not only is the entire publishing industry making more money, but there is more choice available for customers". [5] Therefore, the alternatives and possibilities opened up for readers are undoubtedly to be acknowledged. This was also supported by few of the respondents who were avid readers, who observed that the availability of better choices have expanded with the arrival of ebooks and audiobooks. Adding to this, some also stressed that an array of books can be browsed easily and rapidly by just a single touch.

Digging further into other research findings, a survey conducted by Pew Research Centre in America, years back revealed that 30% of those who read e-content say they now spend more time reading. The average reader of e-books says they have read 24 books in the past 12 months, compared with an average of 15 books by a non-e-book consumer. [6]

Moreover, a recent study concerned with the Indian populace could be considered a few steps ahead, in terms of reliability, accuracy and relatability. Consequently, a study titled '*Impact of COVID-19 on the India Book Consumer*' conducted by Nielsen Book India in June-August 2020 found that both e-reading, and audiobook listening are up, increasing by a substantial seven hours weekly on average to as much as 16 hours total, per week. [7] This indicates the increase in use of technological innovations, and is also a pointer to the fact that it is a positive increase considering it encourages reading habits among the mass, at the same time ensures a better reading generation.

In the words of Terje Hillesund in his research paper titled – Will ebooks change the world? : "With e-books the creation, storing, uttering and receiving of literary works have been liberated from both the sound of the voice and the print on paper". [8] This is definitely a pointer towards the labour-saving nature of these devices.

In view of these benefits, the survey gathered the opinions of the ones most affected by this change, that is, young adult readers. In spite of such an introduction, 71.7% respondents still prefer physical books to the 16.4% preferring ebooks and an 11.8% shifting to audiobooks. What is to be highlighted, is the response to - Has your reading pattern changed post the introduction of eBooks and audiobooks? - Where 41.4% readers responded positively while the rest were either unsure [28.9%], or contradicted [29.6%].

Nevertheless, 70.4% of respondents still consider audiobooks and ebooks positive innovations, while only 3.9% readers were dejected with this change and 25.7 % were apprehensive about this innovation being a positive one.

On a more subjective note, throwing light on the publication and reading class is the question - How do you think the increased demand for eBooks and audiobooks have affected the printed publications and physical book reading class? Few of the foremost responses were-

- "Unlike physical books, ebooks are economical and sometimes free also. Ebooks are far more accessible and applicable to people owning a simple smartphone."
- "ebooks and audiobooks are being considered as more modern and in-trend. So the demand for physical books has reduced to an extent, and this of course might have affected the publishing industry negatively."
- "E books are portable and lightweight, making it easy to carry around. Instead of carrying multiple bulky books, one ebook reader can hold thousands of ebooks. It saves a lot of space in your home and in your bag. One doesn't have to worry about the storage limitations."

- “The increased demand has reduced the number of books printed and many people don't feel the need to visit bookstores anymore. the bookstores and libraries are thus facing huge losses”
- “Of course it may have affected the printed publication tremendously. but thinking of the long-run, the loss is negligible and they should renovate their set-ups to computer based libraries so that everyone can access books wherever needed”
- “The demand has affected the printed publications but not the physical book reading class as such. The physical books are still in heavy demand and with the emergence of trends like bookstagram; the youth are attracted to books more than before.”

The response to a question on the comforts of reading an ebook is noteworthy. More than half of the respondents, 58.6% preferred its **flexibility of font, zoom, brightness, and bookmark features** and 51.3% highlighted its **portability**. Another equal section of 49.3% preferred its **storage and space benefits**. And a similar amount of 38.8% responded to its **built-in dictionary benefit** and 48% underlined ebooks as being **economical**.

Similarly, responding to a question on the positives of using audiobooks; majority, that is 61.8% affirmed it **reduces burden on eyes**, half of the readers stated it **helped the visually challenged**, more than 40% of respondents chose its **usability during travelling, convenience and portability** and beyond the count of a quarter[36.2%] addressed it as **easy to use** and 33.6% underscored its **efficiency in time management**.

The study exhibited some evident results when readers responded to the question - How has your reading pattern changed as a result of audiobooks and eBooks? While quarter each either continued the old fashioned reading [25.7%] or preferred both physical books and ebook or audiobook alike [28.9%], it is positive to note that 15.1% have started reading more as part of this innovation, but saddening that 11.2 % have reduced their reading in response to this change. Pointing to ebooks, 19.1% respondents are now heading to ebooks more than its physical copies.

Respondents were more loquacious while answering the question - What according to you are the changes that traditional reading patterns underwent due to the introduction of eBooks and audiobooks? Few are cited under:

- “Many people who never used to read physical books have started reading e-books or using audiobooks. Reading is possible anywhere and everywhere without having to carry books around and adding to this audiobooks are great for disabled readers.”
- “Each book you read is a physical experience of possession, maybe that is why an ebook is not a conventional option of reading as it lacks this personal effect.”
- “For an avid reader, I personally think it doesn't seem to matter as long as I am getting an interesting book to read, be it a hard copy or an ebook.”
- “EBooks and audiobooks are more convenient to use. As an avid reader carrying books everywhere with me was difficult but using a Kindle is a lot easier. Books are available to me much quicker and I can download and read as many books as possible without the need to free up space for them.”
- “My normal visits to libraries and bookstores have just vanished. It feels as if I have an entire library at my fingertips. The joy of exchanging books with friends is not a thing anymore. But at the same time, I miss the excitement of library visits and the nostalgic old bookshelves.”
- “The increased screen time can be a factor which will cause the reader of a virtual book to put away the device for sometime, which he would not have done in the case of a physical book. I do not prefer to use audiobooks because of the monotony in them.”
- “I think the introduction of eBooks and audiobooks has garnered an audience which generally refuses to read thick books. But at the same time people who were traditionally engaged in reading physical books still prefer a physical copy of book over an electronic or sonic one.” Additionally, few responses were crucial as subjective opinions of readers on this advent of electronic substitutes to physical books. Some of the striking perspectives were:
- “Reading above all, is a matter of personal experience and choice. a reader who chooses eBooks may find it handy, the one preferring audiobooks would be happy about its convenience, and a person sticking to physical books may be attached to its emotional factor. It's totally subjective and I find it very difficult to categorize them and even more difficult to compare them with one another.”

- “People accepted eBooks and audiobooks more in this pandemic and quarantine times. The eBooks were the only source to get new information as libraries and bookstores were closed down. Maybe if a pandemic hadn't happened, such a trend of reading class would not have appeared.”
- “I do love the feel of a book in my hand but I have accepted the fact that eBooks are far more accessible and convenient. Maybe it will be difficult for some to adjust to these devices especially if they have read physical book for a long time but once you realize the benefits these are far better at least in my opinion.”
- “I am a lazy person and for people like me audiobooks are basically a gift. Now I experience the happiness of reading a book as if I am listening to a song. Today books have become my playlist.”
- “Ultimately, it is a matter of compromise - whether to compromise the environment by reading books printed on paper or to compromise eyesight under the influence of eBooks”

In the light of disruptive innovations, what will be prominent is the response to the question - What do you miss the most from reading a physical book? Next to three quarters, precisely speaking, 66.4% responded that it **lacks the physical experience of touch and smell** that a printed book provides. Similar half readers [55.9%] missed having an **emotional attachment** with a book, when 50.7% felt the **absence of a sense of possessing a book**. And quite a few, that is 46.1% readers stated that they longed for a **unique reading experience** of transcending to a different world that is core to reading a physical book. It is interesting to note that 57.2% of these young minds felt that such technological innovations have taken away the **feeling of attachment** while reading a physical book.

In Conclusion, one can say that the introduction of ebooks and audiobooks is not just about comforts, conveniences and a better lifestyle. But it also triggers the emotional bond in readers. Much of the traditional experience associated with reading a book is taken away by these easy-to-use apparatuses. Still, the scale is tilted towards the positives of convenience, portability, flexibility, economical, storage facility and the rest. Even as an introduction which is favourable and user friendly it has not altogether replaced the traditional reading patterns and practices. Fortunately, it has added sharp minds to the reading cluster, the young minds who are the sailors of the ship named future.

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**IMPACT OF DIGITAL DISRUPTION ON EMPLOYABILITY SKILLS OF MANAGEMENT STUDENTS**

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**ABSTRACT**

*The world of work and education is changing at a rapid pace, driven by continued technological disruption and automation. The future is uncertain and difficult to envisage. There is a need for today's academicians to develop courses and activities to bridge the gap of employability which has resulted because of the present situation of pandemic, changes in economies, development of technologies and globalization. The paper aims to discuss this issue. The disparity between employers' expectations and the ability of graduates to meet them is an issue for employment. Soft skills are needed to support, materialise, and enhance the workforce's existing technical skills. This study investigates how disruptive innovation has altered the in-demand management skills and identifying opportunities for management professionals. Through a structured questionnaire data will be collected from employers and HR professionals from diverse industries to identify the employability skills required and to find whether the present innovation in processes and technology has resulted in a change in competencies required by today's companies. This research contributes to the debate on the employability of new graduates and provides useful directions to education institutions, and companies to help them discover programs and activities that can enable the students to be industry ready.*

*Key words: digital, disruption, students, skills*

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**INTRODUCTION**

Employability skills, often referred to as core skills, soft skills, or work-readiness abilities, are necessary for success in any employment. It entails communicating with coworkers, resolving problems, comprehending teamwork, and making appropriate professional decisions. Employability skills are highly valued by employers since they are associated with managing relationships and engaging with others. In this age of technological disruption and globalisation, employability skills are essential. Employers complain about a lack of skills among their employees. Around 75 million young people in developing nations are unemployed, and youth unemployment rates in most countries are 2 to 4 times greater than adult unemployment rates. Furthermore, education providers must offer them with knowledge and skills, both soft and hard, that are relevant to the workplace in order for them to be productive and employable. Employers are searching for professionals with communication, cooperation, problem-solving, and critical thinking skills in addition to technical talents.

In this age of technological disruption and globalisation, employability skills are essential. Employers complain about a lack of skills among their employees. Around 75 million young people in developing nations are unemployed, and youth unemployment rates in most countries are 2 to 4 times greater than adult unemployment rates. To make students productive and employable, education providers must give them with knowledge and skills, either soft or hard skills, that are relevant to the workplace. Employers are searching for professionals with communication, cooperation, problem-solving, and critical thinking skills in addition to technical talents. More than half of stakeholders were unable to match job seekers' skills to the opportunities they advertised, resulting in more than 80% of job seekers being unable to find work. The disruption and globalisation period necessarily poses a significant challenge for the community in terms of the openness of countries throughout the world, in this case in terms of products, services, and cross-border labour migration. They've also ushered in a slew of developments in business, finance, transportation, social society, and even education. The ability to adapt with the era's changes was thought vital at the time. Disruption helps to kickstart a new company model in a more inventive way. In turn, traditional methods being abandoned in favour of technology and digitalization. It has resulted in a slew of issues, including significant unemployment. The high rate of unemployment is frequently linked to the educational system's failure to produce graduates with employable skills and high competitiveness. The cause of rising unemployment is a lack of expertise among job searchers. If the job seeker's skill gap is linked to the world of education, this problem is linked to the issue of educational quality. As a result of the issues, educational institutions must train students who possess not only technical capabilities but also employability skills. Moreover it is not enough to have technical skills in this era of technological disruption; it is also vital to build methodological and social abilities. This study hence aims to identify how this dynamic environment and changing technology is altering the jobs and hence the skill sets desired by companies are also changing.

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**LITERATURE REVIEW**

The employability skills set required of graduates will undoubtedly transition from being more technically focused to being more social and softer in character with the entrance of this latest revolutionary era of automation (Kahn, 2017; National Center for O\*NET Development for USDOL, 2017). In other words, shifting the focus of skills development away from hard skills such as teamwork, project management, leadership, communication, creative thinking, and problem solving and toward soft skills (Turner and Mulholland, 2017; Department for Business Innovation and Skills, 2015; Fiala et al., 2014; Draycott and Rae, 2011; Jones and Iredale, 2010).

Disruptive technology effects are relative, and they may be "disruptive to some while sustaining to others" (AlphaBeta 2017; Bower & Christensen 1995). While some research (e.g. Durrant-Whyte et al., 2015) claims that around half of all jobs are susceptible to the impact of automation (in that tasks are potentially automatable), the Australian Industrial Transformation Institute (Australian Industrial Transformation Institute, 2017) claims that only 10% to 5% of jobs are completely automatable. The fourth industrial revolution is a broad term that refers to current and future developments in the use and usefulness of technology capable of transforming industries. workplace transformation (Beraza, 2018; Elliott, 2017; Morgan, 2016; Schwab, 2016; Van Ness, 2016; Van Ness, 2016; Van Ness, 2016; Van Ness, 2016; Van Hooijdonk, Hooijdonk, Hooijdonk, Hooij Despite the fact that the impact of these advances on employment is unclear. Although the future prospects for graduates are unclear, it is likely that the fourth industrial revolution will usher in a new era of innovation will generate both new jobs and unemployment in roughly equal amounts. Although no sector or employment class will be immune from the effects of the fourth industrial revolution, according to Chui et al. (2016), no sector or employment class will be exempt from the effects of the fourth industrial revolution, which has obvious implications for today's students and future graduates. According to another viewpoint, cognitive talents, complex problem-solving skills, and system skills are the top three skills that will be in great demand in the future. The World Economic Forum agrees, stating that new talents are required to tackle the fourth industrial revolution. Furthermore, the BRICS (Brazil, Russia, India, China, and South Africa) proclaimed that understanding of ICT, the ability to deal with data, technical know-how, and personal skills are essential for Industry 4.0.

The research published in Amplifying human potential: education and skills for the fourth industrial revolution (Infosys, 2016) focuses on the concerns and challenges that young workers aged 16 to 25 face in Australia, Brazil, China, France, Germany, India, South Africa, the United Kingdom, and the United States. Study suggests that young people who are confident in their technology skills are more confident in their future jobs, while another reveals that a large percentage of respondents questioned if their academic experiences adequately prepared them for working life. Soft talents such as cognitive, communication, and team player abilities are also valued.

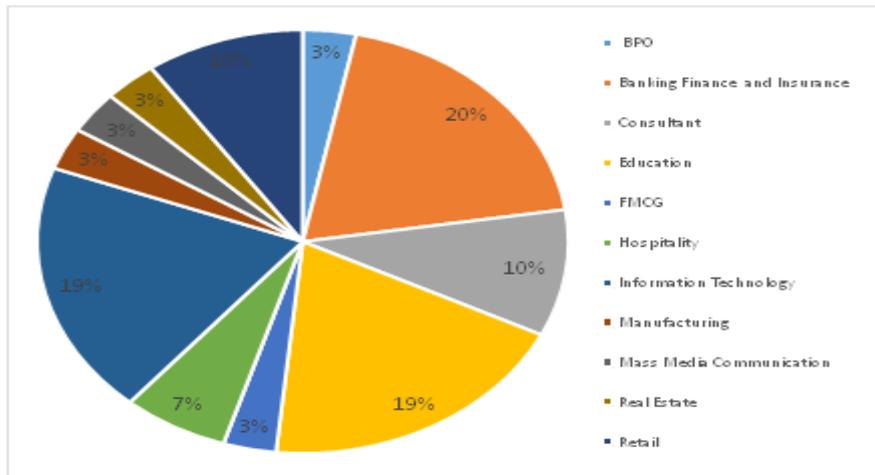
**OBJECTIVES OF THE STUDY**

- To identify whether the recent changes and innovation in technology influenced the required job skills.
- To understand the competencies companies look out for in fresh management graduates during this age of digitalization
- To suggest ways in which educational institutes can bridge the employability gap.

**RESEARCH METHODOLOGY**

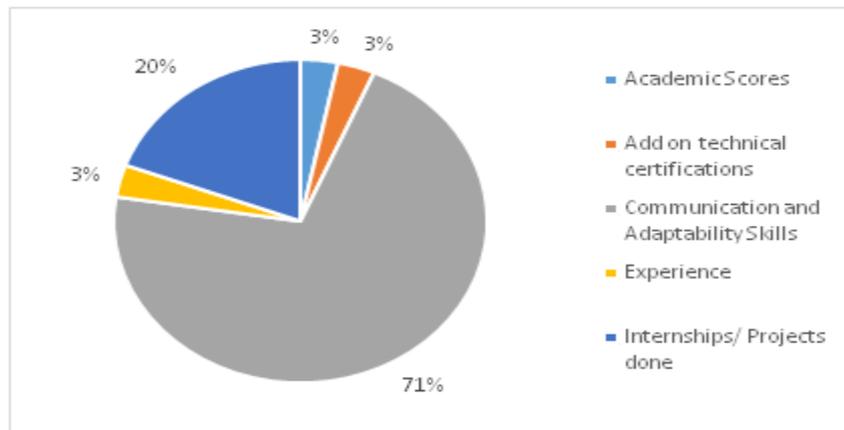
- The study is based on secondary sources of data information collected from Different Newspaper, books and relevant websites in order to make the study more effective.
- Primary data is collected through well- structured questionnaire.
- Samples of 35 respondents in the area of Mumbai have been selected by using random sampling method. The respondents are Human Resource Professionals from various industries.

DATA ANALYSIS, INTERPRETATION AND DISCUSSION



Which industry do you belong to?

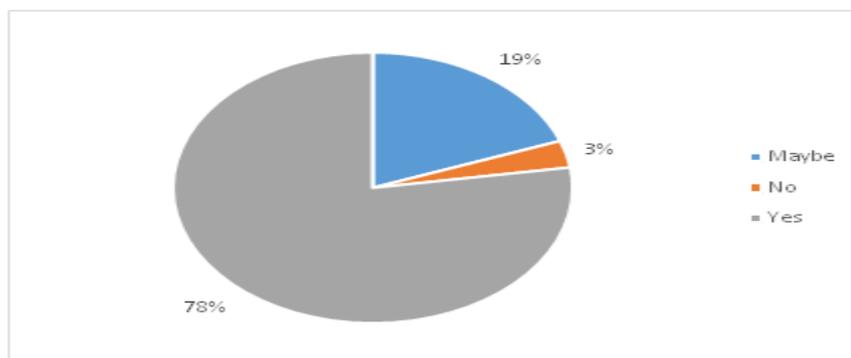
The respondents were from diverse fields. This gives us a holistic perspective into the changes in skills requirement of every industry. Around 20% respondents were from Banking Finance services, 19% from Education and Retail respectively, 10% from Information technology, and the rest belonged to Manufacturing, Hospitality, Real Estate, etc. The responses were kept open to also understand if the employability skills of one industry differ from the others.



State which of the following is the most important factor in the selection of management students:

According to 71% respondents

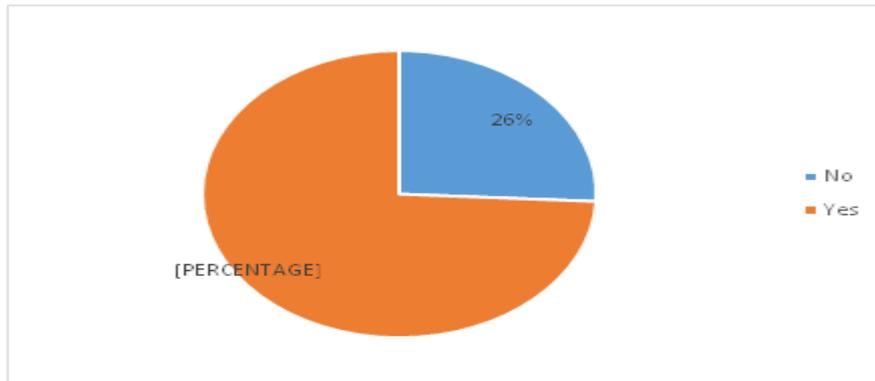
Communication and Adaptability are the most sought after skills that recruiters today look out for. This can be regarded to the dynamic environment where there are continuous changes which keep taking place at all fronts of technology, research and development, company policies, nature of work, etc. These industry dynamics require employees to be highly agile and adaptable. Moreover with organisations going global as well as increasing emphasis on service element in an industry has resulted in organisations requiring the candidate to be an effective communicator to convince, negotiate and make the client/customer understand the organization’s offering



**According to you is there an employability gap that exists due to digitalisation in various fields? (difference in student skills and requirements of the company)**

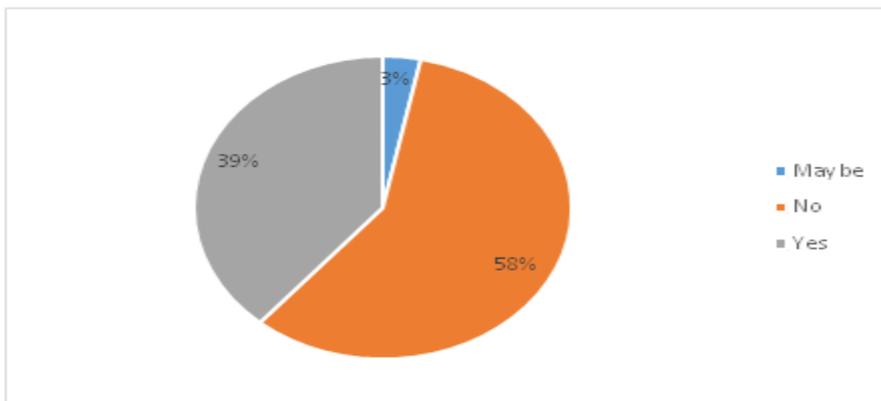
78% Recruiters have observed and agree that there exists an employability gap due to the changing technological interventions.

This gap was identified while the candidates were being interviewed, during performance appraisals meetings, training programs and day to day interactions. 19% are yet to identify whether the gap is due to technological disruption or is due to some other reason. 3% do not feel that the skills gap is due to technological innovations.



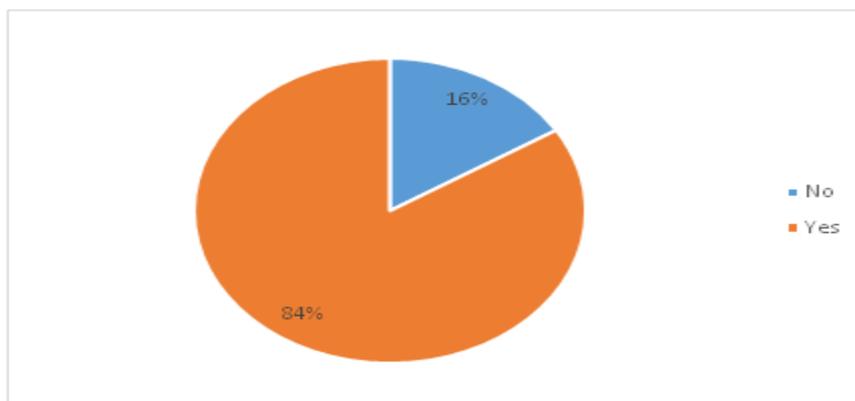
**In the past year did you face difficulties to recruit the right people for any given job?**

The pandemic has indeed resulted into technology getting upgraded at a greater pace and beyond expectations. This has led to a change in skill sets hence 74% respondents faced difficulties in recruiting candidates who meet the organizational requirements in the past year. However 26% did not face any difficulties in recruitment.



**Is automation destroying employment opportunities for management students?**

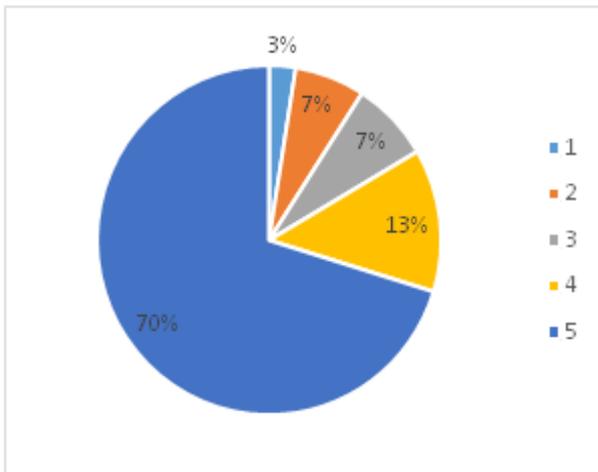
The digital disruption has led to drastic changes in the way organisations function and manage their operations and processes today. The innovations in technology may have been a boon to various industries in terms of controlling costs, getting work done faster and eliminating human errors. Hence we can see that 58% respondents feel that automation in their respective industries has resulted in decreasing the employment opportunities in the job market. Whereas 39% are of the opinion that there is no link between automation and disruptive technologies and employment. 3% are not sure.



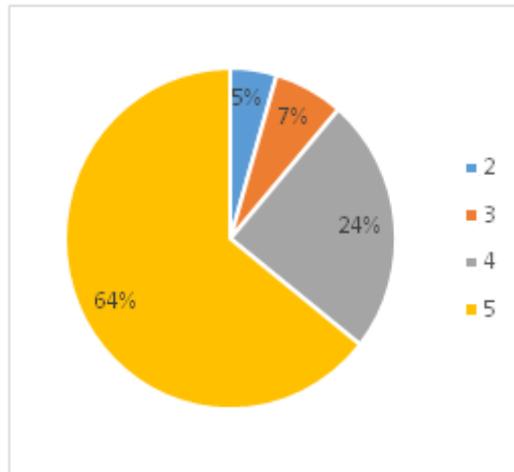
**Has digitalization in your respective industry resulted in change in the job related skills required by today’s students?**

84% respondents agree that digitalization has resulted a change in work place requirements which means skills sets needed by today’s students vary from industry to industry. The respondents of FMCG, manufacturing and retail are the industries in which automation and digitalization has not brought much changes in the skill sets required for employment. Whereas the other industry respondents have shown a positive relationship between digital innovations and the changes in employability skills.

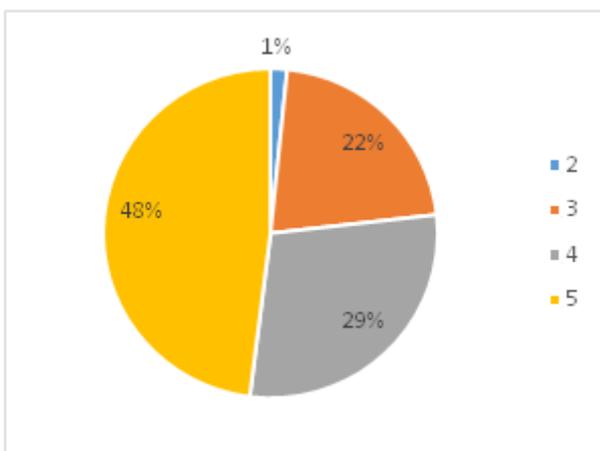
**What type of employability skills are needed by the world of work in the industry revolution 4.0 and in the future?**



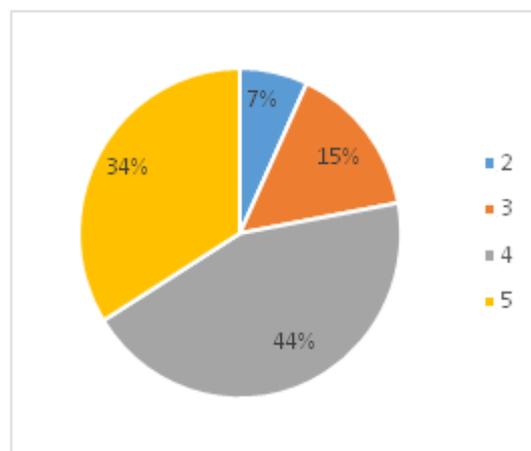
Communication Skills



Adaptability and Flexibility

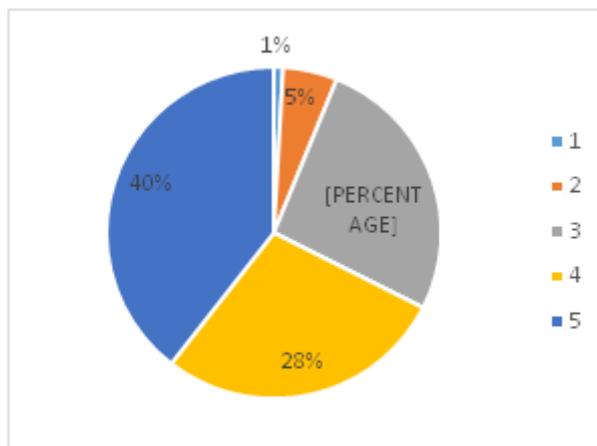


Digital/technology skills



Cognitive/ conceptual abilities

**Research and Analytical skills**



From the above responses we can interpret that 70% respondents feel that communication and social skills are a necessary requirement at the workplace irrespective of the industry. Around 64% are of the opinion that Adaptability and Flexibility are the most important skills since the requirements and the company scenarios are changing at a fast pace moreover with companies going global and adopting virtual workplace has resulted in need of employees who easily adjust with the fluctuating policies and processes of the organization.

48% respondents have emphasized on the need to digital and technological skills to be stronger compared to the other skills since the world is moving towards automation today moreover digital disruptions in every industry has created to a huge demand for employees who are technological literate. 40% have expressed that Research and Analytics are required today to have a competitive edge in the dynamic market places today. These analytical skills are backed by various software and applications which help in easy interpretation of data which is most useful; in taking vital decisions.

The least important for the respondents was Conceptual and cognitive ability i.e. 34% since practicality and applicability of knowledge is most important according to most respondents

### **RECOMMENDATIONS**

The capacity to adapt to change and make proactive career adjustments will make a significant difference in where you find yourself. Ten years ago, the top ten most in-demand jobs did not exist. The fundamental notion is to remain relevant, engaged, and growing. Because we can't be disrupted by market developments if we choose to disrupt our own thinking and processes. Concentrate on your existing abilities and competencies as aspiring professionals and how you may improve your productivity or performance in your future responsibilities by upskilling.

Keep track of the trends that will impact industries over the next few years. Be open-minded and accepting of the changes that are coming. To stay current, you must be willing to unlearn and relearn. Understanding that learning does not cease at the official gates of education is the first step in closing this "skills gap." Companies all around the world have adopted the Learning 2.0 mindset as part of the hiring and onboarding process since graduation degrees alone cannot keep up with the speed of technological disruptions and change. A recruitment method that looks beyond the resume to find crucial applicant features like as flexibility and adaptability that suggest a willingness to learn are common elements which companies are adopting. Hence it is required that even academicians and counsellors step in and assist the students in developing these skills which make them more employable.

Next stage is to exhibit flexibility, willpower, and courage to attempt new things while staying on track with personal goals. Creativity, entrepreneurship, and networking are driving forces in the new world of work. Through the learning process and environment, these principles must be instilled in the learner. Institutes must provide academicians the autonomy to design courses that give learners opportunity to investigate, explore, experiment, and invent.

A new framework of employability skills which encompassed standard abilities and personal traits based on the talents required by firms in this age of Artificial Intelligence and Robotics should be worked upon together by academicians and employers. Communication skills in digital business, teamwork skills in digital business, complex problem-solving skills in digital business, business creativity and digital innovation skills, self-management skills in digital business, and digital business learning must be encouraged and developed among the students. Industry representatives must be invited to deliver workshops and sessions which will aid in bridging this gap created due to digital disruption. Curriculums should be updated at all grades and education level to meet the changing technological demands. Students should be encouraged to take up internships for better corporate exposure and understanding.

### **CONCLUSION**

People with substantial education and training, high talents, the ability to work in teams, the capacity to use information and communication technology (ICT), the ability to solve problems, and communication skills will have an easier time finding job. They are able to adapt to changes in the workplace because of this combination of talents. New inventions have two effects on workforce development. For starters, demand for specialised skills is likely to change more quickly, resulting in a shorter shelf life for skills. Adapting successfully to technological disruptions and advancement will necessitate the ability to unlearn old technologies and practices learning new ones again. Businesses must support young people in improving soft skills, which they see as critical to success in the future working landscape, as part of their training commitments. Communication, originality, and other soft skills must be nurtured carefully through people-led education and experience that digital learning tools may not be able to provide as effectively. Even as artificial intelligence improves its ability

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to express human-like emotions, human and face-to-face learning will remain essential for aspiring student professionals.

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## NOVEL NUTRITIOUS AGRICULTURAL BY PRODUCTS AS A FOOD ADDITIVE

Harshita Kulkarni and Dr. Kiran Kharat

**ABSTRACT**

Food additives are important to protect food from chemical and microbiological attack, and to improve their eating quality and nutritional value. The various types of food additives are considered, e.g. colours, flavours, emulsifiers, bread and flour additives, preservatives, and nutritional additives. The recent development in the agricultural products generates many by products that may possess added value compounds with high functionality and/or bioactivity. In addition to that increased demand for healthier food stuffs has created a new innovative challenge in front of the food industry. By products are generally secondary products derived from primary agro-food production processes and represent an interesting and cheaper source of potentially functional ingredients, such as peptides, carotenoids, and phenolic compounds, thus promoting a circular economy concept. In this paper, we will discuss various types of high value bioproducts as a food additive.

**INTRODUCTION**

Food Additive means any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging transport or holding of such food results, or may be reasonably expected to result (directly or indirectly) in it or its by products becoming a component or otherwise affecting the characteristics of such foods. The term does not include contaminants or substances added to food for maintaining or improving its nutritive value. Food additives are intentionally added to food and must be safe for a lifetime of consumption based on current toxicological evaluation. The definition of food additive does not include contaminants. Thus pesticide residues, metallic contamination, Mycotoxins etc are excluded. Food additives are used for the purpose of maintaining or improving the keeping quality, texture, consistency, appearance and other technological requirements. Food additives do not include use of vitamins, minerals, herbs, yeast, hops, starter cultures, malt extract etc.

**METHOD**

The 25 classes of food additives that contain about 230 compounds with technological, sensorial and/or microbiological functionalities. These compounds are added to foods at the processing, packaging and transport steps, to improve the standard of quality, durability and stability of the product and adjust the colour, smell and flavour attributes. Food industries need to follow national and international quality standards that establish the conditions under which food additives may be used, and the food safety is guaranteed by strict quality control. This review describes the analytical techniques used in identification and quantification of food additives in foodstuffs, highlighting the main characteristics of each method (**spectroscopy, chromatography and electroanalysis**), and indicating the advantages and disadvantages typical of the methods used. Perspectives of the chemical analysis in the food industries are also discussed.

## 1.2 Benzoic Acid:

## 1.2.1 Qualitative Methods

(A) Ferric Chloride Test: Acidify the food product with hydrochloric acid (1+3) and extract with diethyl ether. Evaporate the solvent on a hot water bath removing last traces of solvent under a current of air. Dissolve the residue in few ml of hot water and add few drops of 0.5% ferric chloride solution. Salmon colour precipitate of ferric benzoate indicates the presence of benzoic acid.

(B) Modified Mohler's Test: To the aqueous solution of the residue obtained as given under method 'A' add one or two drops of 10% sodium hydroxide solution and evaporate to dryness. To the residue add 5-10 drops of sulphuric acid and a small crystal of potassium nitrate. Heat for 10 min in a glycerol bath at 120 – 130 °C. Cool, add 1 ml of water and make distinctly ammoniacal. Boil the solution to decompose any ammonium nitrite (NH<sub>4</sub>NO<sub>2</sub>) formed. Cool and add a drop of fresh colourless ammonium sulphide [(NH<sub>4</sub>)<sub>2</sub>S] solution. The sulphide solution can be made by passing hydrogen sulphide in 0.88 ammonia. Do not let the layers mix. Red brown ring indicates benzoic acid. On mixing, colour diffuses throughout the liquid and on heating finally changes to greenish yellow. This change differentiates benzoic acid from salicylic acid cinnamic acid. Salicylic acid and cinnamic acid forms coloured compounds which are destroyed on heating.

(Ref:- A.O.A.C 17th edn,2000 Official method 910.02 (b) and (c) Benzoic acid in Foods / Pearsons Composition and Analysis of Foods 9th edn,1991, page 83 / Manual Methods of Analysis for Adulterants and Contaminants in Foods. I.C.M.R1990, page 34)

### 1.2.2 Quantitative Methods:

#### (A) Titrimetric Method:

Principle: Benzoic acid is separated from a known quantity of the sample by saturating with sodium chloride and then acidifying with dilute hydrochloric acid and extracting with chloroform. The chloroform layer is made mineral acid free and the solvent is removed by evaporation. The residue is dissolved in neutral alcohol and the amount of benzoic acid is determined by titration against standard alkali.

Reagents: 1. Chloroform -distilled 2. Hydrochloric acid (1+3) 3. Sodium hydroxide (10%) 4. Standard sodium hydroxide solution (0.05N) 5. Saturated sodium chloride solution. Preparation of Sample: (A) Beverages and liquid products: Mix the sample thoroughly and transfer 100 gm of the sample into a 250 volumetric flask, using saturated sodium chloride solution. Make alkaline to litmus paper with 10% sodium hydroxide solution and make upto volume with saturated sodium chloride solution. Shake thoroughly and let it stand for 2 hrs. Filter the sample and use the filtrate for determination. (B) Sauces and Ketchups: Add 15 gm salt to 150 gm of weighed sample and transfer into volumetric flask. Rinse with saturated sodium chloride solution, Add 15 gm pulverized sodium chloride and then add 10 ml of 10% sodium hydroxide solution and make upto 500 ml volume with sodium chloride solution. Let it stand for 2 hrs with occasional shaking. Filter and use the filtrate for determination.

(C) Jams, Jellies, Preservatives and Marmalades: Mix 150 gm of sample with 300 ml saturated sodium chloride solution. Add 15 gm pulverised sodium chloride. Add 10 ml of 10% sodium hydroxide solution. Transfer to 500 ml volumetric flask and dilute to volume with saturated sodium chloride solution. Let it stand for 2 hrs with frequent shaking, filter and use the filtrate for determination.

Determination: Pipette 100 ml to 200 ml of the filtrate into a 250 ml separatory funnel. Neutralize to litmus paper using hydrochloric acid (1+3) and add 5 ml excess. Extract carefully with 40,30,30 and 20 ml portions of chloroform. Avoid formation of emulsion by shaking gently with rotatory motion. If emulsion forms, break it by stirring chloroform solution with a glass rod after each extraction, but do not drain any of the emulsion with chloroform layer. Transfer the combined chloroform extract in to a separatory funnel and wash it free from mineral acid by shaking gently and rinsing with water. Drain off the water phase. Dry the chloroform layer over anhydrous sodium sulphate and distil off the solvent. Remove the last traces of the solvent under a current of air at room temperature. Dry the residue overnight or until no residue of acetic acid is detected if the product is a ketchup. Dissolve residue in 30-50 ml of alcohol neutralised to phenolphthalein and titrate with 0.05 N sodium hydroxide.

Calculate the benzoic acid contents as follows:

$$\text{Benzoic acid (ppm)} = \frac{122 \times \text{Titre} \times \text{Dilution} \times 1000 \times \text{mL of 0.05N sodium hydroxide}}{\text{Weight of sample} \times \text{aliquot taken (100 or 200mL of filtrate)}}$$

(Ref: - A.O.A.C 17th edn,2000, Official Method 963.19 Benzoic acid in Foods Titrimetric Method)

#### (B) Spectrophotometric method:

Principle: Benzoic acid is extracted from prepared sample using diethyl ether and the absorbance of the ether layer is measured at 272 nm, 267.5 nm and 276.5 nm in the UV region. From the corrected absorbance and the calibration graph obtained using standard benzoic acid solution, the amount of benzoic acid is determined.

Reagents: 1. Diethyl ether distilled 2. Hydrochloric acid (1+3) 3. Saturated sodium chloride solution 4. Ammonium hydroxide (0.1%) 5. Standard benzoic acid.

Procedure: (a) Preparation of standard curve: Prepare solution of benzoic acid in ether containing 50 mg/l. Determine absorbance of this solution in tightly stoppered cell in Beckman DU or recording spectrophotometer between 265 and 280 nm at 1 nm intervals. Plot absorbance against wavelength and record wavelength of minimum at approximately 267.5 nm as point B. Other minimum at approximately 276.5 nm as point D and highest maximum at approximately 272 nm as point C. Prepare solution of benzoic acid in ether containing 20,

40, 60, 80, 100 and 120 mg/l. Determine absorbance of these solutions in a spectrophotometer at points B, C and D. For each concentration average absorbance at Band D subtract from absorbance at C. Plot difference against concentration to get the standard curve.

(b) Preparation of sample: Mix sample thoroughly. Transfer 10 gm or 10 ml to separator and dilute to 200 ml with saturated sodium chloride solution. Make solution definitely acidic to litmus with hydrochloric acid and mix well. (c) Determination: Extract prepared solutions with 70, 50, 40, and 30 ml portions of diethyl ether, shaking well to ensure complete extraction (break emulsions by standing, stirring or centrifuging). Drain and discard aqueous phase. Wash combined ether extracts with 40 and 30 ml portions hydrochloric acid (1+1000) and discard hydrochloric acid washings (if extraction requires no purification, proceed to next para). Extract ether solution with 50, 40, 30, and 20 ml portions of 0.1% ammonium hydroxide and discard ether. Neutralize combined ammonium hydroxide extracts with hydrochloric acid and add 1 ml excess. Extract the acidified solution with 70, 50, 40 and 30 ml ether. Dilute combined ether extracts to 200 ml with ether and determine absorbance in stoppered cell in spectrophotometer at wavelengths B, C and D, diluting with ether if necessary to obtain optimum concentration of 20-120 mg/l. Average the absorbance's at B and D, subtract this value from absorbance at C. Determine the concentration of benzoic acid from standard curve correcting for dilutions. Benzoic acid  $1.18 =$  sodium benzoate.

(Ref:- A.O.A.C 17th edn, 2000, Official method 960. 38 Benzoic acid in nonsolid food and beverages – Spectrophotometric Method / Manual Methods of Analysis for Adulterants and Contaminants in Foods I.C.M.R 1990, page 36).

(C) HPLC Method:

Principle: Benzoic acid is extracted and separated by liquid chromatography (LC) on C18 column, detected by ultra violet absorbance at 230 nm, and quantitated by standard calibration plot.

Apparatus: a) Liquid chromatograph equipped with pump, injector, and integrator or data system, and UV detector. Operating conditions: flow rate, 1.0 mL/min isocratic; column temperature, ambient; detector, 230 nm, 0.05 absorbance unit full scale (AUFS); and injection volume, 20  $\mu$ L. b) LC column. - C18, 4.6  $\times$  250mm length, 5 $\mu$ m. c) Ultrasonic bath.

Reagents: a) Solvents-Acetonitrile and water (LC grade). b) Sodium Benzoate Standard. c) Potassium phosphate monobasic buffer. — Prepare 0.05M potassium dihydrogen orthophosphate; adjust the pH 3.0 with ortho phosphoric acid. d) LC mobile phase. — Acetonitrile-phosphate buffer (40 + 60). Combine 400 mL acetonitrile with 600 mL 0.05M potassium dihydrogen orthophosphate. De-gas in ultrasonic bath for 2 min and filter through 0.45 $\mu$  polyvinylidene fluoride filter.

Procedure: (a) Standard preparation: Weigh accurately 25.0 mg of sodium benzoate std & transfer it into 100 ml volumetric flask. Dissolve it in water by sonication & make upto the volume. This corresponds to 250 ppm of sodium benzoate. Dilute 1, 2, 4, 6, 8 and 10 ml of this standard solution to 50 ml with buffer, this corresponds to 5, 10, 20, 30, 40 and 50 ppm of sodium benzoate respectively. Filter these standards and inject. Plot a graph with concentration (ppm) against area and calculate the slope. (b) Preparation of Test Solution: Weigh accurately 25.0 mg of sample & transfer it into 100 ml volumetric flask. Dissolve it in

water by sonication & make upto the volume. Dilute 5 ml of this solution to 50 ml with buffer. (In case of thick samples weigh the sample in beaker dissolve using sonicator and then transfer to 100ml volumetric flask). Filter the extract through 0.45 $\mu$  syringe filter. Use this filtered solution for the HPLC analysis. Inject the sample 20 $\mu$ l in HPLC.

(c) Chromatographic Condition:

- Detector: UV – Visible
- Wavelength: 230nm
- Flow rate: 1 ml/min
- Mobile Phase: Acetonitrile: Phosphate Buffer (40:60)
- Injection volume: 20  $\mu$ l
- Diluent: Water
- Column temperature: Ambient

- Run time: 20 min
- Retention time: 5 – 6 min

(d) Calculation: Inject separately 20 µL of standard solution, record the chromatograms. Develop calibration plot for standards and plot the regression equation for standard benzoate solution. Inject sample solution record the chromatograms and measure the peak responses and calculate the quantity of sodium benzoate.

$$\text{Sodium Benzoate (ppm)} = A \times C / \text{Slope} \times W$$

Where A= Peak area of sodium benzoate, C= Dilution factor, W= Weight of sample in

(Ref: 37.1.62A AOAC Official Method 994.11 Benzoic Acid in Orange Juice Liquid Chromatographic Method)

**SIGNIFICANCE**

Spectrophotometry is an area of science that deals with how specific materials absorb and reflect light. One of the many uses of spectrophotometers is in the food industry where many foods are coloured using federally specified and approved food dyes. Food dyes have many properties that are well documented and that can be used to easily identify them. During production, the food manufacturing process can sometimes involve many steps and it's possible that food colourings could become mixed or diluted at any stage of this process. Food producers often scan small test batches of products during the production process. This is done to ensure the quality of the end product and can identify any production-line level problems.

The food industry today has been revolutionized by advancements in technology, color measurement, and spectrophotometry. Precise use of color measurement is needed to obtain the accurate results necessary for developing a product that meets the ‘cognitive expectations’ of the consumer. Using quantifiable color readings creates consistency in food product colors and translates into quality and a regularity of choice for the consumer.

For monitoring the color of foods, it is best to use a light variable that comes closest to what is seen by the human eye. A Directional 45°/0° reflectance instrument emulates the natural functioning of the eye and gives the most reliable readings for real-life perspectives and choice. Measurement tools should utilize human-eye technology to match consumer analysis and satisfaction.

**DISCUSSION**

Chemicals are the fundamental components of life, and they play a role in nearly every aspect of human metabolism. Cancer, cardiovascular disease, kidney and liver dysfunction, hormonal imbalance, birth defects, premature births, immune system suppression, musculoskeletal disease, slowed nervous and sensory system development, mental health issues, urogenital disease, old-age dementia, and learning disabilities can all be caused by toxic levels of exposure. The Codex Alimentarius Commission has the authority to propose particular measures, such as maximum limits in foods, to ensure that exposure does not exceed the acceptable/tolerable intake level.

**RESULTS**

iii) Food preservatives to avoid:

Sodium benzoate (E211)		Carbonated drinks Pickles Sauces Certain medications (iron supplements, "natural and homeopathic" medications for kids)	Aggravates asthma and suspected to be a neurotoxin and carcinogen; may cause fetal abnormalities. Worsens hyperactivity.	Food Standards Agency issues revised advice on certain artificial colours, 2007
Sulphur Dioxide (E220)	Not banned anywhere	Carbonated drinks Dried fruit Jams Cereals Pasta products	May induce gastric irritation, nausea, diarrhea, asthma attacks, skin rashes. Destroys vitamin B1. Causes fetal abnormalities and DNA damage in animals.	International Chemical Safety Card 0974
Sodium metabisulfite		Flavorings and antioxidants	May provoke the breathing asthma	<a href="http://www.industrydocuments.ucsf.edu/docs/0974">http://www.industrydocuments.ucsf.edu/docs/0974</a>
Potassium nitrate (E249)	Not banned anywhere	Cured meats and cured meat products.	May lower oxygen carrying capacity of blood; may combine with other substances to form nitrosamines that are carcinogenic; may negatively affect the adrenal gland.	International Chemical Safety Card 1049
Calcium benzoate (E212)	Not banned anywhere	Desserts, low sugar products, cereals, meat products.	May temporarily inhibit digestive enzyme function and may deplete levels of the amino acid glycine. AVCHD with allergies, liver, & asthma.	<a href="http://www.industrydocuments.ucsf.edu/docs/0974">http://www.industrydocuments.ucsf.edu/docs/0974</a>
Calcium sulphite (E228)	In the U.S., sulphites are banned from many foods, including meat	In a vast array of foods: from burgers to biscuits, from frozen medications to brownies. Used to make old produce look fresh.	May cause bronchial problems, flushing, low blood pressure, tingling, and angioedema shock. Avoid if you suffer from bronchial asthma, cardiovascular or respiratory problems and angioedema.	<a href="http://www.industrydocuments.ucsf.edu/docs/0974">http://www.industrydocuments.ucsf.edu/docs/0974</a>
Butyated Hydroxyanisole (E320) BHA/BHT		Particularly in fat containing foods, confectionery, meats	BHA/BHT is not as carcinogenic to humans. BHA also interacts with estrogens to cause changes in the DNA of cells.	doi:10.1021/ja00911a020
Benzoic acid (E210)		Desserts, low sugar products, cereals, meat products.	May temporarily inhibit digestive enzyme function. May deplete glycine levels. AVCHD with allergies, asthma, & allergies.	International Chemical Safety Card 0973

Table 2. Food preservatives to avoid

Colour	Status worldwide	Where found	Possible negative effects	References
Erythrosine (E129) FD&C Red No. 3 Yellow	Banned for use in cosmetics and external drug, but not food and ingested drugs in the U.S.	Colored, canned fruits, salads, confections, dairy products, snack foods.	Cancer	The Washington Post, February 7, 1990 CBS News, June 3, 2008
Carotenes (E102) FD&C Yellow No. 5	Banned in Norway and Austria.	Ice cream, Carbonated drinks, Fish sticks	Hypersensitivity, asthma, skin rashes, and migraines, headaches	UK Food Guide <a href="http://www.ukfood.gov.uk/food/14102.html">http://www.ukfood.gov.uk/food/14102.html</a> retrieved 2007 FEA, 2007
Quinoline yellow (E104)	* Banned in Australia, Japan, Norway and the U.S. Restricted to maximum permitted levels in U.K.	Soft drinks for cosme, Candies, Confections	Asthma, rashes and hypersensitivity. Potential carcinogen in animals, implicated in bladder and liver cancer. Altered reproduction in animals.	efsa.europa.eu EFSA updates safety advice on azo food colourant 091112
Sunset yellow (E109) FD&C Orange Yellow 5	Banned in Norway, Sweden and Finland. Restricted to maximum permitted levels in U.K.	Ice cream, Snack foods, Ice-cream, Yoghurts, Chees.	AVERS in allergies & asthma Cancer - DNA damage, increases tumours in animals Carcinogenic and severe weight loss in animals.	091111 efsa.europa.eu doc:10.1018/10140-6709107
Carotenes (E122)	Banned in Canada, Japan, Norway, Austria, Sweden and the U.S. Restricted to maximum permitted levels in U.K.	Yoghurts, Snacks	DNA damage and tumours in animals.	Food additives E30, April 29/September 2008
Alizarin (E126) FD&C Red No. 3	Banned in Denmark, Belgium, France, Germany, Switzerland, Sweden, Austria and Norway	Carbonated drinks, Bubble gum, soups, soups, preserves, soups, jams, etc.	May worsen or induce asthma, arthritis (including hay fever), or urticaria (hives).	UK Food Guide, a British food additives website. Last retrieved 20 May 2007
Fluorescein (E128) Confection	Banned in U.S, Canada, Norway, Sweden and Japan. Restricted to maximum permitted levels in the U.K.	Carbonated drinks, Ice-cream, Confectioneries, Desserts	Cancer - DNA damage and tumours in animals. Can produce bad reactions in asthma.	Food and Drug Administration, Compliance Program Guidance Manual p.10
Amaranth (E127) White	Banned in the U.S.	Alcoholic drinks, Fish roe	May worsen or induce asthma, allergies or hives.	FEA/CFSAN Food Compliance Program, Domestic Food Safety Program
Judge Carmine (E129)	Banned in the U.S, Japan, Australia and Norway. U.K. use limited to maximum permitted levels	Ice-cream, Ice-cream, Snack goods, Confectionery items, Soups.	May cause rashes, vomiting, skin rashes, and brain tumours. DNA damage and tumours in animals.	United States Food and Drug Administration
Brilliant Blue (E139)	Banned in Austria, Belgium, France, Norway, Sweden, Switzerland and Germany. Restricted to maximum permitted levels in U.K.	Dairy products, Ice-cream, Drinks	Hypersensitivity and skin rashes. Limited as human carcinogen by the US EPA. Causes DNA damage and tumours in animals.	FEA, 1981

Table 1. Colour additives to avoid

iii) Flavourings & sweeteners to avoid:

Monosodium Glutamate MSG (E621) **	Not banned anywhere	Processed foods & drinks, soup mixes.	Destroys nerve cells in brain and linked with aggravating or accelerating Huntington's, Alzheimer's and Parkinson's diseases. Causes cancer, DNA damage and fetal abnormalities in animals. Increases hyperactivity.	doi:10.1111/j.1365-2222.2008.03221.x
Aspartame (E951)	US Air Force pilots are banned from drinking soft drinks containing aspartame.	200 times sweeter than sugar	May cause neurological damage, especially in younger children where brain is still developing. Breaks down in the body to phenylalanine (phenylalanine may cause serious organic acid (damages developing brain) and methanol (converts to formaldehyde). Crosses the placental barrier from mother to baby, even in small doses. Implicated in diseases such as MS and Non-Hodgkin's Lymphoma. May contribute to obesity.	FEA Consumer Magazine, 1999
Acetylphosphate K (E950)	Not banned anywhere.	200 times sweeter than sugar	Causes cancer in animals. Linked to hypoglycemia, lung tumours, increased cholesterol and leukemia. May contribute to obesity.	British Pharmacopoeia Commission Secretariat, 2000
Saccharine (E954)	Banned in Germany, Spain, Portugal, Hungary, France, Malaysia, Zimbabwe, Fiji, Peru, Israel, Taiwan.	300 times sweeter than sugar	May interfere with blood coagulation, blood sugar levels and digestive function. Causes cancer of the bladder, uterus, ovaries, skin and blood vessels in animals. Linked to DNA damage and congenital abnormalities in animals. May contribute to Obesity.	USDA, 1972
High Fructose Corn Syrup (HFCS)	Not banned anywhere	Carbonated drinks, other sweetened drinks (juices), baked goods, candies, canned fruits, jams & jellies, dairy products	Obesity Accelerated aging Insulin resistance Diabetes mellitus Complications of diabetes Fatty liver Increased triglycerides Increased uric acid Chronic diarrhea Irritable bowel syndrome Hives	The American Medical Association, 2007

CONCLUSION

Food additives preserve the freshness and appeal of food between the times it is manufactured and when it finally reaches the market. Additives may also improve nutritional value of foods and improve their taste, texture, consistency or colour. All food additives approved for use in the United States are carefully regulated by federal authorities to ensure that foods are safe to eat and are accurately labelled. Food additives have been used by man since earliest times. Today, food and colour additives are more strictly regulated than at any time in history. Additives may be incorporated in foods to maintain product consistency, improve or maintain nutritional value, maintain palatability and wholesomeness provided leavening or control acidity/alkalinity, and/or enhance flavour or impart desired colour. The Food and Agriculture Organization (FAO), however, recognizes additives as any substance whose intended use will affect, or may reasonably be expected to affect, the characteristics of any food. FAO law prohibits the use of any additive that has been found to cause cancer in humans or animals. To market a new food or colour additive, a manufacturer must first petition the FAO for its approval. FAO regulations require evidence that each substance is safe at its intended levels of use before it may be added to foods. In deciding whether an additive should be approved, the agency considers the composition and properties of the substance, the amount likely to be consumed, its probable long-term effects and various safety factors. Some food additives like boric acid, citric acid and sodium metabisulphite showed mitotoxicity and genotoxicity having potential risks for human health. Thus, all additives are subject to ongoing safety review as scientific understanding and methods of testing continue to improve.

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## EFFECTIVENESS AND POTENCY OF VEDIC MATHEMATICS IN ACADEMICS

Anish Kotkar<sup>1</sup>, Unmesh Khare<sup>2</sup> and Prathmesh Kotkar<sup>3</sup><sup>1</sup>The Kelkar Education Trust's V. G. Vaze College of Arts, Science and Commerce<sup>2,3</sup>Marathwada Mitra Mandal's Institute of Technology, Lohgaon, Pune, India**ABSTRACT**

Vedic mathematics is an ancient system of Indian mathematics that was discovered by Shri Bharati Krishna Tirthaji. In his book, 'Vedic Mathematics' [1] he gives sixteen sutras (formulae) to solve arithmetic problems. This paper discusses few methods from the book 'Vedic mathematics; such as 'Urdhvatiryakbhyam' (Vertical and crosswise) and 'Vilokanam and vitarka' (Observation and applied thoughts). 'Urdhvatiryakbhyam' is a way of doing multiplications faster than the traditional method without any written calculations. The one who masters this method can write the answer directly by doing all of the intermediate steps in mind. Also, the same method can be applied to any complex multiplication effectively. Another method, 'Vilokanam' which is a link between the last digit of cube root and the final digit of the exact cube. The solution is obtained just by 'mere observation' instead of solving the cube root by the traditional prime factorization method.

With statistical analysis, in this paper, we discovered and analyzed the reasons and the need of including Vedic mathematics in academic courses. Vedic mathematics is not only a different way of solving mathematical examples and equations but it also has many advantages over traditional mathematics. Objective of this research was to investigate the effectiveness of many Vedic mathematics methods of solving mathematical questions over the traditional methods. Over hundred participants including students & professionals participated in the research.

The methods of Vedic mathematics are discussed in detail with the participants and then they were asked to solve same questions using Vedic mathematics methods and traditional methods. We found the key differences in solving speed, accuracy, creativity, and use of strategic skills. The calculation speed was improved by over fifty percent. Also the methods of Vedic mathematics improved creative and strategic thinking ability. According to a survey, Mathematics is the most disliked subject in the world due to its abstract and cumulative nature. We found that, Vedic mathematics, if added to academics, will surely improve students' perspective towards mathematics with its integrity, simplicity, creativity, and intuitional abilities. As a 'Disruptive' tool Vedic Mathematics will significantly enhance the way that mathematics is taught and perceived.

**I. INTRODUCTION**

India has a very rich history of mathematics for over three thousand years. Despite of that, a survey indicates mathematics is the most disliked subject among students all over the world including India. There is a need to discover and create some tools that can help create the interest in learning mathematics. According to us, Vedic mathematics has that potential to make learning basic mathematics easy and also has an ability to improve creativity and intuitional abilities.

Vedic mathematics is a book written by Shri Bharati Krishna Tirtha, a scholar of Sanskrit, Mathematics and philosophy, [1] somewhere between 1950 to 1960. The original text contains 16 sutras (formulae) and some upa sutras (sub-formulae). All the formulae can be used to solve most of the basic arithmetic, algebraic, geometric or trigonometric problems in an effective way. The methods described in the book are easy and interactive. Most of the methods are constructed in such a way that one can solve everything in their mind and directly write the answer without writing any of the intermediate steps. This can reduce the burden of reasoning problems and basic mathematics problems in competitive exams and also the exams where calculators and log tables are not allowed. In this paper we have conducted a survey to really understand the strengths and effectiveness of Vedic mathematics methods in regular academic math course.

There are many methods for faster calculations over traditional methods like Cue math, Abacus, or soroban ( a Japanese version of abacus) and Vedic mathematics. Out of these all, we chose Vedic mathematics because of many reasons. Firstly, all the steps of the calculations are performed without the use of any other instruments, and it helps in improving memory and also in Vedic mathematics there are many ways to solve the same problem according to its difficulty. The process of finding the difficulty of the problem and deciding the suitable method helps in improving logical thinking abilities.

**II. RELATED RESEARCH**

There is some research done to find the role of Vedic Mathematics in improving speed of basic mathematical operations or calculations. Some of the research is done even outside India. British mathematicians, Andrew

Nicholas, Jeremy Pickles and Kenneth Williams, in 1981, gave some interesting extensions to the original work of Shri Bharati Krishna tirtha. They also delivered few lectures on the subject in London.[2] K. Krishna Prasad, in his paper finds the role of Vedic mathematics in improving the speed of the basic mathematical operations. [3] in many situations Vedic mathematics techniques have proven its role in improving speed, concentration and logical thinking. Likewise, there are many other methods of improving the speed like Trachtenberg speed arithmetic, Lester Meyers’ arithmetic [4]. There is also research done by S. G. Dani, from Tata institute of Fundamental research, to find the real origins of the Vedic mathematics techniques. [5] a lot of research is done to synthesize computer algorithms using Vedic mathematics techniques.[6]

**III. TECHNIQUES USED IN THIS STUDY**

For this study, out of 16 sutras (formulae) of Vedic mathematics given in the original book [1], we carefully selected 2 formulae. ‘Urdhvatiryagbhyam and Avalokanam’. This selection is based on the difficulty and versatility of the techniques.

1. Steps to solve Multiplication by Urdhvatiryagbhyam method: This is the general formula applicable to all the cases of multiplication and also in division of a large number by another large number. It means ‘Vertically and cross wise.’ All the steps are explained by taking a 3 digit multiplication example. (845 x 657)

$\begin{array}{r} 845 \\ \times 657 \\ \hline \end{array}$	Step 1: $(5 \times 7) = 35$ (write 5 in the answer and carry 3)	Answer: _ _ _ _ _ 5
$\begin{array}{r} 845 \\ \times 657 \\ \hline \end{array}$	Step 2: $3 + (5 \times 5) + (4 \times 7) = 56$ (write 6 in the answer and carry 5)	Answer: _ _ _ _ 6 5
$\begin{array}{r} 845 \\ \times 657 \\ \hline \end{array}$	Step 3: $5 + (6 \times 5) + (4 \times 5) + (8 \times 7) = 111$ (write 1 in the answer and carry 11)	Answer: _ _ _ 1 6 5
$\begin{array}{r} 845 \\ \times 657 \\ \hline \end{array}$	Step 4: $11 + (6 \times 4) + (8 \times 5) = 75$ (write 5 in the answer and carry 7)	Answer: _ _ 5 1 6 5
$\begin{array}{r} 845 \\ \times 657 \\ \hline \end{array}$	Step 5: $7 + (8 \times 6) = 55$ (write 55 in the answer)	Answer: 5 5 5 1 6 5

2. Steps to find cube root by ‘Avalokanam method

The meaning of the word Avalokanam is observation. This is the method to find the cube root of a perfect cube. In this technique we can find the cube root by remembering the cubes of the first 9 numbers.

Step 1: Remember the cubes of first 9 numbers									
Number	1	2	3	4	5	6	7	8	9
Cube	1	8	27	64	125	216	343	512	729
Note : All the cube roots end with same number as their corresponding cubes except 3 & 7 and 8 & 2 which end with each other									
Step 2: Make three digit groups of the cube starting from right.									
389017 → First group (017) Second group (389)									
Step 3: Take the unit place of The first group in consideration. For this problem, it is 7. If 7 is at the unit place of a cube then 3 is at the unit place of the cube root (from the above table). Unit place of the cube root is 3									
Step 4: Take the second group in consideration. For this problem, it is 389. Since, 389 lies between cube root of 7 i.e. 343 and the cube root of 8 i.e. 512. Select the lowest cube root among 7 and 8, which is 7. Tenth place of the cube root is 7									
<b>Answer: 73</b>									

**IV. OBJECTIVE OF THE STUDY**

The main objective of this research is to find whether Vedic Mathematics is effective and has the potential to be added in the school academics. The sub objectives of the research are to find whether Vedic mathematics techniques improve speed of the calculations and whether it increases students’ concentration and logical thinking abilities.

**V. METHODOLOGY OF THE STUDY**

The research is based on the primary and secondary data sources. Primary data is collected in the form of a survey, from over 50 participants. The sample space of the study includes participants from the age of 14 to 22, and from different educational qualifications. The secondary data sources are other research papers, journals, magazines, related websites and news articles. We utilized following steps for collecting the primary data.

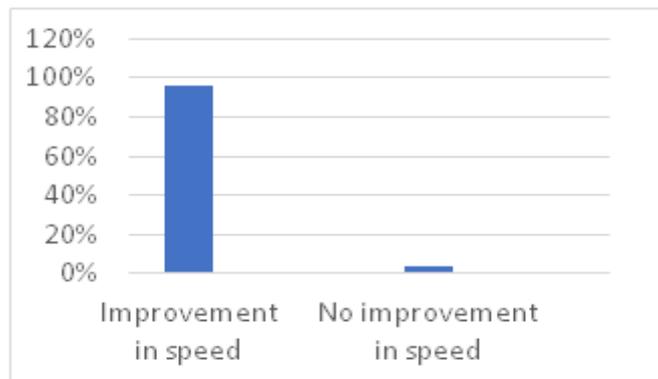
1. Created interactive videos based on the methods given in the original text [1]. The methodology, and some solved problems based on the methods were presented in the form of a video containing animations and graphics.
2. 50 participants were selected from different age and qualification, and the video was shown to them so that they can understand, learn, and practice the selected Vedic mathematics methods.
3. After learning and practicing the methods, a question bank containing some problems of multi digit multiplication and cube roots were given to them. All the participants were asked to solve the same problem by using the traditional method and Vedic mathematics techniques. The time required to solve the problems was also recorded in seconds.
4. At the end, all the participants were given a questionnaire containing some questions related to their experience and the data was collected.

**VI. SIGNIFICANT FINDINGS**

All the participants were given the problems involving multiplication of 3 to 4 digit numbers, and were asked to find cube roots of the perfect cubes of 2 and 3 digit numbers. All the data was collected after the participants studied and practiced for 3 to 4 days. Following were the questions asked to the participants to collect the primary data

*Q1: Whether the Vedic mathematics techniques increase the speed of basic mathematical operations such as finding the multiplication and finding the cube root.*

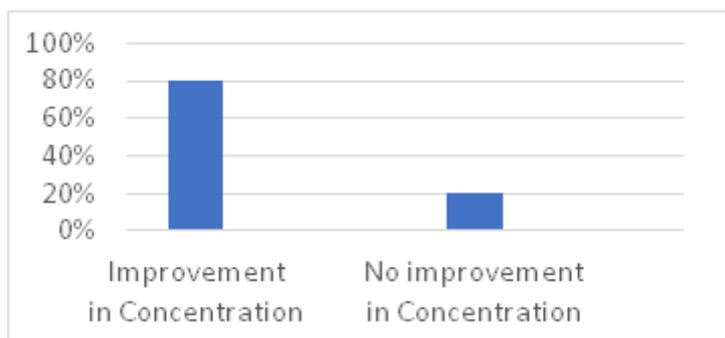
About 96% of the participants out of 50 agree that Vedic mathematics improves the calculation speed where 4% of the participants noted no improvement.



**Figure 1. Graph showing the speed improvement using Vedic mathematics techniques**

*Q2: Whether the Vedic mathematics techniques increase the level of concentration*

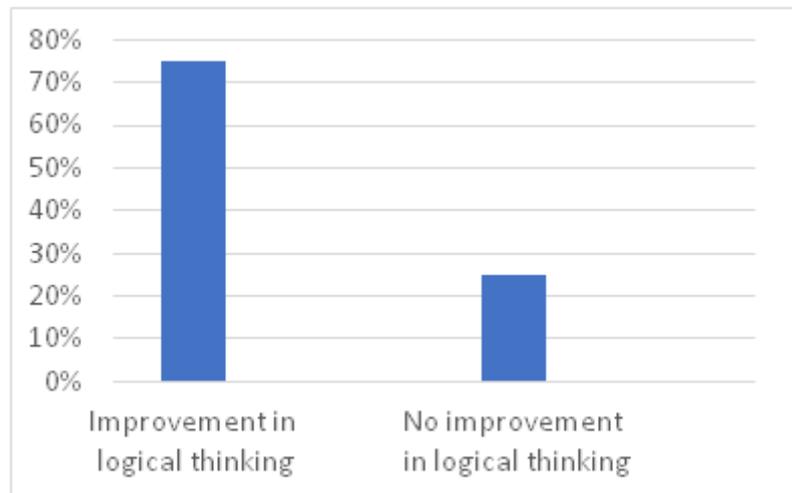
About 80% of the participants out of 50 agree that Vedic mathematics improves the level of concentration where 20% of the participants noted no improvement.



**Figure 2. Graph showing the percentage of improvement in concentration**

*Q3: Whether the Vedic mathematics techniques improve logical thinking*

About 76% of the participants out of 50 agree that Vedic mathematics improves the logical thinking abilities and 24% of the participants noted no improvement.



**Figure 3. Graph showing the percentage of improvement in logical thinking.**

## VII. LIMITATIONS AND FUTURE SCOPE OF THE RESEARCH

The limitations and the future scope of the study include,

1. The sample size (number of participants) is 50 for this study. More number of samples can be taken for the study in future to increase the accuracy of the results.
2. In this study we used only 2 techniques out of the 16 techniques mentioned in the original text. For future study, a greater number of techniques can be considered.
3. All participants agreed that learning Vedic mathematics techniques is a continuous process. It required practice. And for this survey the time given for practice was not enough and If given sufficient time, we expect even more improvement in the result.

## VIII. CONCLUSION

To be expert and fluent in solving the basic mathematical problems using Vedic mathematics techniques, continuous practice is required. Based on the survey done, this paper finds that the Vedic Mathematics techniques significantly improves speed and reduces the time to perform basic mathematical calculations. It is also useful in improving concentration and logical thinking abilities. Being versatile, simple, and adaptive, these methods, or techniques will surely prove to be of significant importance if taught in schools and added as a complimentary subject in school syllabus.

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**DISRUPTIVE INNOVATIONS IN DEFENCE LEADING TO DISRUPTIVE HUMANITY**

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**SHORT ABSTRACT**

*The countries all over the world have been insecure on account of various border issues, tensions of the refugees and their rehabilitation. The wars as well as the so-called Proxy wars in last few years have compelled the countries to raise their defence budgets so as to safeguard them against the crisis emerging due to the above-mentioned issues. The warfare activities and mechanisms have not only increased quantitatively but also in terms of the Defence Innovations. In the strict meaning of the term, Disruptive Innovations we need to look into its disruptive effects on the Humanity at large. This paper therefore attempts to look at the Disruptive Innovations in Defence all over the world and with the help of defence expenditures of the countries and the amount of R&D expenditures allocated by the countries it would try to show that the Disruptive Innovations can be really Disruptive in nature when seen from a different angle of ethics and Humanity. Disruptive Innovations in Defence leading to Disruptive Humanity*

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**INTRODUCTION**

Provision and supply of public goods' responsibility, is always shouldered by the government. Defence spending is becoming an important tool in terms of economic development and on the contrary for the achievement of the Sustainable Development Goals (SDGs). Because without freedom, without peace, without any socio-cultural freedom, sustainability is highly impossible. More than any forms of budget allocation, the defence budget is absolutely necessary for the existences and freedom's sake. Defence – being a public good, and hence provided by the Govt., plays a vital role in the positive development of the economy, culture and overall prosperity of the country.

Lately, countries have been insecure on account of various border issues, tensions of the refugees and their rehabilitation. The wars as well as the so-called Proxy wars in last few years have compelled the countries to raise their defence budgets so as to safeguard them against the crisis emerging due to the above-mentioned issues. At present when the entire World is going through a health crisis with their economic growth going crisscrossed, countries tend to maintain or increase defence funding due to external security and threats or even to showcase the muscle power. The warfare activities and mechanisms have not only increased quantitatively but also in terms of the Defence Innovations. In the strict meaning of the term, Disruptive Innovations we need to look into its disruptive effects on the Humanity at large. The Afghanistan crisis had showcased the inhuman disruptions the American weapons and warfare in the hands of the Taliban's have caused to the Afghans and that stands as the greatest Humanitarian crisis today.

This paper therefore attempts to look at the Disruptive Innovations in Defence all over the world and with the help of defence expenditures of the countries, it would try to show that the Disruptive Innovations can be really Disruptive in nature when seen from a different angle of ethics and Humanity. This paper will be divided in two sections, first section will deal with the trends of defence expenditure across the globe and second part will deal with the disruptive innovation in defence in the form of biological weapon used by China against all countries if so and the case of Taliban captured Afghanistan.

**Patterns of Defence Expenditure across the World**

Tracking it back from the process of civilization, every country has been keeping an eye on the defence system of the other countries and every country has been deliberately making constant efforts to make a well-built and efficient defence system of their own. At present there are 36 countries worldwide who do not have a military. Defence expenditures are one of the most critically observed components of public expenditure. Apart from Country's GDP or financial capability, there are number of other factors which would decide the course of defence activities of the country. They include economic, non-economic, such as political, geographical, geopolitical, international pressure groups of countries etc.

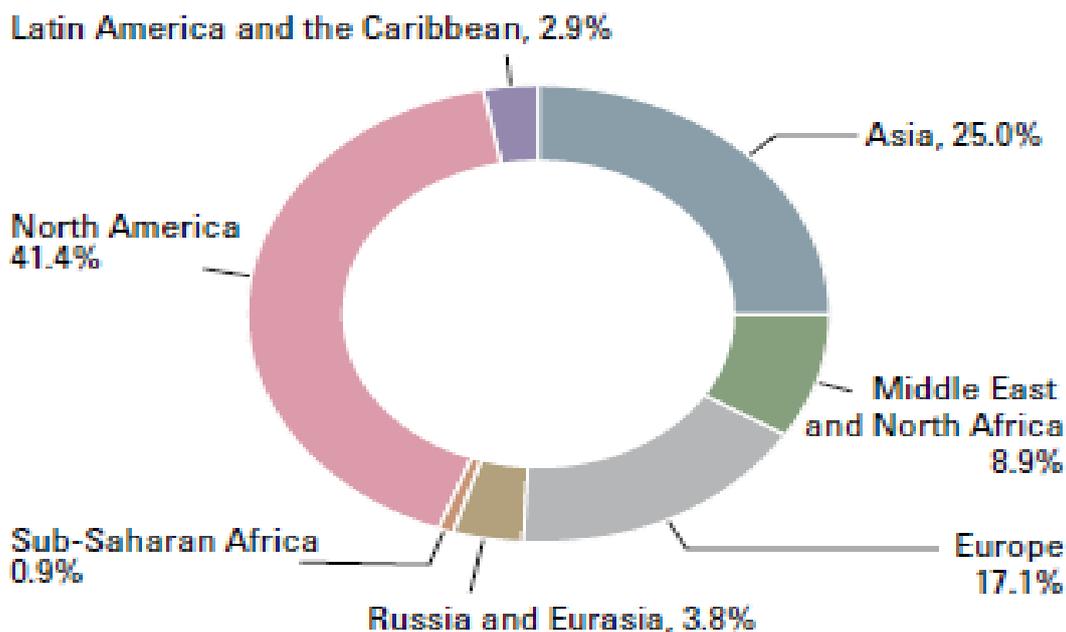
Referring to economic growth and development as well, we all have come on backfoot because of this unprecedented surge in covid-19 cases across the world since March 2019. The present generation has been experiencing the widest health crisis of their time and almost all economies are striving hard to push it through. There is wider possibility of use of Biological weapons like the Covid as a tool of Disruptive defence Innovations. This is because such biological weapons can destroy not only the people but even weakens the affected economies. On the backdrop of this health crisis, ideally defence expenditure should have been

curtailed so as to allot and divert more funds to the health sector. Health sector, obviously has come on the priority list of the public expenditure across the World, but the defence expenditure across the world is not showing any signs of curtailment. In fact, it is surging and that is the main cause of concern for the mankind.

As per the Stockholm International Peace Research Institute (SIPRI) publication in April 2021, titled as ‘Trends in World Military Expenditure 2020’, it is very evident that world’s defence expenditure shows the upward rising trends. World military expenditure was \$ 1981 bn in 2020, an increase of 2.6 percent on 2019 in real terms.

**Figure 1 Global Defence Spending by Regions (2020)**

**Planned global defence-spending by region 2020+**



**Source: Stockholm International Peace Research Institute (SIPRI 2021)**

In year 2020, the world military expenditure is heavily concentrated in two of world’s five regions: first one is America (41.4%) and the second one is Asia (25%). Europe counted for 17% of global military expenditure. The five biggest spenders were the US (\$732 billion), China (\$261 billion), India (\$71.1 billion), Russia (\$65.1 billion) and Saudi Arabia (\$61.9 billion), together accounting for 62% of the global military expenditure. “This is the first time that two Asian states (China was second in 2018 also, but India was fourth) have featured among the top three military spenders,” said SIPRI. Even France and the United Kingdom were among the first 10 biggest spenders in the World.

US military spending in 2020 was 4.4 percent higher than in 2019- 2020 is the third consecutive year of growth of US military spending. China, the second largest spender on defence in the World, has witnessed 1.9 percent rise in their defence spending in 2020 as compared to in 2019. This is their 26th consecutive year of rise in the military expenditure. China has continuously opted for military modernization and expansion process. Apparently, it appears to be more of a ‘power play’ and ‘power politics. As per the SIPRI’s database, India’s military spending of \$71.1 billion in 2019 amounts to 2.4 per cent of the country’s gross domestic product (GDP) and 3.7 per cent of the total global military spending of \$1.9 trillion. And with this, for the first time India has appeared in the rank of first three countries on the basis of their defence spending. Self-reliance in defence has been the cornerstone of India’s defence production policy. Changing face of international politics and international relations must have brought the self-reliance in defence on a priority. The recent call for ‘Atmanirbhar Bharat; has provided further impetus to realise this goal. Since 2014, the Indian government has brought many reforms in defence to create a conducive ecosystem for defence exports and FDI. Perceived and continuous threats to India’s national security forces India to spend the huge chunk of public expenditure on defence. The economic success of countries largely depends upon the role of governments in allocating and

redistributing budgets. According to Ben-Gad, in environments that provide unreliable information about threats to national security, policymakers very often focus on higher-than-would-be-appropriate defence expenditure. Moreover, we would expect policymakers to favour spending on weapons and associated defence strategies, where such strategies and spending would be most effective in preventing the occurrence of worst-case scenarios. However, the military spending pattern during and after this pandemic, cannot be measured conclusively and will only become evident in future years.

Research on causal relationship between military expenditure and economic growth has attracted number of researchers previously and it continues even in the current time. Obviously, in case of developing countries, withdrawing resources from social overhead capital (specifically physical infrastructure, education, health, etc.) and diverting them towards defence related services and activities, would surely sound radical, but then when it comes to the question of national security, then it boils down to the security for your own people. It is interesting here to note certain points about the Military Expenditures of the countries at large. In an article titled Military Spending by Max Roser and Mohamed Nagdy, in a journal, Our World in Data (2013), the authors firmly observed that the wars substantially impact the resource allocation within and across the countries and more importantly, most countries devote resources to their military even in the absence of conflict or a war. Let us see the military expenditures of major countries mentioned above for being the top spending on Military expenditure with reference to their percentage of the GDP in 2020.

**Table 1 Military expenditure by country as percentage of Gross Domestic Product (GDP), 2020**

Country Name	USA	China	India	Russia	Saudi Arabia
<b>Military expenditure as percentage of the GDP</b>	<b>3.7</b>	<b>1.7</b>	<b>2.9</b>	<b>4.3</b>	<b>8.4</b>

**Source: Military expenditure by country as percentage of gross domestic product, 1988-2020 (SIPRI 2021)**

The percentage of military expenditure above is unevenly undertaken by all countries and its effects in terms of economic and social burden too are different. There is a larger possibility of mis allocation of resources and that poses challenges for the governments particularly in the developing economies as this involves a huge opportunity cost for them. This in turn affects their Human development that is very critical for their sustained development. Thus the war, its financing and the aftermath disrupts the Humanity at large and the vulnerable the most.

**Disrupting the Humanity**

The present rise and pattern of defence expenditure undertaken by the countries is really worrisome and certainly creates a threat to the entire mankind. Generally, the Wars destroy communities and families and often disrupt the development of the social and economic fabric of nations, the winning as well as the defeated. The major threats are created for the economic development that is compromised for the war expenses. According to an article written by Srinivasa Murthy and Rashmi Laxminarayan, in the 22 countries of the Eastern Mediterranean region of the World Health Organization (WHO), over 80% of the population either is in a conflict situation or has experienced such a situation in the last quarter of century. USA being the country with the largest military budget in the world, if we look at just the wars fought by the USA, the effects of the wars are quite evident. The following table explains the wars fought by the USA and the countries impacted.

**Table 2 Wars fought by the USA**

Name of the War	Year	Countries involved and affected
Vietnam War	1955-64, 1965-73 and 1974-75	Vietnam, Cambodia, Laos
Gulf War	1990-91	Iraq, Saudi Arabia, Kuwait, Israel
Afghanistan War	2001-2021	Afghanistan
Iraq War	2003-2011	Iraq

In the article titled '30 years after our 'endless wars' in the Middle East began, still no end in sight' in July 27, 2020, Bruce Riedel, of the Brookings Institute, Washington clearly reveals that despite more than 30 years of the War in the Middle East by the USA, it is still endless. This clearly indicates that despite the larger spending in innovations and defence research undertaken by the Super power could not sort out the issues related to the Humanity at large. The war is fought to generate peace but the wars mentioned above could neither generate peace nor the socio-economic stability to the affected countries. On the other end this resulted into more heartrates and hostilities among the nations. Same is the case of China, the world second largest spender on

innovations and defence research today has gone more expansionist and created threat to its neighboring countries like Taiwan, Singapore, Hongkong, India, Tibet, Vietnam, Philippines, South Korea and so on. The use of Biological weapons have aggravated the devastations for the entire world. The effects of such wars, race for more Innovative arms and ammunitions are not healthy but rather they are destroying the world order; economic, social and environmental too. The long-lasting effects of the Wars and even the Proxy wars can be listed as

- Deaths and Disabilities
- Adverse impacts on the Health and Wellbeing
- Adverse impacts on the Mental and Psychological Health of adults and children, refugees and soldiers
- Impact even the Generations in case of the use of Nuclear and Biological weapons
- Disruptions of communities and families on long term basis
- Reduction in material and Human capital
- Poverty, malnutrition, disability, economic/ social decline and large-scale displacements and Devastations of the affected communities

The expenditure on the rehabilitation and restoration of the war affected communities poses a fiscal burden for the governments in general. Just as an example about the costs of War, we can see the Report on Costs of War project at Brown University which revealed that 20 years of post-9/11 wars have cost the U.S. an estimated \$8 trillion and have killed more than 900,000 people. Catherine Lutz, co-director of Costs of War and a professor of international and public affairs at Brown university states that “the war has been long and complex and horrific and unsuccessful... and the war continues in over 80 countries.” This is just the material and human loss in terms of the deaths but the actual cost this would cause for the Humanity is too much when seen from the Humanitarian angle. And this is the case of just one of the many wars fought by the USA and then we can imagine the magnitude of all wars fought by all countries so far and their societal costs and impacts on Humanity where only few are visible and too a great extent many are invisible. American President Jo Biden’s comments in his Address to the Nation on 31<sup>st</sup> August, 2021 are eye opening for every nation and its citizen regarding the Wars and the Opportunity Loss implied in these Wars. He said, “After more than \$2 trillion spent in Afghanistan, costs that Brown University researchers estimated would be over \$300 million a day for 20 years — yes, the American people should hear this... what have we lost as a consequence, in terms of opportunities? ...I refuse to send America’s sons and daughters to fight a war that should have ended long ago.” And this loss is Disruptive and Irreparable too.

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- Costs of War project Report, Brown University by Stephanie Savell , Catherine Lutz and Neta Crawford. September 1, 2021
  - Data on military spending is generally available in three forms, the initial budget, a revised budget, and the actual expenditure.

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**DISRUPTIONS IN DIGITAL PAYMENTS: A LEAP TOWARDS CASHLESS ECONOMY**

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**ABSTRACT**

*Digital payments are electronic payments in which payments for transactions are made between two parties with the help of digital devices such as mobile phones, computers, point of sale machines, etc. The accelerating financial transformation has resulted in a paradigm shift in the future of money. The evolution of digital currencies and their growing popularity among investors and companies have made a new sense in cryptocurrency, fintech, digital payments, etc. The gauge of disruption in digital payments has likely to grow dramatically after demonetisation, and COVID 19 further witnessed a switch in consumer behavior which mooted the use of digital payment technologies on a large scale. Both businesses and consumers are looking for new payment choices, and huge IT companies, fin techs, banks, and other non-bank institutions are bringing state-of-the-art technologies by providing sophisticated experiences to customers with minimum cost and time. In the coming years, cash and cheques will be replaced and a quick and advanced mode of payment systems may create more possibilities for digital payment disruptions. Of course, such a move in the financial environment will have far-reaching ramifications for business, industry, government, and other stakeholders. With the advent of digital wallets, access to cash is diminishing and the banks may have to reduce the number of branches and automated teller machines (ATMs). Cryptocurrencies are another emergence and the investors and speculators are keeping a close eye on worldwide events as governments respond to cryptocurrencies in a variety of ways, ranging from hostile to apathetic. In the short run, crypto will not replace the present financial system; rather, it will develop its own financial system suitable to the new generation, who are digitally literate. The emergent technology will finally demonstrate its worth by providing everyone with low cost, secured, and broad financial services. Any digital currency with the approval of the Central Government is known as Central Bank Digital Currency (CBDC). Rather than printing money, the central bank issues electronic coins or accounts with its approval.*

*Keywords: Disruptions, Digital payments, Cryptocurrency, Demonetization, Cashless Economy, Central Bank Digital Currency (CBDC)*

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**INTRODUCTION**

2020 has witnessed tremendous growth in digital payments across the globe and India is not an exception. Demonetisation in 2016 has created a promising platform for digital payments in the country. The major objectives of demonetization were preventing black money, eliminating counterfeit currency and creating a cashless economy in the future. Indian economy shows the signs of moving forward to a cashless economy even though cash transactions dominate in the economy. In a cashless economy all financial transactions are conducted using electronic gadgets and modes, it replaces physical bank currencies and coins. ‘Digital India Mission’, which is launched by the Government of India in 2017, had been the prestigious program of the Government to enable the citizens of the country to use digital payments. The outbreak of Covid 19 pandemic has further mooted the use of digital technologies widely by the people. Digital payment systems consist of electronic payment cards like credit and debit cards, ‘Quick Codes’ named Unstructured Supplementary Service Data (USSD), Aadhar Enabled Payment System (AEPS), Unified Payment Interface (UPI), etc. By announcing Payment Infrastructure Development Fund (PIDF) scheme by Reserve Bank the number of digital transactions will be boosted soon in India (Watal, 2018). The main aim of this fund is to promote digital transactions among the customers and merchants and also to provide financial assistance to develop and maintain digital infrastructure. Apart from this, evolution of digital currencies play a vital role in the payment mechanism. The evolution of cryptocurrencies changed the digital payment mechanisms. Bitcoin, Ethereum, Cardano, etc, are some of the popular cryptocurrencies. (Forum, 2021) The research paper made an attempt to understand the current status of various digital payment mechanisms and study about the future of money in this context.

**OBJECTIVES OF THE RESEARCH PAPER**

1. Understand the various modes of Digital Payment Mechanisms.
2. Know the future of Digital Payment system.

**METHODOLOGY USED**

The study is descriptive in nature, and secondary data was gathered from the websites of RBI's and the National Payment Corporation of India's (NPCI), as well as magazines, newspapers, and the internet.

**THEORETICAL REVIEW OF EVOLUTIONS IN DIGITAL PAYMENT METHODS****1. Payment Cards**

Banking cards are electronic cards which are widely used by people as an alternative to cash payments. In India different varieties of cards are available for digital payments which include debit cards, credit cards, prepaid cards, gift cards, etc. Credit cards are issued by financial institutions in which the credit limit given to the customer will be pre-set on the basis of the credit worthiness of the customer. Debit card is similar to a credit card but unlike a credit card, the amount spend by the customer will be immediately debited from the customers bank account.

**2. Unstructured Supplementary Service Data (USSD)**

USSD was launched with a vision to deepen the financial inclusion and brought the unbaked society in the main stream of banking services. Under this innovative payment mode people can access the mobile banking transactions in the basic featured mobile phone by dialing \*99# and this technology works without internet connection(Muthurasu & Suganthi, 2019). Customers can use this number to request services such as interbank account to account fund transfers, balance inquiries, mini statements, change M-PIN, generate OTP, etc. from all Telecom Service Providers (TSPs) (Source: NCPI).

**3. Aadhaar Enabled Payment System (AEPS)**

AEPS is a digital payment system which was initiated to increase the presence and popularity of Aadhar. It is a bank –led model of digital payment system in which customers can make use of their Aadhaar-linked accounts to transfer money between two Aadhaar linked Bank Accounts. AEPS also facilitates Balance Enquiry, Cash Withdrawal, Cash Deposit, Payment Transactions (C2B, C2G Transactions) (Bijapurkar et al., 2020)

**4. Unified Payments Interface (UPI)**

UPI is an application for smart phone through which the users can transfer money between two parties easily. It is a single window mobile application developed by NPCI which brings many banking features in a single platform(Bijapurkar et al., 2020). UPI system allows fund transfers to be delivered without the use of banking cards like debit or credit cards, online banking, and there is no need to enter the account details also.

**5. Mobile Wallets**

Mobile Wallets are types of wallet through which a person can carry cash digitally. You can link your credit or debit card information on the mobile device to the mobile wallet application or transfer money online to the mobile wallet. Instead of shopping with your physical plastic card, you can pay with your smartphone, tablet, or smartwatch. A person's account must be connected to the digital wallet in order to load funds into it.

**6. Bank Prepaid Cards**

A bank prepaid card is a bank-issued, pre-loaded debit card that is either single-use or reloadable for many usages. Pre-paid cards are issued by a bank or a non-bank institution. A customer can use these cards to buy things with the funds available in the prepaid card. The motto of prepaid card is “pay now and use later”. It differs from a traditional debit card in that the latter is permanently linked to your bank account and can be used several times. These cards may be commonly used for corporate gifts, reward cards, etc.

**7. Point of Sales**

Point of Sale is known as the location or place where the sales are made. It is also known as Point of Purchase. In a broader sense it may be a city, district or any area where a customer completes a transaction by making payment for the same, but in a narrow sense it may be a shop, stall, mall, theatre, etc. PoS can be classified as physical PoS, Mobile PoS and Virtual PoS.

**8. Internet Banking**

Internet Banking is a digital payment technology in which the customer of a bank or financial institution can perform a wide range of financial transactions through bank's or financial institution's websites. Internet banking is also known as virtual banking, online banking or electronic banking. National Electronic Fund Transfer (NEFT), Real Time Gross Settlement (RTGS), or Immediate Payment Service(IMPS) are some of the popular ways for financial transactions via internet banking(Bijapurkar et al., 2020).

**9. Mobile Banking**

Present- day mobile banking is one of the most commonly used digital payment method. It means conducting financial transactions and other banking activities on mobile phones through the mobile application provided by

the bank. Now a days most of the banks have their mobile banking apps. Bank makes available its own mobile banking App for Android, Windows and iOS mobile platform(s).

#### 10. Micro ATMs

Micro ATM is a device that is used by a numerous Business Correspondents (BC) to provide (who may be even a small shop keeper) to do instant transactions. Business correspondents are retail agents who may be the representatives of the bank and provide banking services where the banks directly can't provide the same. The services that will be supported by micro ATMs are fund transfer, balance enquiry, deposit, withdrawal, etc.

#### DIGITAL CURRENCY EVOLUTIONS: CRYPTO AND VIRTUAL FIAT CURRENCIES

Recent technological changes have replaced many brick and mortar system in the economy and payments are not an exception. The digital revolution that started in the 1990s led to an enormous change of resources to Information and Communications Technology (ICT) industries. Digital platforms are creating abundant opportunities in monetary system and transactions. Since the evolution of crypto currencies in 2008 which has changed the perception of money among the people and is treated as an illusion in the way of digital currencies and has become one of the most exciting and perhaps most misinterpreted phenomena in the beginning of 21st century. Being a disruptive technology in digital payment system they produce money without central banks and enable payments without financial intermediaries. Crypto currencies are the initial and most developed application of blockchain technologies. Blockchain is a decentralised ledger information about the transactions in peer-to-peer network. In this technology participants can settle the transactions without a central clearing authority. The gaining popularity of many cryptocurrencies creates numerable threats on existing financial institutions. However, serious limitations have become apparent. Decentralized organization of markets without reliable intermediaries can be very costly, and the unpredictability of the value of cryptocurrencies is a big hindrance to their becoming a substitute to legal tender(Forum, 2021).

Block chain technology is also known as Distributed ledger technologies or are immutable digital ledger systems established without a central repository and a central authority. Block chains are scattered digital ledgers of cryptographically signed transactions that are clustered into blocks. Each block in the block chain technology is cryptographically connected to the prior one after validation and enduring a consensus decision. This technology has become popular in the beginning of 2008, at the time of the advent of digital currencies. Numerous digital currency systems such as Bitcoin, Ethereum, Ripple, and Litecoin uses the block chain technology. Block chains are classified as public block chains and private block chains. Bitcoin is an example for public block chain. Many countries across the world have recognized to be fertile ground for the growth of cryptocurrencies and blockchain technologies where people use cryptocurrencies for cross-border transactions and as speculative funds.

In the beginning of 2021, the cryptocurrency market is extremely diverse. Bitcoin, Ether, and other virtual currencies are frequently dismissed by critics as toys for anti-government zealots or supporters of the shadow economy. Cryptocurrency users, on the other hand, are tech-savvy, successful, and optimistic about mobile payments, and digital currencies are gaining traction, particularly among lucrative businesses and in a number of growing economies(Carstens, 2021).It was estimated that there are around 7,800 different coins in existence. Out of which an estimated number of 1,085 coins had failed and vanished from the market. Bitcoin is the most prevalent cryptocurrency with around 60% share of the market. When it was launched a coin costed roughly \$0.0008 and its value hit \$50,000 for the first time in 2021(Barton, 2021).

#### POSITIVES OF CRYPTOCURRENCY

**Quick Transfer of Funds:** Financial transactions whether domestic or multi-national crypto currencies make the transfer of funds between two parties without the involvement of the third party as done in online banking transactions.

**Less costly:** Crypto currencies are less costly as compared with other means of online transactions as it eliminates the commission of third parties.

**Safety:** Security and privacy are major concerns in digital currencies. Crypto transactions use the block chain technologies which are safe as it uses mathematical codes and it is difficult to decode.

**Decentralised:** In contrast to a central bank digital money, cryptocurrencies often use decentralised control (CBDC). Each cryptocurrency, when implemented with decentralised governance, uses distributed ledger technology known as blockchain.

## NEGATIVES OF CRYPTOCURRENCY

**Misuse:** As the anonymity about the parties involved in the transactions are high in Cryptos. This may lead to the misuse of crypto transactions for terrorism financing, money laundering, illegal activities, etc.

**Irreversible nature of payments:** In crypto transactions once the payment is made it is not possible to reverse the transactions.

**Financial Loss:** The developers of crypto have created strong authentication in the access of crypto accounts. Once the user loses the “private key” of his wallet it may lead to loss of money.

**Vulnerable to hacks:** Although cryptocurrencies are extremely safe, it may be vulnerable to security threats. Most exchanges save user wallet info in order to correctly operate their user ID. Hackers could steal this information, giving them access to a large number of accounts.

## Central Bank Digital Currency-A Leap To Cashless Economy

Fiat currency or the Government backed currency has dominated the payment system for a very long time since the evolution of currency and coins. But tremendous technological developments have led to the advancements in the field of payment systems. Financial and technology companies are developing a slew of novel cryptocurrencies based on similar underlying technologies, the most notable of which is Libra, which was developed by Facebook. CBDCs (Central Bank Digital Currency) and commercially supported digital solutions are gaining traction (Engert & Fung, 2017). Governments realized an opening to issue digital currencies and Central Banks around the world are in progress with digital versions of their existing legal tendered physical currencies. CBDCs are still in its experimental phase shows the signs across the world that it may be available to the general public soon.

While the existing cryptocurrency ecosystem does not place a threat to prevailing financial infrastructure, it does have the potential to disrupt and simplify it. Some analysts have interpreted central banks' efforts to build and develop their own digital currencies as a tactic to avoid such a scenario. The central banks in Sweden, Switzerland, United Kingdom, Canada and Japan are researching CBDC yet none have reached the stage of officially implementing. 81 countries throughout the world were working on CBDC development as of July 2021 (Engert & Fung, 2017).

Regardless of the fact that the legal position of Bitcoin differs greatly from country to country, there are some statutory limits on the use of digital currencies in India. Although Bitcoin is not controlled by the RBI, there are 11 exchange platforms in India where it can be dealt. The central bank's planned release of digital money as a mass-market digital asset is a well-thought-out decision that will assist the Indian economy. If properly implemented, the framework for the ultimate launch will provide a significant boost to India's financial industry. The Indian government's choice to introduce the Central Bank Digital Currency, unlike cryptocurrency, within a regulated framework in various phases is the most desirable alternative, as expected (Bijapurkar et al., 2020).

In India RBI had banned trading of cryptocurrency in 2018, which was later overruled by the Supreme Court. The Crypto-currency and Regulation of Official Digital Currency Bill, 2021 which is likely to validate ‘Central Bank Digital Currency’ (CBDC) as an authorized digital currency (Digital et al., 2017). Union Finance Minister Nirmala Sitharaman, on August 16, had stated that the “Union Cabinet will soon implement a Bill to control cryptocurrency and its mounting market in India”. Former finance secretary Subhash Chandra Garg, head of an inter-ministerial committee on virtual currencies, recently submitted a report seeking a ban on cryptocurrencies and permitting a Central Bank Digital Currency of RBI.

## CONCLUSION

The advent of digital currencies like Bitcoin, as well as the underlying blockchain and distributed ledger technology, has sparked a lot of interest. These developments have raised the prospect of significant ramifications for the financial system and maybe the entire economy. Except for currency notes, all other uses of physical forms in the modern financial system have been displaced by digital and electronic forms, including bonds, securities, transactions, communications, correspondences, and messages. According to observational information, the use of physical cash in transactions has decreased in recent years, a tendency that has been aggravated by the ongoing Covid19 pandemic (Digital et al., 2017). As a result of these advances, several central banks and governments have increased their efforts to investigate a digital equivalent of fiat currency. The future of money may be dependent on mobile phones and will almost certainly be changed into digital currencies issued by central banks, resulting in a more stable, efficient, reliable, regulated, and legal tender-based payment alternative.

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**SMART CITIES MISSION: DISRUPTIVE INNOVATION FOR SUSTAINABLE DEVELOPMENT IN INDIA**

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**SHORT ABSTRACT**

*The sustainable development is at the crossroads right now and all the countries of the world are trying to find solutions to this global challenge with reference to their local challenges. India too is facing the challenge of its rapid Urban development that would be sustained in multiple ways: economic, social, environmental and so on. Dealing with this the Smart cities Mission in India (2015) has emerged as the result of many smart solutions across all sectors of society that would ensure the economic growth along with a better quality of life in these cities with the environmental sustainability. The Disruptive Innovation of Smart Cities probably would change completely the Urban life and also put forth some challenges like improving public health and safety, addressing environmental issues, enabling mobility, improving quality of life, promoting economic competitiveness by reducing the costs. This paper attempts to show the transformation of cities as expected from this innovation and would focus on the challenges it would bring in multiple ways.*

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**Smart Cities Mission: Disruptive Innovation for Sustainable Development in India**

The concept of Disruptive Innovation appears to me as similar to that of the Hegelian concept of Thesis, Anti-thesis and Synthesis that was extensively borrowed by Karl Marx in developing his materialistic interpretation of History. The Thesis is the existing order and Anti-thesis is something opposite to it as an innovation. The churning between these two results in an outcome in the form of Synthesis: a completely new innovation. The Disruptive Innovation is nothing but this Synthesis, that would transform massively the existing order or the mechanism. The idea of Smart Cities Mission is such a Disruptive Innovation in the field of Sustainable Development (SD) all over the world and more specifically in India to realize the goal of Sustainable Development via more Sustainable Cities. This mission is expected to drastically disrupt the existing structure of cities in India with the help of better technologies, management with many smart solutions across all sectors of society that would ensure the economic growth along with a better quality of life in these cities with the environmental sustainability. While in 1950, 30% of the world's population was urban which by 2050, is projected at 66%. Urban population of the world is expected to grow by 2.5 billion by 2050, with nearly 90% of the increase concentrated in Africa and Asia. According to the United Nations, "As the world continues to urbanize, sustainable development challenges will be increasingly concentrated in cities, particularly in the lower-middle-income countries where the pace of urbanization is fastest" (United Nations, 2015). According to the United Nation's World Urbanization Prospects, (2018), "As of 2018, there are over 4,300 statutory towns and cities in India with around 40 crore inhabitants. At current rate of growth, urban population will reach around 60 crores by 2030. It is estimated that about 50 percent of the country's population (around 80 crore) will be urban by 2050." According to this report, the unplanned or inadequately managed urban expansion, in combination with unsustainable production and consumption patterns would lead to unsustainability due to urban sprawl, pollution and environmental degradation. Ideally the Urbanization is considered as a positive and contributory force for economic growth, poverty reduction and human development but if not managed properly, it becomes a threat to SD. This Report clearly underlines the need for Sustainable Cities. India's urbanization process is commented (WB Report 2015) as "messy" - because 65.5 million Indians live in slums and 13.7 million below the poverty line (Census, 2011). This uncontrolled and expansive urbanization has been marked with significant gaps in urban infrastructure resulting in pressure on land, water supply and its quality, sewerage network services, disposal of solid waste, lack of open landscaped spaces, deterioration of public transport, resulting in environmental degradation and poor quality of urban life. Public transport accounts for only 22% of urban transport in India. 13 per cent of urban households do not have any form of latrine, less than 20 per cent of the road network is covered by storm water drainage and scientific disposal of solid waste is not there in most of the cities. There was a shortage of around 19 million dwelling units as per the 12th Plan. Overpopulation, excessive consumption, pollution, and depletion of resources have presented environmental and health challenges in major cities. Many Indian cities are plagued with various environmental, social and economic issues such as resource scarcity, congestion, pollution, poverty, lack of affordable housing, proliferation of informal dwelling, as well as sewerage and sanitation problems. The 2030 Agenda regarding the SDGs places great importance on issues related to sustainable urbanization, particularly in Goal 11: make cities and human settlements inclusive, safe, resilient and sustainable. It is clear that there can be no sustainable development without sustainable urban development. India gave a commitment to implement SDGs in

September 2015. The Prime Minister Narendra Modi affirmed a commitment to “make our cities smart, sustainable and engines of progress” by 2030. This builds on earlier promises of ending poverty, providing housing and basic services to all by the early 2020s. Out of the total 17 SDGs, nearly half of them (Goal number 1,2,3,6,7,8,9,11,12 and 13) can be achieved if the goal of Sustainable Smart Cities is achieved. And in this connection, a Smart City is thus a design for SD.

### WHAT IS A SMART CITY?

The concept of smart cities is an answer for the environmental, economic and social sustainability issues generated by the previously listed challenges. Due to this, the Government of India initiated the ‘100 Smart Cities Mission’ in 2014. This mission is driven by the four guiding principles that are derived from the United Nations’ (UN) draft Sustainable Development Goals (SDGs). They are Well-being, Equity, Efficiency and Foresight. There is no standardized commonly accepted definition of a smart city. In 2014, an International Telecommunication Union report analysed over 100 definitions related to smart cities, and then defined the Smart City as “A smart sustainable city is an innovative city that uses ICTs and other means to improve quality of life, efficiency of urban operation and services and competitiveness, while ensuring that it meets the needs of present and future generations with respect to economic, social and environmental aspects.” According to the World Bank’s Sustainable Cities Framework, ‘Sustainable cities (SC) can be understood as resilient cities that can more readily adapt to, mitigate, and promote economic, social, and environmental change. Sustainable development encompasses all aspects of a city’s healthy development and should be done with a triple bottom-line in economic/financial, social, and environmental issues.’ As per the Smart Cities Report 2015 by Deloitte ([www.deloitte.nl/govlab](http://www.deloitte.nl/govlab)), “A city is smart when investments in human and social capital, traditional infrastructure and disruptive technologies fuel sustainable economic growth and a high quality of life, with a wise management of natural resources, through participatory governance”. The smart city concept offers different opportunities for different countries. **A Smart city in an Indian context is list of infrastructure, services, interconnectivity, geo-political factors and so on which directly or indirectly would aim at an ideal urban ecosystem in terms of four pillars of holistic development: institutional, physical, social and economic.** The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a **replicable model which will act like a light house to other aspiring cities** (Smart Cities Mission Guidelines, 2015). In general, Smart cities are transition towards a digital economy that operate with more efficiencies in terms of costs, time and resources. Physical products are transforming into digital products where every business activity that can be eventually automated due to its advantages: no human errors, 24\*7 operation and lower costs. All these result into lower transaction and coordination costs too leading to more efficiency. Data, technology, skills and competencies and openness for innovations and new ideas enable the city to be smart. These cities are expected to be smart in

- **Mobility:** It aims at reducing congestion and fostering faster, greener/ cleaner and cheaper transportation options such as smart parking in the city, offices and buildings, smart traffic controls, information about transport systems.
- **Safety:** Physical safety is important and for this street lighting systems, effective disaster management systems, emergency handling are some of the examples of smart safety.
- **Energy water and waste management:** Smart energy aims at greener energy generation, lower energy consumption based on renewable energy sources such as solar panels or windmills. Transmission and distribution networks are too smart enough. Smart metering of electricity and reduction in energy loss are some smart solutions. Smart water solutions aim at minimizing waste and securing quality of drinking water.
- **Buildings and living:** Smart buildings use renewable energy like solar panels and thermal energy storage to decrease the net energy usage to a minimum. The Smart homes in these buildings are connected with electronic devices such as smart phones, tablets and laptops.
- **Health:** Healthcare becomes focused on staying healthy rather than the focus on just curing the diseases. Information about diseases and treatments becomes widely available on the Internet and personalized treatment is possible whenever needed. The health insurance and financing become easy and smart.
- **Education:** Smart cities require smart people. Education is critical for development of talent that is needed for innovations. Digitization of education processes becomes essential and with this education becomes more liberal and personalized too.

- **Finance:** New technologies, like mobile payments via smart phones combined with the digitization of payments are expected to result in complete elimination/disruption of cash money
- **Retail and logistics:** Smart retail and logistics aims at flexibility, convenience and experience for the customers. The marketing and selling applications through the E-Commerce can delight the consumers with no costs or very marginal costs of ordering and receiving the product delivery.
- **Tourism and leisure:** Advanced analytics can be used to predict the number of people in an area so that the crowd management in tourist centres/cities can be managed efficiently. Smart cities can provide good navigation tools to the tourists so that the work-leisure balance can be maintained effectively.
- **Manufacturing and construction:** The design of products is changing to allow for extensive personalization, customization with better pricing options. The Construction processes and products in the smart cities would enable the construction industry to construct buildings and roads more efficiently with lower costs.
- **Governance:** Smart cities require a smart government. A smart government would use the disruptive potential of technology and data so as to enable effective policy making with more transparency, competition, combined with the digital democracy. The planning, execution and enforcement of the government policies would get enhanced in such a Smart city. With all these Smart solutions they are more citizen centric in their nature and relate to many stakeholders simultaneously such as healthcare and energy providers, universities and research institutions, investors, banks, insurance companies, hotels and tourism and so on along with a leading role of the city's smart governance. This implies government as an active advocate of the city as innovative hub for new businesses, creating an environment in which new businesses and smart solutions can emerge and grow, stimulating innovative solutions, Creating or changing laws and regulations to allow new business models and simultaneously protecting the interests of citizens of the city. The government is expected to secure modern transportation infrastructures, energy grids and digital networks too. Also the Public-Private Partnership plays a vital role in effective management of these cities. Though this mission sounds very effective and holistic in its approach, many Indian cities are struggling with basic socio-economic problems and in such a case the Smart City mission as a Disruptive Innovation in transforming our cities into Smart cities pose many challenges. The major challenges are listed below:
  - **Climate change and Carbon emissions:** The **reduction of CO<sub>2</sub> and other Green House Gases (GHGs)** harmful to the ozone layer is perhaps the most significant measure of a cities' environmental commitment.
  - **Unwarranted consumption and production:** It is now well understood and documented too that over-consumption leads to excessive depletion of natural resources, greater waste and harmful by-products from the manufacturing process. The consumption as well as the production of goods and services have been unethical on account of wastage by few against the deprivation for masses who are socio-economically highly vulnerable sections.
  - **Human development:** The increasing percentage of urban population no doubt is an outcome of development process, however many economists and social scientists have questioned whether it is real Urbanization or just the gathering of slums in Urban areas. This is because the growing urbanization must be on account of a gap between a decent quality of life available in cities due to their development in terms of health, hygiene, education, earnings, opportunities as compared to the rural counterparts. The Human Development in the cities ideally should be the guiding force for the rural people to migrate and settle down in cities. But Indian cities represent a paradox of educated elites with mass illiteracy and poverty. Overpopulation, excessive consumption, pollution, and depletion of resources have placed environmental and health challenges in major cities.
  - **Lack of greater access to Public resources:** A Smart City according to Oxfam Living, Australia aims at a greater **Access to public resources**, such as quality education, safe health centres, easy access to public transportation, garbage collection services, safety and good air quality, telecommunications, parks, insurance, and buildings too. However major Indian cities are far behind the desired access to public resources. The real challenge in India lies in the smartness of the implementation of the Mission. A smart sustainable city thus is a holistic city with multiple themes or components to ensure easy service delivery and quality life for citizens. The three pillars of sustainable economic advancement, political participation and social emancipation are the core foundations of a smart sustainable city The real challenge is of making Smart Cities sustainable, for which emphasis on the SDGs, including those on inequality,

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participatory governance and climate change is the top most priority. To realise the benefits of this Disruptive Innovation and transform drastically our cities into Smart cities, we need to engage our citizens by greater participation in the governance, private sector of the economy to tap more innovations as well as greater Corporate Social Responsibility norms strictly observed. In this regard there is a great role of the financial sector for developing more innovative ways of finances with a greater focus on Green finance. The value system too is very important in shaping the consumption and production patterns in a more sustainable way. Ethical consumption and production with the optimum resource use can be a key to success of this mission.

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**PHARMACOGENOMICS: A POTENTIAL DISRUPTIVE INNOVATION IN THE HEALTHCARE INDUSTRY**

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**ABSTRACT**

*Recent advances in science and technology such as molecular diagnostic testing and the Human Genome project have bridged the barrier between genomics and healthcare industry. 'Pharmacogenomics' aims to combine the science of drugs and genomics for providing tailor-made medicines to patients based on their genetic background. This can lead to extremely precise, targeted therapies and reduction of side-effects. If implemented correctly, pharmacogenomics could potentially transform and drastically improve the current 'patient care' system. An innovation that allows the entire population of consumers to access a product or service that was initially only accessible to elite consumers is termed as 'disruptive innovation'. The present paper discusses the provision of personalized medicine based on genetic testing as a 'disruptive innovation'. The paper further reviews the prospect of using high-throughput genome sequencing technology 'Next-Generation sequencing' in pharmacogenomic science as a potential disruptive innovation. The paper also delves into the challenges faced in implementing this new medical technology into the health-care market. The information regarding the public perception and knowledge regarding pharmacogenomics and genetic testing is collected based on an online-based questionnaire. Our findings aim to provide an insightful blueprint about the current situation of pharmacogenomics in the healthcare market and provide probable solutions.*

*Keywords: pharmacogenomics, personalized medicine, disruptive innovation, healthcare, genome sequencing.*

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**INTRODUCTION**

The term disruptive innovation reflects any innovation that produces a new market which by providing certain set of parameters makes a product and/or service more accessible to a broader market. Such innovations result in sudden and fundamental changes that can have a significant impact on the society [1]. Scientific research is a niche that has been swamped with waves of innovations and technologies that have changed the paradigm of how research is now conducted. Through various improvements and modifications in conducting scientific procedures, the world has been given access to medical advancements that once remained a figment of an individual's imagination.

There are several examples of past-disruptive innovations in science and medicine such as high-throughput DNA sequencing that aided in Human Genome Project and subsequent research, targeted mutagenesis in mice which enabled identification of gene functioning and different pathways among others. High-throughput technologies in genomics and proteomics have up opened the avenues to explore various aspects that can address diverse life-threatening diseases and facilitate their efficient remediation at the core. However, implementation of these innovations can be termed as a 'benefit to the society' only when they reach the masses of different economic strata at an affordable price. Hence, there is a need to bend or focus on the healthcare cost to make such high-throughput technologies like gene sequencing, different forms of polymerase chain reactions such as RT-PCR available to the entire population for diseases detection.

It is now recognized that interaction between gene and environment plays a defining role in health and diseases. Based on this revelation, researchers have started to focus on exploring an innovative branch of science termed as 'Pharmacogenomics'. Pharmacogenomics involves the study of gene-drug interaction. It primarily focuses on the individual's ability to metabolize any drug or compound (Wong 2008)[2]. The prime principle of pharmacogenomics is the fact that the capacity of a person to metabolize drugs differs from one individual to another. Thus, determination of an individual's genetic make-up via genetic testing before drug therapy can provide a more systemic approach towards addressing an ailment. Pharmacogenomics or personalized medication as mentioned earlier relies on the genetic information of an individuals and designing of a personalized treatment plan. For achieving this, pharmacogenomic study essentially requires the clinical trial data, patient's information such as age, family history, genetic information, medical history, concomitant illnesses, and lifestyle parameters (e.g. smoking, alcohol consumption) among others. Based on the results of numerous such trials, consensus guidelines have been developed by expert panels for devising a treatment plan of major cardiovascular diseases [3]. Several research advancements have been made in patient care to prescribe and administer drugs such as warfarin, statins and clopidogrel based on the genetic make-up of an individual [3]. Numerous literature studies have established a correlation between *CYP2C19* genotypic variants and clopidogrel; *VKORC1*, *CYP2C9* and *CYP4F2* genotypes for warfarin; and *SLCO1B1* for statins [3]. These have

been suggested as major candidate genes triggering respective drug responses. There is a consensus and numerous research studies have focussed on the pharmacogenetic testing for proving that genetic variations influence the safe use of drugs like isoniazid, hydralazine, tacrolimus and HIV-drug abacavir, etc [4-6]. Furthermore, pharmacogenomic studies have been conducted in identifying root genetic problems that lead to toxicity due to chemotherapeutic medicines. For example, the toxicity imparted by chemotherapeutic drugs can be curbed by identifying individuals that are slow metabolizers of anti-cancer drugs prior to their administration. This sort of treatment using the approach of personalized medicine could make chemotherapy safer and reduce its toxicity [7].

Though the science of ‘Personalized Medicine’ sounds promising, the implementation of pharmacogenomics or ‘personalized medication’ faces limitations in clinical practice. Thus, the aim of the present paper is to provide a detailed account of the hurdles faced in providing medication based on a person’s genetic make-up and further explore the awareness and reception of the Indian population towards personalized medication based on their genetic make-up.

## MATERIALS AND METHODS

Primary data was collected by conducting an online survey in October 2021 through circulation of electronic questionnaire links via emails and online networking platforms. The data was collected from 153 adult Indian population. The questionnaire links were designed using online survey administration software ‘Google forms’. The questions were validated with the help of a pilot survey. They mainly consisted of questions pertaining to the demographic parameters, knowledge and outlook of study participants regarding receiving personalized medicine. Secondary data was collected for reviewing the current economic scenario of genetic testing using DNA sequencers based on authentic online websites and published research articles. Statistical analysis of descriptive statistics was calculated for establishing frequencies and proportions.

## RESULTS

### Perception of people towards personalized medicine

The demographic details of the study population is reflected in Figure 1. The present study observed that 30.7% study participants were aware of the term, ‘pharmacogenomics’ and were aware of its significance. About 66.7 % participants were able to accurately identify all the uses of pharmacogenomics. Furthermore, majority participants (57.50%) believed that personalized medicine would offer a better treatment as compared to usage of generic medicines. On the other hand, only 3.3% disregarded the idea of personalized medicine being a successful form of treatment. The study participants also voted on what they thought were the major barriers in expanding or commercializing pharmacogenomics. In this case, the cumulative percentages exceeded above 100% as the study participants were given the option of choosing more than one option. As seen in Figure 2, ‘Lack of awareness’ was selected as a major factor (64.1%), followed by ‘high cost’ (52.9%), ‘lack of labs and people equipped with required knowledge and resources’ (49.7%) and public apprehension (26.1%). Around 44% volunteers said that they would opt for personalised medicine if given a choice, while merely 5% said that they would rather opt for general medicines. Remaining 44% were not fixated on either of the two options and were unsure. Out of the participants who were unsure or reluctant to try personalised medicine, 48.1% said that they would consider changing their opinion only if personalized medicine through genetic testing would be recommended by their doctor (Figure 3). This highlights the pivotal role that the doctors can play in enhancing the understanding that individuals have about this new line of treatment. Also, 25% individuals reported that communication of information explaining the benefits of such a field through articles would definitely aid in changing their mindset. This further reflects the crucial role that communication portals can play in creating awareness among the masses.

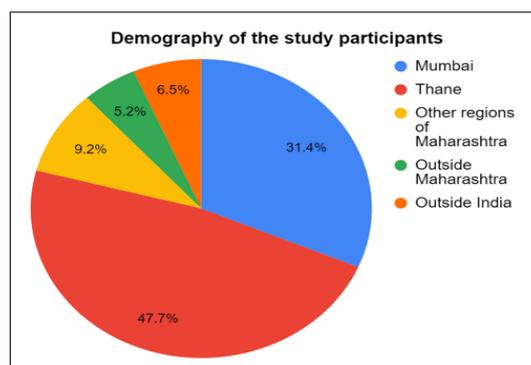
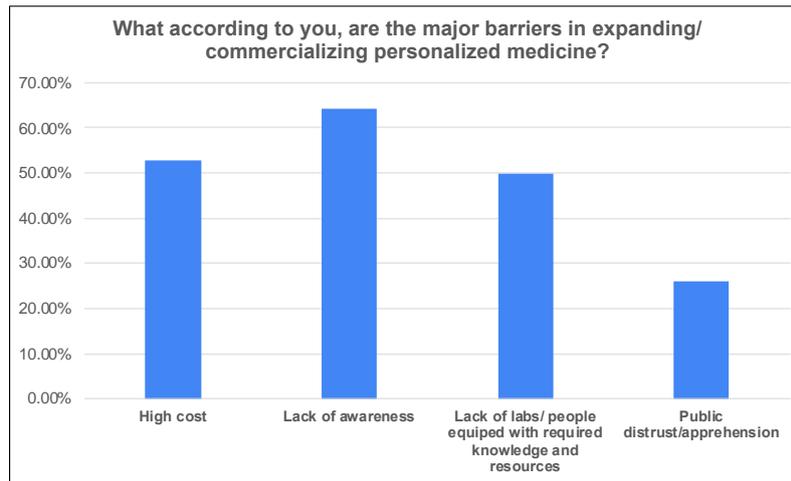
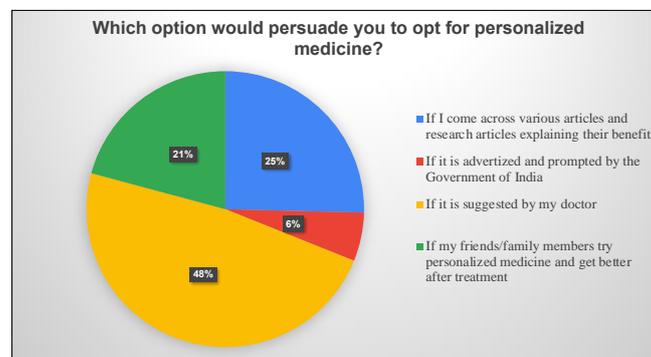


Figure 1: Demographic details of the study population (n= 153)



**Figure 2: Perception of study participants regarding the major barriers in expanding/commercializing personalized medicine**



**Figure 3: Options that would persuade individuals to opt for personalized medicine**

### Cost analysis of genetic sequencing and personalized medicine

High cost is one of the major setbacks faced in the pharmacogenomics industry. The expensive equipment such as a (Next-Generation Sequencing) NGS that is needed for sequencing human genome/gene causes the initial cost of setting up a genome sequencing lab to soar. For instance, Illumina's NovaSeq retails for around 1 million USD, and MiniSeq costs around 50,000 USD [8]. While there are a few relatively low-cost sequencers available such as iSeq 100 at 19,900 USD [8], the cost of setting up a sequencing facility is still out of reach for majority of the small-scale laboratories. In addition to this, the cost of genetic sequencing itself, is comparatively steep for an average moderate income earning Indian citizen. The current cost of whole genome sequencing in India varies from ₹25,000 (\$338 USD) to ₹50,000 (\$676 USD) [9]. Cost of DNA testing using high-throughput NGS ranges from ₹25,000 to ₹55,000 [10], and the NGS clinical exome tests costs approximately ₹22,000 [11]. However, it must be noted that while these figures are exorbitant, there has been a steep significant reduction in the cost of DNA sequencing since the past few years. Keeping in view this projection, there is a hope that the price of DNA testing or genetic testing will continue to reduce even further with the inventions of new and improved sequencers or modifications in the working of the existing ones. Moral and ethical issues related to privacy and patient confidentiality also plague the field of genetic testing [12]. NGS also faces certain technical limitations such as triplet repeat resolution, exome capture, rate of false positive outcomes as compared to the Sanger method and higher incidence of variants having unknown significance [13-21]. Another issue is the accuracy of the tests. For instance, it has been observed that even the best genome sequencing techniques are unable to detect some of the genetic variations contributing to neurological diseases [13, 14]. Currently, it is also difficult to accurately estimate the cost of creating personalised medicine due to the vast range of customisations required based on the target marker and nature of disease. Thus, in addition to the money spent on genetic sequencing, the concerned expert will also have to focus on tailor-made personalised medicine regime for the patient based on his or her DNA. Thus, for estimating the cost of a new diagnostic test in routine clinical practice based on the principle of pharmacogenomics, micro-costing studies based on 'bottom-up' approach is advised wherein all resources needed in this type of health-care system are measured [22, 23]. Lowering the cost of genetic testing and subsequent medicine production would increase its accessibility to people across various economic strata. Also, appropriate communication between an expert conducting the genetic analysis and the concerned doctors would play a pivotal role in further defining the

success of personalized medicine strategy. Genetic testing facilities with high-throughput technology are sparse and unevenly distributed throughout the country which decreases their accessibility to a lot of potential customers. There is also lack of knowledgeable and appropriately trained technicians and health care professionals who are equipped to conduct genetic testing, understand the analysis and accordingly through communication with the doctor prescribe a 'tailor-made'/personalised medicine.

The results of the survey gave us an insight to the public perception of pharmacogenomics. Based on the survey and secondary data collected, we can conclude that spreading awareness and educating people regarding pharmacogenomics, reducing the cost of personalised medicine as well as strategically opening labs in locations which would increase its accessibility for a massive sector of the population would go a long way in expanding and commercialising pharmacogenomics. Establishment of proper infrastructure and equipment to help improve public accessibility is warranted. Also, bridging the communication gap between geneticists and medical practitioners would definitely facilitate a smooth provision of efficient tailor-made medicines to the masses. Provisions to provide the healthcare industry with appropriate infrastructure and funding required to practice pharmacogenomics are also needed.

### CONCLUSION

Pharmacogenomics holds a huge potential in the future as a branch that will improve and reduce the toxicity/side-effects imparted by medicines due to its ability to cater to each individual based on his or her genetic make-up. Although there do seem to be quite a few hurdles in making personalised medicine a mainstream phenomenon, pharmacogenomics still holds immense potential to become a disruptive innovation in the healthcare industry. If the service of personal genotype testing is made available to the consumers at an affordable cost, then there is a high likelihood of increasing personalized prescription of drugs based on the genetic makeup of the individual. Thus, even with the current limitations, there is still a massive hope of pharmacogenomics transforming the healthcare industry and becoming a disruptive innovation.

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## DISRUPTIVE INNOVATION IN DATA MINING

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**ABSTRACT**

*One concept that has evolved is the use of accurate daily activity data – “What was old is new again”; as data mining technology keeps evolving to harmonize with the limitless potential of massive data and affordable computing power. Sometimes mentioned as “Knowledge Discovery in Databases”, the term “Data Mining” was not coined until the 1990s; but its foundation comprises 3 intertwined scientific disciplines: 1. Statistics 2. Artificial Intelligence 3. Machine Learning. Disruptive Technology can be defined as the use of technology to make high-end services affordable to the common masses. The integration of technology in our everyday things has made it cost and time-efficient. One such thing i.e. data mining is the process of using raw data to extract potentially useful information by finding anomalies, patterns, correlations within large data sets to predict outcomes. The main objective of this study is to spread consumer awareness regarding the importance of data mining usage. Its main goal is to summarize and classify Big Data which is manually impossible and it’s increased global applicability. Data mining avails various tools and techniques to access and increase revenue, cut cost/risks and improve customer relations. Critics of data mining condemn privacy and security foremost; followed by ease of use, improving the scalability and extension of algorithms to new data. By developing security models and protocols, improving User Interface, supporting casual visualization, browsing and appropriate language for customer ease; the problem can be solved. The exemplification of data mining is widespread viz – Health, Education, Science, Engineering, Bank, Music, Retail, Telecommunication, etc. Data mining usage has been recognized for more than a decade with a wide application domain in almost every industry where data is generated. In conclusion, Data Mining as a Disruptive Innovation is an abetment in today’s market for making it more sustainable.*

**Keywords:** Data Mining, Disruptive Technology, Artificial Intelligence, Machine Learning, Algorithm.

**INTRODUCTION**

The world is deluged with numerous data types across sectors - Science, Finance, Environment, Mathematics, Technology. It is manually impossible to analyze, summarise and classify the data due to its enormous increase in this age of network and information sharing. *So, what if there were a tool that analyzed, classified and summarised the data about every person, as per our need, at every location? A tool that silently and invisibly collects, quantifies and determines the best outcome 24 hours a day and 7 hours a week?* This technology and software exist today, embedded in a spectacular new generation of computerized testing through ‘**data mining**’.

**What is data mining?**

Briefly speaking, data mining is the process of using raw data to extract potentially useful information from huge data sets. Data mining is a part of **cloud computing**. Cloud computing is a technology that uses the internet for storing and managing the data on remote servers, making it accessible via the internet; also allowing the exploitation of available resources on the internet in a scalable and simple manner. With the help of cloud computing, data mining can extract structured information from unstructured or semi-structured web data sources. The main effects of data mining tools being delivered by the cloud prove to be cost-effective as the customer only pays for the data mining tools that he needs, which in turn reduces his cost as he need not pay for complex data mining. Also, there is no requirement for hardware infrastructure, as data mining can be applied merely through a browser. Thus, the customer has to only bear the operating charges of cloud computing. Due to the availability of data warehouses and storage units, the warehousing and infrastructural cost is eliminated. Traditional data mining incurred huge operating costs and was not market oriented due to its unaffordability. Thus, data mining in today’s era proved to be a boon.

**How is data mining done?**

Data mining explores and analyses large chunks of information and interprets it into glean meaningful trends and patterns. The goal is to find patterns that can lead to inferences from otherwise unstructured or large data sets. Eg: future market predictions.

**Steps Undertaken For Data Mining:**

1. Extract, transform and load transaction data onto data warehousing system.
2. Store the data in a multidimensional database system with its systematic management.
3. Provide data access to IT professionals and business analysts for organizing.

4. Analyze the data by application software based on user's results; and presentation of data in an easy-to-share format to the end-user such as graph or table.

### **Why is data mining so important?**

There is a whooping increase in the volume of data which is doubling every two years. 90% of the data of the digital universe is unstructured. But does more information imply more knowledge? Not necessarily.

Data mining allows you to:

- Sift through all the irrelevant and repetitive facts in your data.
- Understand the relevancy in data and then make appropriate use of that information which helps assess likely outcomes.
- Spur the pace of making informed decisions.

### **REVIEW OF LITERATURE**

*"Necessity is the mother of invention"*

The term '**Data Mining**' was coined during the 1990s but its evolution and emergence as a disruptive has an extensive history. Reviewing the background of data mining, by **Yihao Li** in his research paper "*Data mining: Concepts, Background and Methods of Integrating Uncertainty in Data Mining*" - Since ancient times, a huge amount of raw data have been collected by our ancestors in-hand. During the medieval period, people resorted to classifying data manually. However in modern times, due to the rapid increase in the volume of data, a more effective mining approach is of utmost need. In the early 1700s - Bayes Theorem and in the 1800s - regression, were some of the early methods used to identify patterns in data. After the 1900s, there were remarkable enlargement in data collection and storage due to the growing power of data science. Due to an increase in the volume of data, direct hands-on data have been augmented with indirect automatic data processing and other discoveries such as neural networks clustering and genetic algorithm in the 1950s, decision trees in the 1960s and supporting vector machines in the 1980s.

Data mining origins trace back to 3 family lines: **Classical Statistics, Artificial Intelligence and Machine Learning**. The use of data mining has been recognized for more than a decade and created a profound shift toward more transparent and automated decision making along with its application in various fields by businesses, scientists and government.

Over the last decade, advances in processing power and speed have enabled us to move beyond manual, tedious and time-consuming practices to a new era of quick, easy and automated data analysis targeting remote customers; thus paving a way for disruptive innovation.

### **OBJECTIVES/ PURPOSE OF THE STUDY**

1. To understand and to make people aware of data mining and its benefit to the people.
2. To analyze the growing importance and usage of data mining in all the sectors and households along with its impact and growing effectiveness in people's life.
3. To compare traditional mining with modern mining and its successful evolution as a disruptive innovation.
4. To interpret the future scope of data mining along with its increased global applicability.

### **STATEMENT OF PROBLEM**

The scope of the study is constrained to data mining merely as a disruptive innovation. There are many other aspects of data mining which include different types of data mining, working of the techniques and data mining tools that are beyond the scope of the study but are beneficial to help understand the working and algorithm of data mining proficiently.

Though this study has focused solely on data mining as a disruptive innovation proving it to be one of the most successful innovations of the era by disrupting the market of traditional mining; it still has certain limitations that hinder the theme and there are some areas of concern which need to be adhered to:

- **Difficulty in handling** - A large amount of data is produced and collected with the help of data mining techniques. Sometimes it is difficult to process and work on such a large amount of data. Handling such big amounts of data requires high-end technical skills which many people do not possess due to the abstinence of knowledge.

- **Security and Privacy** - Data collected contains information that can be misused if not secured properly. With a large amount of data, hackers can steal critical information. Privacy is hindered if such sensitive information is available to others due to unknown data leaks.
- **Accuracy** - Data mining has paved the way for easy data collection; but when it comes to accuracy, information gathered can be inaccurate causing problems in decision making. Information can be outdated which will affect the outcome.

## RESEARCH METHODOLOGY

**Type of Research:-** This research paper is descriptive. It is based on empirical study.

**Data Collection:-** Secondary method is used for data collection through articles, reports research papers and websites.

**Concepts Include:-** The concepts in this study include the different techniques and tools of data mining, application and the working of data mining.

### [A] DATA MINING TECHNIQUES:

Data mining makes use of various data mining techniques which majorly involves four classes:

1. **Classification** - Predefined Groupwise arrangement of data.
2. **Clustering** - Grouping of similar chunks of data using an algorithm.
3. **Regression** - Finding a function that models the data with the least error.
4. **Association** - Tracking patterns and finding the link between variables.

Apart from these, some other techniques include **Decision Trees, Outlier Detection, Tracking Patterns, Prediction**, etc. With the use of one or more of these techniques, data mining can prove to be highly effective. Thus, data mining is the best assemblage of technology enabling one to make the most out of the data that has already been collected. With the application of correct logic, one can conclude that data mining has the potential to transform any enterprise.

### [B] DATA MINING TOOLS:

So do you need the latest and greatest machine learning technology to make the technology applicable? This can be accomplished with cutting-edge data mining with relatively modest database systems and simple tools that nearly any company will have. And even if you do not have one you can always create one. This will not only result in cost-cutting but a wide range of options also increases application.

**Examples:-** Rapid Miner, Oracle, Modeler Knime Python, Orange, Kaggle, Rattle, Weka, Teradata.

### [C] APPLICATIONS OF DATA MINING:

Data Mining has a wide application domain in almost every industry where data is generated.

1. **Business and E-Commerce** - Data mining is used by many large companies eg: Walmart by using algorithms and storing historical data to track day-to-day point of sale transactions.
2. **Industry** - Data mining can highly benefit industries such as :
  - a. **Retail** - Retailers collect customers and production information transaction history, Consumption and predict customers buying habits, product accuracy, effective transportation and distribution and thus, lessens business cost.
  - b. **Banking / Finance** – Financial data collected in the banking and financial industry is complete and reliable and facilitates assessment of customers' creditworthiness for credit evaluation and targeted marketing. Data mining also detects money laundering and other financial crimes.
  - c. **Telecommunication** - Data mining helps understand the business, identify patterns, catch fraudulent activities, improve services and optimum utilization of resources.
3. **Science and Engineering** - There are approximately 1,00,000 genes in a human body and each is composed of 100's of nucleotides arranged in a particular order. Data mining can be used in genomic data for analyzing sequential patterns to search for similarity.
4. **Healthcare** - Data mining algorithms can be applied for second opinion diagnostic tools. It is used in hearing care practices, to keep records and information of patients, Pharmaceutical and prescription information and day-to-day clinical records.

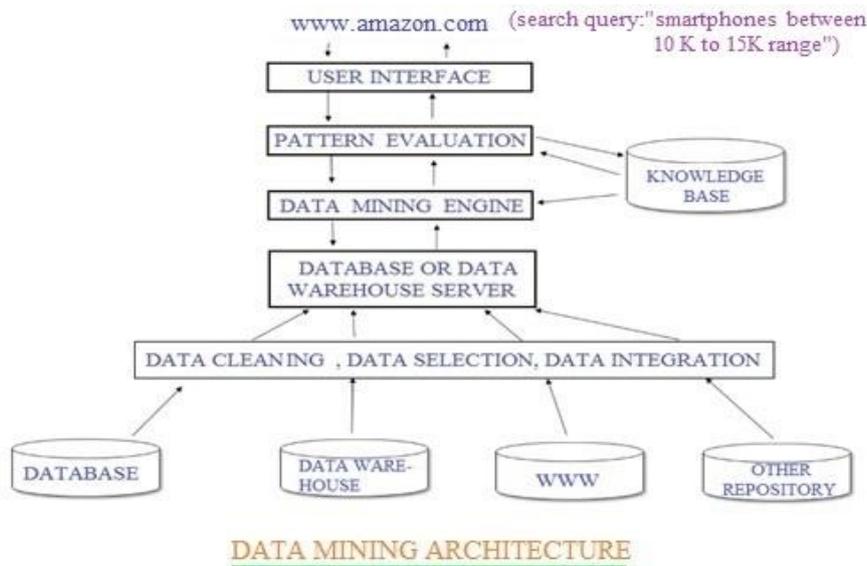
**5. City Governance** – Data mining helps to discover public needs, improve service performance, automated systems to decrease risk and time series analysis.

**6. Music** – Data mining disrupted the market of radio and CDs and made digital music available to all. Eg: Spotify makes use of algorithms to detect customer likings and thus provides recommendations. Classifying music into genres in a more objective manner.

**7. Social Media** - Data mining has huge lucrative applications in various social media platforms like Instagram, Facebook, TikTok, Twitter etc. which gather barrels of data about Indian users to track their likings to send them recommendations and advertising using algorithms.

Thus from the above wide range applications of data mining in various fields, it can be observed how data mining made all the sectorial work time efficient which required a lot of work and incurred much more cost in the previous era. Thus, it has made our life simpler and proved to be a successful disruptive innovation.

**DATA ANALYSIS AND INTERPRETATION**



**Working of Data Mining Architecture:**

To understand the working of data mining let's take an example of searching a smartphone on an e-commerce website.

- As the figure above shows the data sources such as databases, data warehouses, the world wide web (www) and other repositories from where data is fetched.
- As soon as we enter the name of our desired product, database servers start data cleaning, data selection and data integration.
- Data cleaning involves removing unwanted data. In Data selection, data of interest is sorted out. Finally, data integration aggregates data and storage of data in the database. It helps to provide relevant data to the user as per demand which is referred to as mining request.
- Data mining engine is an essential part of the data mining system. It interacts with database servers and pattern evaluation modules and performs tasks like prediction, association, co-relation, classification, etc
- Pattern evaluation interacts with other modules to search as per the pattern given by the user. It is a place where the results of all the searches are stored.
- The user interface is the user end module that allows the user to pose a search query to the data mining system to locate the desired product such as a smartphone in this case. Thus, the data mining architecture does most of the user's work which in turn helps save time and money.

**RECOMMENDATIONS**

As we abide by the saying –“Modern problems require modern solutions”- The problems of data mining discussed above can be dealt with if proper remedies and protocols are undertaken for the same.

- ❖ Educating people about data mining, its application, and how to use it so that basic knowledge is embedded and inculcated among all the people.

- ❖ Developing data mining systems that are accessible to casual users for improvised efficiency.
- ❖ Improving user interface, supporting casual browsing and visualization to increase the number of users.
- ❖ Proper management of metadata and appropriate language and protocols for ease of understanding and usage.
- ❖ Lastly, to curb the potential misuse of data, developing privacy and security models and protocols to prevent any further leakage and ensuring the safety of the people.

### **FUTURE SCOPE**

Data Mining and Knowledge Discovery in Databases [KDD] is extensively growing in terms of research and application in various fields with the help of different techniques and tools. It will play a vital role in the development of pharmaceuticals and treatment in cancer therapies in medical science. In the education system, it may detect the compatibility of a student with a particular course based on a previous course. Data mining is already used extensively in the gaming industry and will increase more extensively. One of the greatest achievements in this field is “Visual data mining” which grew from computers to smartphones and is still growing and will dominate in the future. Since Artificial Intelligence is the future of the world; data mining along with Machine Learning and data science will also aggravate in the future as all are interrelated. According to analyst predictions, the global data mining tools market will reach 1.31 billion by 2026.

### **CONCLUSION**

It can be seen from the above applications how data mining disrupted the old technology market and entered into a new segment targetting all the customers at large by increasing its efficiency and saving its operation cost making it affordable. Beginning from the late 1700s to its origin in the 1990s, data mining has paved its way by turning the tables and erupting as a whole new era of technology which has incredibly increased to date and also has an extensive future scope. Data mining is considered to be one of the most important frontiers in information systems and databases, at the end creating a promising interdisciplinary developments in Information Technology. Thus, in conclusion, data mining as a disruptive innovation is of huge help in today’s market for making it more sustainable.

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**DISRUPTIVE STRATEGIES IN INVESTMENT IN THE STOCK MARKET FOR BEGINNERS**

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**Sameera Pokle**

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**ABSTRACT**

*Considering the occurrence of COVID-19 pandemic which created havoc and directly led to a market crash in early 2020, also witnessed a huge rise in the retail participation in the Indian stock market. According to the data from the Securities and Exchange Board of India (SEBI), the number of new demat accounts being opened during April, 2020 and January, 2021 broke all records. The data suggested that as much as around 10.7 million new demat accounts were opened during this period. Making investment in the stock market is subject to market risks, especially for beginners but, also has the ability to generate passive income. Therefore this research is focused on the Disruptive Strategies in Investment in the Stock Market for Beginners. There are lots of strategies and books available which guide the beginners for investing in the stock market. But these strategies keep changing as per the functioning of the markets and with the developments in the field of technology. This research is best suited for beginners who wish to start their journey of investing in the stock market. This would benefit such beginners in knowing which ways to use for researching the stocks and to analyze and forecast the researched stocks. This research focuses on the reliability of such new investment strategies to profit as per the existing investors of the Indian stock market. This research consists of the study of strategies recommended by the existing investors of the stock market for the new investors to use and avoid while investing to make profits.*

*Keywords: Stock market, strategies, profitability, investment, reliability.*

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**INTRODUCTION:**

Earlier trading involved picking up the phone, calling a broker, who would give a quote and charge high fees. (Datta, D. 2018, August 2). But in today's times, with massive developments in the FinTech and its growing competition, we are able to trade at our fingertips and even with less brokerage fees. Considering the occurrence of COVID-19 pandemic which created havoc and directly led to a market crash in early 2020, also witnessed a huge rise in the retail participation in the Indian stock market. (Oswal, M. 2021, August 3). There is a new surge visible in equity markets today. Many young investors, new to the world of investments, are transacting in shares amidst the pandemic. A sudden wave of young investors has started trading in the stock market despite the gloom of COVID-19 around. Typically, seasoned investors would seek buying opportunities in market downturns. But the coronavirus outbreak stunned financial intellectuals when new and young investors started to enter the stock market and began to invest significantly. (ICICI Securities. 2021, July 1).

According to the data from the Securities and Exchange Board of India (SEBI), the number of new demat accounts being opened during April, 2020 and January, 2021 broke all records. The data suggested that as much as around 10.7 million new demat accounts were opened during this period. (Oswal, M. 2021, August 3). The retail participation in Indian stock markets is rising, as per a SBI report, which points out that 44.7 lakh retail investor accounts have been added during the two months of this fiscal. (L. 2021, June 22). The number of individual investors in the market has increased by a whopping 142 lakh in FY21. (L. 2021, June 22). Angel Broking, a securities firm established in 1987, says 72 per cent of the 510,000 customers it added from October to December had never traded stocks before. (K., & K. 2021a, July 10). Also, the 4 most dangerous words in investing are "It's different this time". (Housel, M. 2021). Therefore, this research is focused on the Disruptive Strategies in Investment in the Stock Market for Beginners to invest using a reliable strategy among many to be profitable in the long run.

**Reasons Why People Joined The Stock Market During Covid-19:**

As in other parts of the world, India's retail trading boom has been fueled by pandemic-driven restrictions and job losses that left millions of people at home with little to do. The relentless stock market rally since March 2020 has drawn in more investors. And technology, including the rise of cheap trading apps and social media—YouTube influencers, Twitter, and Telegram stock-tipping chat groups—has attracted hordes of day traders into discount brokers such as Zerodha Broking. (ICICI Securities. 2021, July 1).

1. Adaptive to new technology: Technology that has made share market trading easy and at one's fingertips is one reason why many now find it convenient to invest in stocks. New-age firms like Zerodha, Upstox, Paytm and even the traditional full service broking firms have invested a lot in technology, which has made it faster to open a trading account, and buy and sell shares in minutes using a smartphone. (ICICI Securities. 2021, July 1).

2. Instant access to trading platforms: With easy accessibility to databases, research tools and trading platforms, millennials and Gen Z have discovered a conducive stock market environment to start investing. In five years, the entire stock market ecosystem has transformed itself, making it more attractive to new and young investors. And with the rise of learning platforms and credible financial resources providing genuine research, millennials and Gen Z are equipping themselves with financial awareness and information like never before. (ICICI Securities. 2021, July 1).
3. Ability to make decisions and risks: The new breed of investors participating in the stock market is more focused on making their own decisions regarding buying and selling shares. With a greater emphasis on stock market knowledge and various education platforms providing support, millennials and Gen Z are using the wealth of information to embark on their stock market journey. (ICICI Securities. 2021, July 1).
4. Ability to make decisions and risks: The new breed of investors participating in the stock market is more focused on making their own decisions regarding buying and selling shares. With a greater emphasis on stock market knowledge and various education platforms providing support, millennials and Gen Z are using the wealth of information to embark on their stock market journey. (ICICI Securities. 2021, July 1).

**Various Strategies Or Ways For Investing In The Stock Market:**

There are a lot of strategies which help in investing but among them there are some which are widely known, in-trend and have comparatively high reliability to profit than others. These are:

1. Virtual stock simulators: A virtual stock trading simulator is similar to the actual trading where you can buy and sell stocks. Stock simulators provide real-time stock data, which means that you can try out different strategies of trading in stocks just like the real world stock market, but risk-free. (Abhishek, K. 2021, August 25). This gives us an idea how to trading and makes us skillful for the real world trading.
2. Artificial intelligence – powered Robo advisory platforms: A robo-advisor is an artificial intelligence (AI) driven virtual financial advisor. Robo-advisors are a type of expert system optimized for financial services, specifically for investing and portfolio management advice. (Contributor, T. 2021, October 1).
3. Ready-made customizable portfolios of stocks: Ready-made customizable portfolios of stocks are called smallcases. A smallcase is an intelligently weighted basket of upto 50 stocks that reflects a theme, idea or strategy. (5paisa. n.d.). Smallcase enables you to invest in ideas rather than in stocks based on market capitalisation. (Maheshwari, S. 2019, May 9).

**OBJECTIVES:**

1. To find whether, traditional ways or using technology is reliable to research about stocks for investing.
2. To find whether, traditional ways or using technology is reliable to analyze and forecast the research stock.
3. To find whether practicing trading strategies with virtual stock simulators help in investing in the real stock market for profitability.
4. To find whether artificial intelligence – powered robo advisory platforms reliable for profitability.
5. To find whether, copy trading strategy is reliable for profitability.
6. To find whether, the recommendations or alerts provided by trading apps or websites are reliable for profitability.
7. To find whether, investing in ready-made customizable portfolios of stocks which are created by finance experts reliable for profitability.
8. To find which strategy for investing in the stock market is highly and least reliable for profitability.

**SOURCES:**

The sources which have been used for the research are both Primary and Secondary sources. The Primary sources include 60 responses of the existing investors of the stock market. These responses of investors have been collected by conducting a Google form survey. Quantitative and qualitative analysis have been used to analyze the collected primary data. The questions asked in the survey to the existing investors of the Indian stock market were:-

1. Did you have any strategy or plan when you started investing in the stock market?
2. Do you handle your portfolio on your own or seek advice from Financial Advisors?
3. Do you trade on your own (online) or the broker (a person) does it on your behalf?

4. While investing, what do you aim for?
5. Which source do you rely on to research about stocks for investing?
6. On a scale of 10, how much would you rate the reliability of research provided by apps or websites (other than owned by newspaper companies)?
7. How do you analyze and forecast the researched stock before investing in the stock market?
8. On a scale of 10, how much would you rate the reliability of the analysis and forecasts provided by apps or websites?
9. On a scale of 10, how much do you think that practicing trading strategies with the 'Virtual Stock Simulators' help for investing in real stock market?
10. On a scale of 10, how much would you rate the reliability of Artificial Intelligence - powered Robo advisory platforms for a profitable trading in the stock market?
11. On a scale of 10, how much would you rate the reliability of Copy Trading strategy for profitability?
12. On a scale of 10, how much would you rate the reliability of the recommendations or alerts provided by the apps or websites for profitability?
13. On a scale of 10, how likely are you to invest in the ready-made customizable portfolios of stocks which are created by finance experts to earn profits?
14. According to you, which strategy of investing in the stock market is highly reliable for profitability?
15. According to you, which strategy of investing in the stock market is least reliable for profitability?
16. How do you feel about the changes that have happened in the ways of investing in the stock market over the years?

The Secondary sources consist of various blogs, newspaper articles and an investment related book.

**SIGNIFICANT FINDINGS:**

- 38% people don't have a strategy or plan when they start investing
- 68% people handle their portfolios on their own and rests seek advice from Financial Advisors.
- 75% people trade online on their own and rest ask their brokers to do it on their behalf.
- To research about stocks, 58% people rely on apps and websites, 29% people rely on newspapers and the rest 13% rely on other sources
- To analyze and forecast the researched stocks, 47% people rely on apps and websites, 41% people rely on their intuition/guts and the rest 12% rely on other sources.
- Reliability of profitability on an average on a scale of 10 for the following:-

Use of apps and websites other than owned by newspaper companies to research about stocks	7.1
Use of apps and websites to analyze and forecast the researched stocks	6.9
Practicing trading strategies with 'Virtual Stock Simulators'	6.9
Use of Artificial Intelligence – Robo Advisory Platforms	6.6
Use of Copy Trading Strategy	6.3
Use of recommendations or alerts provided by trading apps and websites	6.8
Investing in ready-made customizable portfolios of stocks created by finance experts	7.0

- The least reliable strategy for earning profit according to the existing investors of the stock market is the Copy Trading strategy.
- The highly reliable strategy for earning profit according to the existing investors of the stock market is investing in the ready-made customizable portfolios of stocks created by finance experts.

**LIMITATIONS:**

This research is limited to the reliability of investment strategies to assist in profiting in the long run. Also, the strategies chosen for the research are chosen on the basis of trends, popularity and their reliability to profit than others. This research has focused on the Indian stock market and the survey conducted was on the existing Indian investors of the Indian stock market.

**CONCLUSION**

Today, millennials and Gen Z no longer consider asset growth and judicious savings as good financial habits. Instead, they regard diversifying their investments, asset allocation and spending below their means as pathways to financial independence. More and more millennial and Gen Z investors are becoming self-taught. This means they are willing to go the extra mile to access new information, evaluate investment opportunities based on facts, and analyze real-time data instead of blindly investing in conventional investment options. As more and more investors access the stock market, it could reshape the way young Indians approach investment. If you are new to investments, explore the world of equities through a long-term plan. Invest your money that you're willing to ride for the next decade or more without turning to the stock market as a get-rich-quick scheme. Notwithstanding short-term market volatility, uncertainties and growing responsibilities make use of the many technological tools to help you level the investment playing field. (ICICI Securities. 2021, July 1).

Making investment in the stock market is subject to market risks but also has the ability to generate passive income from dividends and is more liquid investment than other options like real estate. Hence, proper research, analysis and forecasts would help any individual in earning profits. This research is best suited for beginners who wish to start their journey of investing in the stock market. This research would benefit such beginners in knowing which ways to use for researching the stocks and to analyze and forecast the researched stocks. As per the study, the new financial technologies seem to be taking over the traditional approaches. People are shifting from newspapers to apps and websites to research about stock. Most people use apps and websites for analyzing and forecasting stocks but also highly rely on their intuition/guts. Hence, according to this research, it is recommended to the new beginners of the stock market to invest in ready-made customizable portfolios of stock created by finance experts and avoid using copy trading strategy

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**A STUDY ON DISRUPTIVE INNOVATION IN HIGHER EDUCATION**

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**ABSTRACT**

*Our education sector has been rigid and theoretical where practical application finds no enough space. New disruptive innovations in education have not been easy as this sector is regarded to be resistant to rapid changes. In India, the education system is hesitant to innovate and there is a strong refusal to change the existing pattern among teachers and students. This reluctance may be due to improper implementation of new ideas and innovations, lack of proper training or lack of interest to try differently. Though gradually, over the past few decades there has been newer methods and innovations being implemented in higher education for a quick transformation to improve its quality and efficiency. Covid-19 pandemic has adversely affected education practices followed across the whole world. It has taken education from a physical classroom to virtual one. The pandemic has brought about a sudden massive change and have forced schools and colleges to adopt online teaching and virtual technology. Universities for higher education have also been conducting interactive sessions to discuss various case studies, playing videos with their mentors and conducting various meetings and sessions on online platforms.*

*The concept of interdisciplinary learning has also been a disruptive innovation in many countries today. It is still a challenge in India. The curriculum in higher education should be built in such a way that it allows students to connect across their subjects and explore and innovate new ideas linking across the curriculum. Higher Education should be made easily available for every field the students is interested to pursue. Vocational learning and hobby-oriented fields should also have advanced branch of learning at the higher education level. Opting for Higher Education has often been a privilege to the academically competitive students. There is an urgent need for disruptive innovations to enable underachievers in academics also to pursue advanced learning of their skill sets at the higher education level.*

*Keywords: - disruptive innovation, Higher education, covid-19, pandemic, Education system, innovations.*

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**INTRODUCTION**

A sudden intervention, Disruptive Innovation is to bring about positive changes to the established system to further improve and develop it with changing needs, existing systems ought to cope with the needs and requirements of the digital age. Our education system, too must bring in such disruptive innovation to provide quality education to all its learners. Disruption is a positive change and its utilization in higher education can transform existing methods into simpler, innovation and technology driven services. Though this research paper, the need for such disruptive innovation should be made possible at regular time intervals at all areas and levels of education for better learning.

A very important and a logical method in education is the concept of Interdisciplinary learning. This is a unique method of teaching topics across different disciplines of education. Instead of including similar topics in different subjects, this approach allows students to think and learn about a single topic from different perspectives. For E.g. If you are studying about The Human Anatomy, then you can view this topic from multiple angles. You can use Microbiology, Cell Biology, Medicine, Human Health and Exercise, Radiology, Cosmetology etc. This approach gives the students a more effective, logical and a complete analysis of the topic. It allows deeper understanding of the topic giving numerous solutions from different perspectives.

Higher Education has been constantly undergoing disruptive changes with the incorporation of new online tools and technologies. Implementing these new tools has been a more difficult task, as it would involve proper planning, execution, training and complete utilization of the disruptive innovation at the ground level. Our education system would undergo a drastic and a rapid change with the implementation of such innovation in future to improve the existing methods of teaching and learning and provide quality education to all learners. Across all disciplines of higher education, massive positive changes need to be innovated and designed from time to time. Higher education should be made available to vocational fields too at par with global standards.

**OBJECTIVES**

The study of disruptive innovation in higher education made through this paper, highlights-

- I. The need for changes in the existing higher education.
- II. Implementation of a strategic and a well analyzed plan to introduce innovative methods.

III. All disciplines of education should have advanced levels in higher education

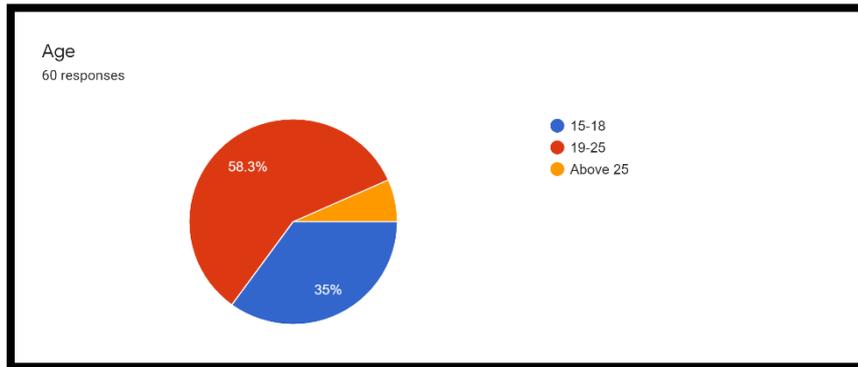
**METHODOLOGY**

- Primary data was gathered by questionnaire through online forms from 60 responses. The respondents are in the age group of below 19 - 25 years.
- Random sampling technique is adopted to collect information from the respondents.

**DATA INTERPRETATION**

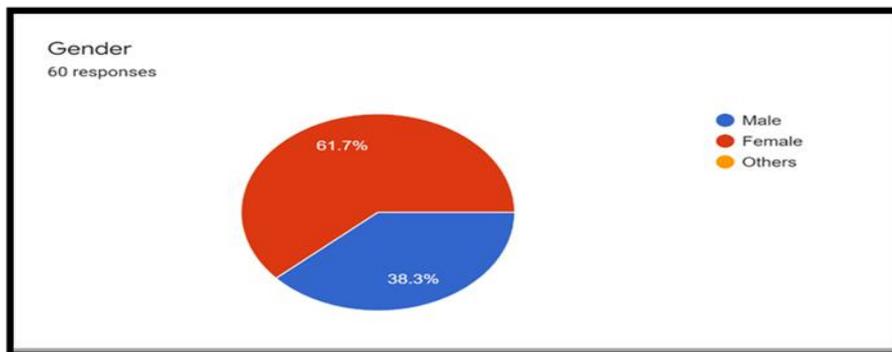
**1) Age**

60 respondents of different age groups have responded to the study. 15 - 18 (21 responses), 19 - 25 (35 responses), Above 25 (4 responses)



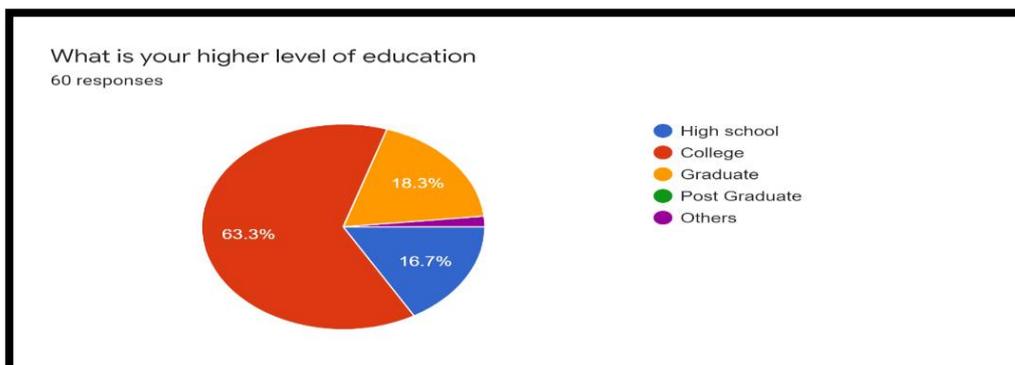
**2) Gender**

Most of the responses were from Females who are 61.7% (37) while 38.3% (23) Males have responded to the survey.



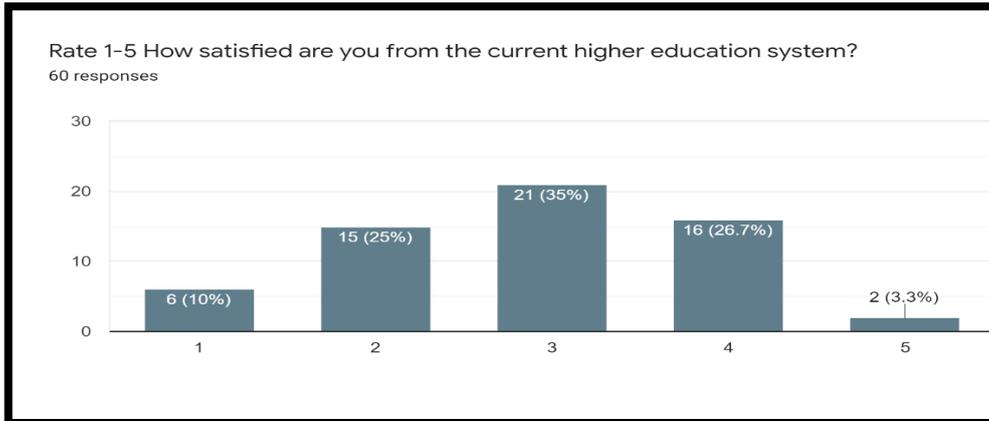
**3) Level of Education**

From 60 responses, 10 respondents (16.7%) are from High school while 38 respondents (63.3%) are from college, 11 respondents (18.3%) are Graduates.



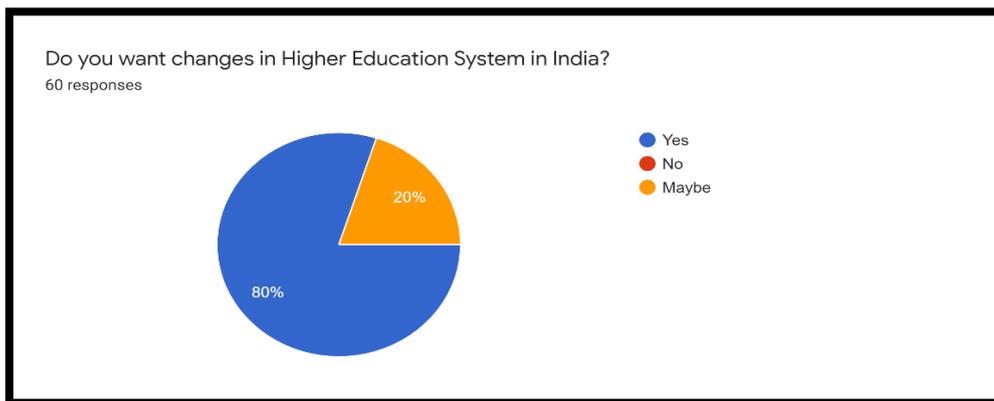
**4) Level of satisfaction from the current education system**

According to the given scale, 1 being the least satisfied and 5 being the most satisfied. From the 60 responses, 6 respondents (10%) opted for option 1 while only 2 respondents (3.3%) selected option 5. Majority that is 21 respondents (35%) selected option 3.



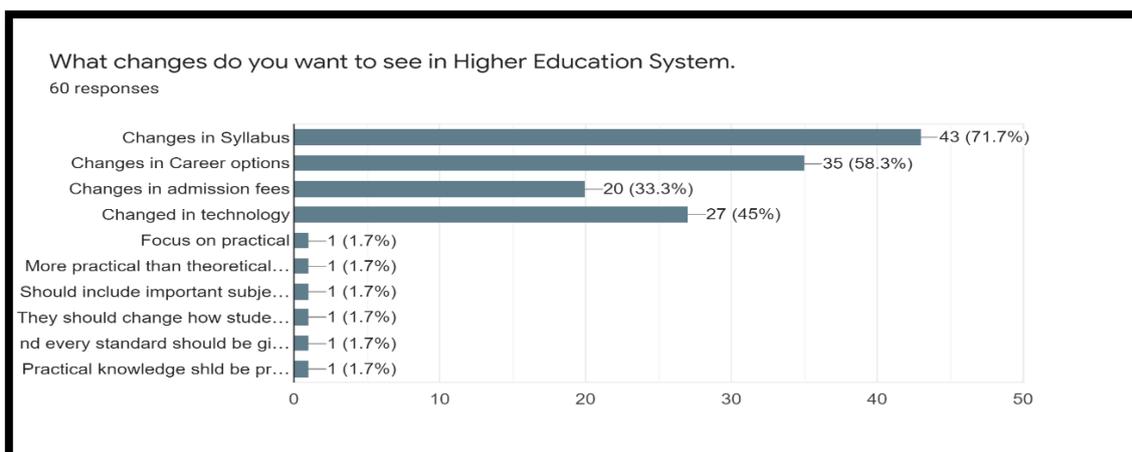
**5) Changes needed in education system**

From the 60 responses, almost 48 responses (80%) wanted to change the education system whereas 12 responses (20%) were satisfied with the education system. Majority of the respondents are wanting a change in the existing methods of Higher Education System in India. Disruptive Education must spread through every discipline of Higher Education. The Education institutions need to thoroughly review their existing learning outcomes and implement newer techniques to remain at par globally.



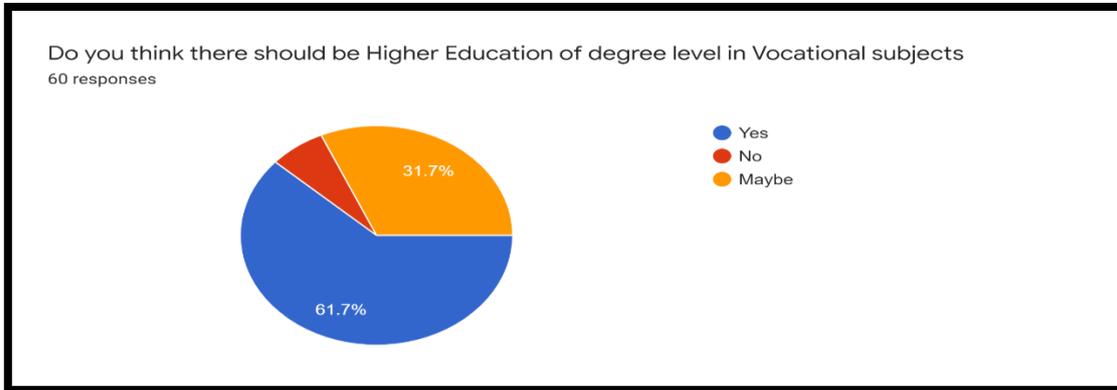
**6) Changes required in the education system.**

As it was an open-ended question many answers were obtained. But majority agreed on changing the syllabus that is 43 respondents (71.7%). The syllabus of educational institutions should be flexible with appropriate changes made by adopting new technologies, student friendly methods of learning that would continuously enhance the skills that can have maximum practical applications.



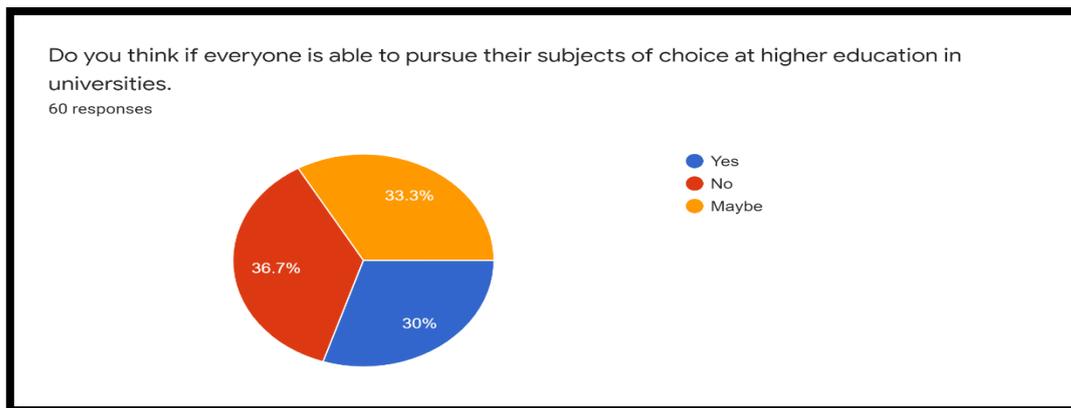
**7) Vocational Subjects**

Most of the vocational courses do not have the provision for further advance studies and higher education. From the 60 responses, majority of respondents that is 61.7% agreed that vocational subjects should also have access to higher education. The Education system should not only cater to students having high intelligence, good memory and belonging to rich families. Instead, higher education should be made available to all disciplines of education, even to students who have opted to study vocational subjects in greater depth.



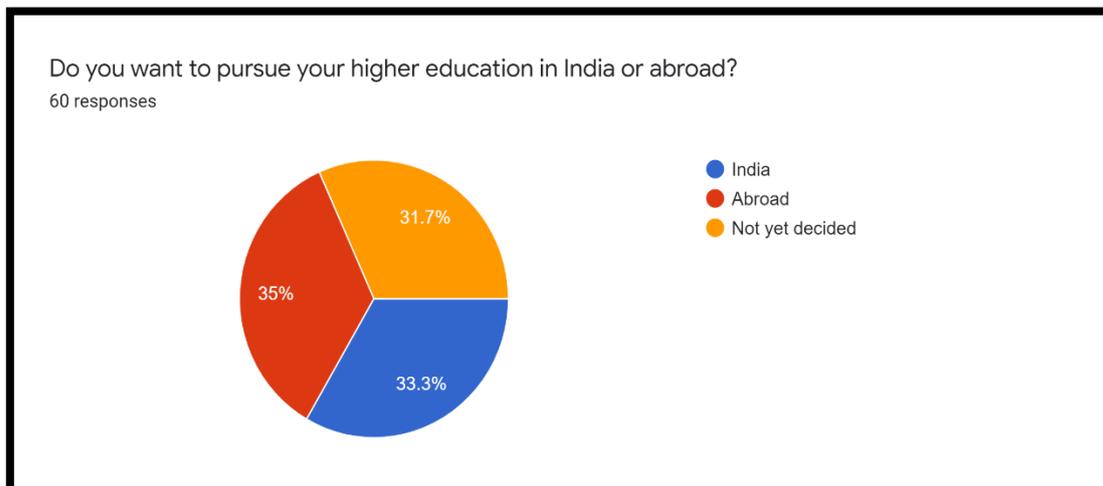
**8) Higher Education should be easily available even to not so academically competitive students.**

From 60 responses, 18 responses (30%) agreed that everyone is able to pursue their education 22 responses (36.7%) disagreed.



**9) India or Abroad**

From 60 responses, Majority of them that is 35% of the respondents want to pursue their higher education abroad as they are not satisfied with the education pattern. While 31.7% respondents want to pursue their education in India.



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**LIMITATIONS OF THE STUDY**

- The scope of the study is limited to Mumbai region only. Scope can be extended to cover students from all over the country.
- The sample size of the study is not too large. Future research can be undertaken on a larger scale with larger sample size.
- As stress is faced by the people of all the age groups during covid period, scope of the study can be extended to cover all the age groups

**CONCLUSION**

- This research work, aimed at highlighting the importance of disruptive innovation in higher education. With disruptive innovation the level of teaching, learning, productivity, creativity is likely to improve and develop.
- Continuous and effective awareness, use and training of the latest technologies has to be given at all levels of primary, secondary and higher education.
- All the challenges faced by education should be streamlined with proper implementation, discussion and training of the disruptive innovations.

**SUGGESTIONS**

- 1) Higher education should be made available to every field of learning. Examples: - There should be advanced learning opportunities given even to vocational streams
- 2) Academic marks should be the only criteria for assessing a student's skill sets. Students scoring very high marks may not be very skilled to perform important tasks. So, all students should be given opportunities to practical test their skills and interest. So, at school levels practical knowledge should be started.

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- <https://hbswk.hbs.edu/item/how-disruptive-innovation-changes-education>

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**HALLYU IN MUMBAI: THE K-DISRUPTION**

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**Isha Konar and Tejasri Peddakolmi**

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**ABSTRACT**

*In the current scenario, everyone considers Entertainment as a part and parcel of life. This has led to the emergence of a unique industry – The K entertainment Industry (K- Korean). Not late after its introduction, it has already gained popularity among people not only from Korea but also people overseas. According to Joseph Nye, the term “soft power”, indicates the growing importance of cultural factors in world politics. In this paper, we examine the role of K entertainment industry in increasing South Korea as a soft power. South Korea has a proud cultural legacy and has promoted a positive image of the country abroad through K-pop (Korean Popular Music) and K-dramas (Korean drama series). The entire world at the moment says Korean entertainment is South Korea’s secret weapon to increase its soft power. This paper explores what exactly soft power is in the 21st century with respect to the Korean Wave and its implications in India, particularly in Thane city. The K entertainment industry is innovative and vivid in its style, when it comes to creating content. However, in this research, we examine its disruptive nature. An online survey was distributed to youngsters across Mumbai and the data was analyzed, on the basis of the research conducted, we wish to establish how slowly South Korean culture is paving its way in being a global culture and what India’s contribution towards it is and, how this is leading to the increase in South Korea’s soft power.*

*Keywords: South Korea, Soft power, K-pop, K-drama, Korean wave.*

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**INTRODUCTION**

Have you seen the movie Parasite? Danced to Psy’s Gangnam style? Or tried out some Korean beauty products? If you answered yes to two or more of these questions, then you-like many of us-are riding the Korean Wave.

The Hallyu (Korean Wave) symbolizes the rapid spread of South Korean cultural industries and their exports which started way back in the 90s. Ever since its economic crisis, the South Korean government has also been always pushing its cultural industries by providing various opportunities to popularize it.

As the Korean Wave has become a global phenomenon, many academic disciplines like media studies, sociology etc., are becoming more aware of the significance of Korean popular music and have had a huge impact on the world so much so that South Korea plans to use their pop-culture products as part of national soft power. In simple words, Soft power is the ability to attract co-opt rather than coerce. It involves shaping the preference of other through appeal and attraction.

As the world is becoming more hyper-competitive, the greed for power is also increasing. The only way for nations to become more powerful is to increase their soft power. Every nation can use their soft resources like cultural fixtures, mainly movie stars, pop icons, tourist attraction etc. This has also led to a greater diffusion of cultural influence; hence, soft power plays a greater role today. The Korean government took full advantage of this and has contributed to enhancing its National image, Economy, and, has been seen as public diplomacy.

Therefore, in this paper, we study about what is soft power, defining Hallyu and its impact in the world, relations between Korean Wave and India and how soft power is disrupting!

**REVIEW OF LITERATURE****1) Understanding soft power**

For a quick understanding of this concept, let’s begin with defining what power exactly is, At the most general level, power is the ability to influence the behavior of others to get the outcomes one wants.

According to the scholar who coined the term, soft power is a country’s ability to influence others’ choices by persuading or co-opting rather than coercing. Soft power relies on positive associations with a nation’s culture, foreign policy, and political virtues to attract others to its cause. After a steady, decades-long rise, South Korea gained new soft power potential in 2020 that, if used correctly, will enhance its influence on the international stage.

**2) Defining Hallyu and its impact in the world**

Hallyu, a term we may not be familiar with by name but certainly are by output, is a Chinese word literally translating as “Korean Wave”. It refers to the transcendence and increasing popularity of South Korean cultural exports, firstly picked up by countries such as China and Japan, and now more recognisably across Western countries too.

Today, the South Korean culture influences most consumer goods categories, from skincare to our choice of snacks. And it's not simply products that consumers are engaging. Several datasets show significant engagement in conversation around ingredients and benefits of this cross-category trend, supported with a rise of popularity in Korean brands and even retailers making their way to our shores.

Though 2020 has brought many challenges, South Korea's global reputation is having a day in the sun. The country's pandemic response has been widely praised, and its pop culture prestige has reached new heights with the film *Parasite* and the boy band BTS both breaking U.S. records. Clearly, South Korea's 2020 wins are powerful additions to its soft power toolbox.

### 3) Relations of Korean Wave and India

India's association with South Korea goes way beyond Psy's Gangnam style or the K-drama craze in the North East. The ties date back to the early 90s when brands like Samsung and LG entered the Indian market and set up their business here, for the Indians. This business connection has deepened over the years by strengthening economic and trade relations and, by increasing cultural exchanges between the countries. Hallyu, or Korean Wave, has been around for a while now (since the 1990s), but with increased penetration of the internet and streaming services in India, and now the pandemic giving people more time to explore foreign cultures and content, it has been a boom like never before.

In 2020, Covid-19 induced lockdown accelerated the popularity and acceptance of Korean culture in India through dramas available on several video streaming platforms as well as the Korean music bands whose craze here is legendary. Korean food exports hit a record high, greatly boosted by social media posts from Asian celebrities and the popularity of the film *Parasite*. What broadly started as a fan following of K-pop, K-movies and K-dramas is burgeoning into fan culture, especially among the nation's urban youth. After music and films, K-food and cuisine is getting essential makeovers and reaching the larger Indian market. K-cuisine is all rage especially on social media in the form of food challenges such as Mukbang.

#### ANALYSIS AND INTERPRETATION OF DATA

This part of our research paper presents all the data collected for the paper, through a survey method employed by us. The data has been collected from 51 Indians between the ages of 18-25. These participants were asked to answer a carefully prepared questionnaire that is being used as a survey tool to investigate the influence of South Korea on Indian Natives more specifically in Mumbai.

Thus, we asked a few basic yes or no questions to understand the craze behind the K-entertainment. The following questions were asked through the survey:

The very first question was whether "Have you watched a Korean drama or been into K-pop?". The majority of our participants responded with a yes (**88.2%**) and remaining **11.8%** responded with a no. Meanwhile, in second question, which is "Are you subscribed to a broadcasting channel (eg. Netflix) for watching K-dramas?". Over **49%** of our participants had a subscription to OTT platforms, while other **21.6%** are planning to get one and remaining **29.4%** responded with a no!

Then comes the third question, so the aim of this question was to measure the storm of Korean wave. The question states that "Has your love for K-pop and K-dramas influenced you develop a desire to visit South Korea at least once in life?". The majority of **88.2%** participants responded with a yes while **7.8%** responded with a maybe and remaining **2%** responded with a no. Through this, we can say that storm of Korean wave took a toll in the minds of Indian to visit their country. The fourth question of our survey states that "If you had a chance to purchase a K-artist's merchandise, would you?". Our participants majority responded with a yes (**82.4%**) while **11.8%** responded with a maybe and remaining **5.8%** participants responded with a no.

Fifth question of the survey was, "If you had to choose between being a Bollywood artist vs a Korean artist, what would be your pick?". Isn't it a fact that most natives prefer native products and services? It's common to think that way since one is accustomed to around what they've been brought up. But the results of the fifth question may shock you! Results state that, a high majority of 90.2% prefer to be a Korean artist and the remaining 9.8% prefer to be a Bollywood artist.

The sixth question of the survey was, "Are you familiar with the Mukbang trend?" For the background, a trend is defined as a subject that experiences a surge in popularity on one or more social media platforms for a limited duration of time. One such trend is the Mukbang trend originating from South Korea. But things are a bit different when it comes to this trend since it has been trending since the past 5 years since 2017 in India till date. Mukbang videos feature people who livestream their eating sessions. The results show that 66.7% participants responded with a "yes", 19.6% have "heard of it" and 13.7% responded with a "no".

The seventh question of the survey was, “Did you ever buy a traditional Korean dish/ spicy ramen?”. To which 35.3% participants responded with a “yes”, 33.6% are “planning to” and 31.4% say “no”. This indicates how the Korean products have made their way to the Indian market through the Hallyu wave.

The last question of the survey was, “Is a part of you eagerly waiting for your favorite K-pop artist’s arrival in India for a concert?”. The results show a clear percentage difference between the respondents where a huge 90.2% responded with a “yes” and the remaining 9.8% responded with a “no”. This puts a light on the number of Indians interested to spend their resources for a K concert.

### SIGNIFICANT FINDINGS

Now that we are aware of the Hallyu wave, let’s get to know some significant findings putting a light on the widespread reach of the K entertainment Industry:

**1)K pop at the UN:** Amid the clutches of a pandemic, climate changes and, other global crises, more than one million people were transfixed by the United Nations on Monday. Not to watch a head of state, but rather a boy band: BTS. It was not the first time for BTS attending the United Nations but the third time! Influencing fans across the entire globe!!

**2)Share Listing Worldwide:** The Entertainment companies like Big Hit, SM, YG, and JYP Entertainments behind the K pop superstars sent ripples through the world with its listing on the Korea Composite Stock Price Index. Even though the share prices eventually dropped, such high-profile listings which were more than 1000 times oversubscribed worldwide demonstrate the global influence of South Korea's burgeoning Entertainment Industry!

**3)K-pop tour ambassadors:** Seoul, The capital of South Korea is a well-known tourist attraction, and guess who is tapped as the Korean Capital’s Honorary tourism ambassadors? BTS it is again! This emphasizes how South Korea is using its soft power to increase its tourism.

**4)K-pop in Politics:** How can we forget about the time when the former US President Donald Trump and his daughter Ivanka were welcomed by the renowned K-pop boy band Exo at The Blue house which is the Executive Office of South Korea indicating their political reach!

**5)K beauty business:** Various Korean beauty brands namely Oh K!, Goddess Aura, The Face Shop, 3CE, and others have already navigated their way to the Indian market providing products based on self-care. According to the Indian National importance of cosmetics (HS Code 3304.99), Korea is in the fourth rank. According to a survey conducted by Rakuten Insight, about 39 percent of Indian respondents who were women stated that their skincare routine consisted under 25 percent of K-beauty products.

According to Korean Foundation for International Cultural Exchange, K entertainment contributed 9.5 billion USD to the Korean economy in 2018 and the number is increasing every year. Thus, it is evident that the popularity of K-pop reaches far beyond South Korean borders.

### CONCLUSION

Through the research conducted, we can certainly say that the spread of the Hallyu Wave has led to the increase in the Soft Power of South Korea not only in India but across the world. A lot of people have even accepted that the reason why they consume Korean content is because of their proximity with the culture and the affinity towards it due to it. As their consumption of the content increases, so does their awareness of Korean products and their purchases. One can say for sure that the K entertainment industry uses its tools like K-pop, K-drama, and trends like Mukbang to captivate their audience and ultimately introduce themselves to the global market. This massive impact of K-entertainment puts a light on how it is well capable of affecting other major sectors like Politics, Tourism, Business, and Culture. All in all, there is no doubt that Hallyu has catapulted Korea onto the global stage. With so much international attention on its pop culture scene and its creative economy, it is imperative for the Korean government to leverage on all its entertainment and cultural products to further drive the brand equity of Korea as a country. More and more people in India have started consuming Korean content. The next thing we know can very well be Indians preferring a K-drama over a Bollywood movie, BTS over Arijit Singh, the Korean language over Hindi, and ultimately the Korean Culture over the Indian! In conclusion, be it only 36% i.e 496800000 Indians into K Entertainment as per research as of 2020, the number is increasing day by day and this indicates how the Koreans are succeeding in establishing their soft power in India and, hence our study proves the fact that the soft power is disruptive.

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**A STUDY ON THE IMPACT OF SPORTS DOCUMENTARIES ON VIEWERSHIP OF THE SPORT**

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**ABSTRACT**

*Sports Documentaries have helped the sport industry in amassing viewership and it also influences the consumer's decision to follow the sport in the future. The dominant explanation of this trend is due to increase in consumerism of Over The Top (OTT) platforms, where sports documentaries are showcased. This study aims to determine the impact of sports documentaries on viewership of that particular sport and how consumers engage with the sport. This study also aims to understand the most preferred OTT platform from consumers and which sport documentaries is watched the most by our survey respondents.*

*To test the hypothesis that sports documentaries have an impact on viewers, an online survey was distributed to people living in majorly Mumbai-a metro city and Vadodara-an urban agglomeration, to understand the pattern of users from two different geographical areas.*

*Findings indicate that Netflix is the most preferred OTT platform among the youth. Contrary to the popular belief that only cricket is consumed and inspired by the viewers, Sons of Soil: Jaipur Pink Panthers is the most watched documentary among the respondents. More than half of the respondents do believe that watching the documentary of a particular sport do inspire them to follow the sport in the future.*

*Overall, it can be concluded that the rise of viewers in OTT platforms will make a way for sports documentaries to project the game which is highly engaging to youth and their future consumers. Keywords: Sports documentaries, OTT platforms, sport viewership*

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**LITERATURE REVIEW**

(Mayank Sadana, 2021) puts forward how Over The Top(OTT) platforms have taken over the traditional cable TV/DTH among young customers with various factors coming into consideration from content and viewing behaviour, expenses incurred on services, shifts influenced by offerings/incentives, convenience and telecom.

(Malitsky, 2014) states that sports in contemporary age, showcased through film and videos will always end up about the media, instead of focusing on the sport and spreading awareness about it.

(Vogan, 2020) in the Sporting Realities: Critical Readings of the Sports Documentary brings together a diverse group of scholars to talk about the real meaning of sports documentaries from around the world with different social and political dimensions, which are not showcased in the sellable documentaries.

(Brett Hutchins, 2019) talks about the paradigm shift of broadcasting of sports with the rise of OTT platforms. It also puts forward advantages of OTT platforms like economical viable, can watch a sport from multiple devices and many more.

(Impey, 2018) predicts the rise of OTT platforms in India to reach 3billion dollars by 2023. He talks about various sports leagues and the rights given to various digital media's and how these leagues are investing heavily in India, because of the large sports consuming audience.

**INTRODUCTION**

Sports Documentaries have impacted the sports in many ways, but the viewership they bring has changed the outlook of the industry.

With theaters and Multiplexes shutting down, due to COVID-19, this helped OTT platforms increase their viewership. With India being the World's fastest growing OTT market ( *Source: BCG*), the intersection between the Sports Industry and OTT platforms was evident.

India being a cricket consuming country, sports like Formula1, Football, Kabaddi and others combined viewers were less than Cricket. But, in the past couple of years there was a steady rise in the viewership of Formula1, Indian Super League as well as kabaddi. Formula1 popularity in viewership increased by 87% in India, following its broadcasting rights given to Disney Hotstar and its famous Netflix Documentary: Drive to Survive, which has released three seasons already and are planning to extend their contract with Netflix. Same goes with Kabaddi, where Jaipur Pink Panther, a franchise of the Vivo Pro Kabaddi collaborated with Amazon Prime Video to release a behind the scenes of the League and how a team operates.

Sports Documentaries released on OTT platforms are not restricted to national viewers, but they bring in global viewership. Netflix with 204 million subscribers as of 2020, Amazon Prime with 200 million subscribers and Disney Hotstar with 25 million subscribers alone in India. With so many viewers on a single platform and with the global reach, digital platforms is the future.

With the rise of streaming platforms (OTT) such as Amazon Prime Video, Disney Hotstar and Netflix, the younger generation have adapted to the OTT platforms and passed over the “outdated” DTH and Cable services.

Emotion is a central feature of many sports and fans want to experience these emotions, by not only consuming the sport but being a part of it. Documentaries do that by dealing with exclusive facts and real life events. Making a sport documentary does not only have the purpose of educating the consumers about the sport, but helping the Sport reach globally and expanding their viewers.

This study is about the impact of Sports Documentaries on the sports and how they amass viewership and engage audiences, by considering three major platforms: Amazon Prime Video, Disney Hotstar and Netflix.

### **Objectives of the Study:**

Objectives of the study are:-

1. To review the preferred OTT platform and medium of viewing Sports documentaries.
2. To evaluate the most popular sports documentary on OTT platforms .
3. To review if sports documentaries help in increasing the interest in the relevant sports.

### **Scope and Limitations of the Study:**

1. The study aims to research about impact of three OTT platforms (Amazon Prime Video, Netflix and Disney Hotstar) only. No other major OTT platforms are considered in this research.
2. Primary data collected will be targeted from age group 16-30, to show the impact of youth on OTT platforms.
3. Primary data will be collected from India only, to limit the study to Indian audience only.
4. Sports documentaries of the sport:- Formula 1, American Football, Rugby, Football, Kabaddi and Cricket’s data is considered in this research.

## **SECONDARY DATA**

### **What are Sports Documentaries?**

Sports Documentaries are the representation of real facts and real-life events that take place around the particular sport.

Sports Documentaries gives audiences an insight of their favorite player, team or sport, which gives the viewers a real life experience of behind the scenes and how their favorite organization/player operates.

The Corbett-Fitzsimmons Fight was the first sport documentary, which was made in 1897, and was also the first known feature film according to *IMDB*. Sports Documentaries have come a long way since then. In 2020, The Last Dance produced by ESPN and Netflix averaged 5.64million views across all 10 episodes, which made it the most popular and the most watched ESPN documentary of all time.

### **Platform**

With the rise of OTT platforms and big influencers in the sporting industry, sports documentaries found the perfect platform they needed to blend their audiences with.

OTT platforms such as Amazon Prime, Netflix and Hotstar saw an opportunity and collaborated with leagues, teams or organizations to give their viewers the experience of the game beyond the field.

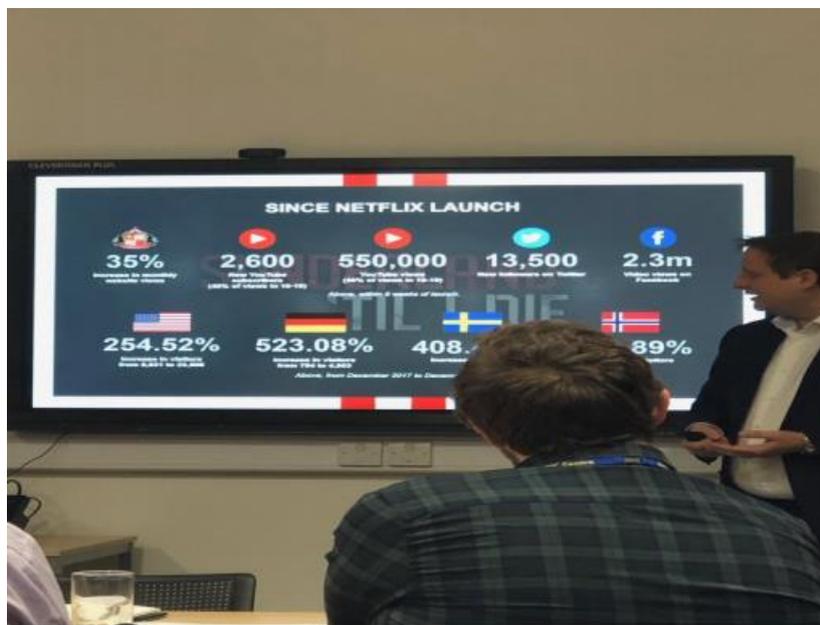
### **Their Impact on Viewership**

Sports Documentaries are made with the intent to give the real life scenarios behind the scenes and giving information about the sport/league.

But, documentaries impact the sport they are promoting in viewership too. Clubs put up multiple cameras in their facilities which capture their training videos, on field success, failure as well as off field feud and bytes which are not available easily on any media platform.

Clubs have decided to surround themselves with cameras because of the appeal of Media giants like Netflix and Amazon Prime Video. With both platforms having global audiences and paying a good amount of money to the clubs, it is a win-win situation for both the stakeholders.

Sunderland till I die on Netflix is one of the biggest success story of the impact of sports documentaries. It was streamed to an alleged 60 million accounts globally (Interest, 2020). Their viewership increased to many folds, 1/8<sup>th</sup> of the total viewership of the Championship league to be précised. This resulted in More followers on Social media as well as their revenue increased.



**Source: Twitter**

Netflix’s Formula 1: Drive to Survive is one of the main reason for the recent popularity of F1. Drive to Survive attracted audiences from age group 16-35, which accounted for 46% of Formula 1’s interest pool in 2021. The show portrays how the 23 races in a season takes place with on the field battling of drivers and off the field feud and banter between teammates and competitors. The series attracted younger audiences between 16-35, with an average 2.7million followers becoming interested in the sport in each subsequent month in 2020.

The future of Sports Documentaries was debatable before COVID-19. But after the pandemic, the sports starved consumers created a demand for the sports documentaries and how attached the fans are with the sport/organization.

With more than 5 big projects already lined up for the year 2021, of Tiger Woods, Magic Johnson and how the pandemic affected sports documentary. This shows that the demand is definitely there.

Due to pandemic we could also see sports get broadcasted in OTT platforms, which has already started. NFL giving Thursday Nights to Amazon Prime, shows how the leagues are adapting to the new generation’s preferred platforms. Gen Z is the biggest community in the world, with most of them having an OTT platform accessibility. Attracting the younger audience to a 2 hour football game, would be difficult in the future. Here is where the sports documentaries come into the scene. Showing the behind-the-scenes, internal rifts and how the organization works brings in more viewers for the organization/sport which the live broadcasting could not rake in.

According to ESPN, the number of 12-17 years old’s who are termed as “Avid Fans” have dipped from 42% to 37% in the last decade.

**DATA ANALYSIS**

The analysis is based on a survey of 94 respondents of various age groups, mainly from the age bracket between 18 and 30. Mumbai and Vadodara are the two cities where majority of respondents resides.

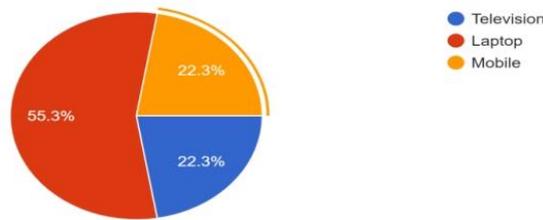
**Age**

- 89.4% fall under the age group of 18-25 years.
- 4.3% from 26-35 years of age.
- 2.1% from 36-45 years of age.
- 4.3% from 45 and above years of age.

**Gender**

- 61.7% - Male
- 39.3% - Female

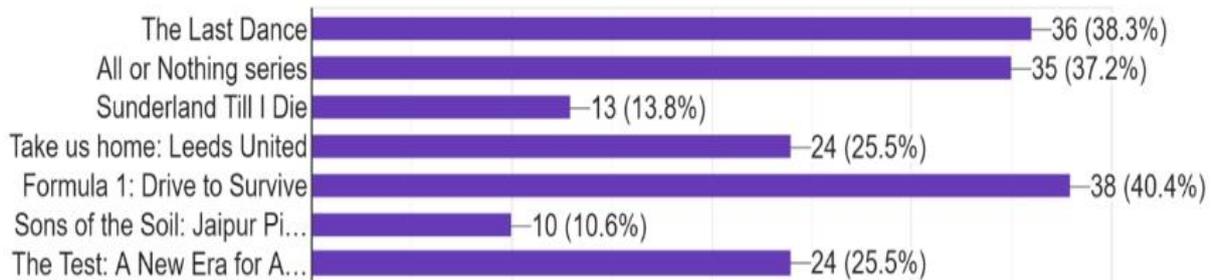
Which is your preferred device to watch a Sports Documentary?  
94 responses



- 55.3% of respondents prefer laptop over the other two devices.
- 22.3% prefers Television to watch sports documentaries.
- 22.3% similar to Television, Mobile is the preferred device to watch sports documentaries.

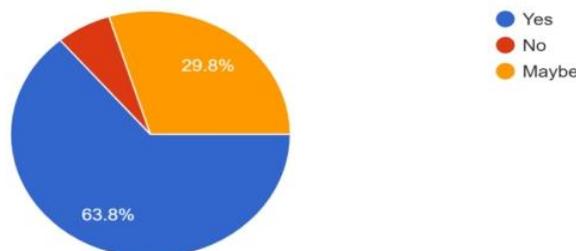
Have you watched the following Sports Documentaries/Movies:

94 responses



- 40.4% have watched the Netflix series Formula 1: Drive to survive.
- 38.3% respondents have watched the Netflix series The Last Dance.
- 37.2% respondents have watched the Netflix series Sunderland Till I Die.
- 25.5% respondents have watched the Amazon Prime Video- Take us Home: Leeds United and The Test: A new era for Australian cricket.

Does watching a sports documentary inspire you to follow that particular sport?  
94 responses



- 63.8% respondents feels that watching a sports documentaries lead them to watching that particular sport.
- 29.8% respondents responded that they are not sure about the influence of documentaries on them.

- 6.4% respondents declined by responding No, indicating that sports documentaries does not impact their influence on sport.

**CONCLUSION**

The emergence of sports industry with the digital age was a huge success for all the stakeholders. Catering the audience by giving them behind the scenes in the terms of documentaries and movies, grips the existing audience and grabs the attention of new audience. The impact of OTT platforms is huge for bringing viewership to the sports industry. Digitization of sports is very important, and OTT platform is that pillar where sports can see their future.

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**TO STUDY THE SATISFACTION LEVEL OF STUDENTS REGARDING ONLINE LECTURES  
WITH RESPECT TO WILSON COLLEGE**

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**Shakshi Kankariya**

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**ABSTRACT**

*The COVID-19 pandemic has turned life upside down in so many ways. From lockdown to social distancing, our way of living has changed. Along with all the other changes, it brought up a major change in the education system and the way we learn. From the hustle of travelling and going to colleges, universities, and other educational institutes to attending the lectures online from our home. Submission of assignment shifted from books to pdfs, sitting in a classroom next to our fellow classmates to a digital platform where everyone is away from each other, connecting with teachers and students to connecting with Wi-Fi and other internet services. The pandemic has utterly disrupted the education system which was already losing its relevance. Education plays a vital role in everybody's life therefore it is important to get quality education where everyone can understand, learn, share their knowledge and experience without any hindrance with the sudden shift away from the classroom and towards digital platform. The distinctive rise of e-learning whereby learning, and teaching are undertaken remotely on digital platforms. It is essential to therefore understand the satisfaction level of students, with questions about the preparedness, designing and effectiveness are still not understood, particularly for a developing country like India, where suitability of devices and network bandwidth pose a serious challenge. The researcher has written this paper with the aim to study about the satisfaction level of students regarding online lectures with respect to Wilson college. The research for the following was conducted with the help of quantitative research method through questionnaires.*

*Keywords: Satisfaction level, Students, Online lectures, E-learning, Wilson college.*

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**INTRODUCTION**

The covid-19 pandemic has changed education and learning in so many ways students not only shifted to digital platform and got acquainted to online learning but also had to maintain social distancing. Online lectures and online learning became the new normal after covid-19. Adapting and adjusting to this new normal was quite challenging for some students. This new normal was not only challenging but also a little scary especially in a nation like India where everyone prefers things which they are mostly used to like the traditional way of learning that is classroom learning. Changing with this change was a huge task but just attending lectures online does not answer all our questions. It is important to understand how satisfied students are in order to understand the effect and impact of online lectures on students. The area of study for this research paper in order to understand the satisfaction level of students regarding online lectures is Wilson College. It is one of the oldest college of India founded by Dr John Wilson College, the founder of Bombay University in the year 1832. The college has been awarded with an A Accreditation by NAAC that is the National Association and Accreditation Council three times since the year 2005.

**OBJECTIVES**

1. To study the satisfaction level of students regarding online lectures with respect to Wilson College.
2. To study the satisfaction level regarding the quality of learning provided through online lectures.
3. To study the effect of online lectures on student's mental health.

**HYPOTHESIS**

H0: The students at Wilson college are satisfied with online lectures.

H1: The students at Wilson college are dissatisfied with online lectures.

H2: The students at Wilson college are neither satisfied nor dissatisfied with online lectures.

**METHODS**

Participants: - An online survey was conducted where questionnaire was prepared as a tool with the help of google forms to collect the data from the area of study that is Wilson college to study the satisfaction level of students regarding online lectures. A total of 300 responses were collected. We have 227 respondents who are in their second year of their respective undergraduate courses and 73 respondents who are in their third or final year of their respective undergraduate courses. All the participants attend online lectures regularly.

Research design: - Quantitative research method was used, where a random sampling method was chosen in order to study for this research paper. A questionnaire was prepared and circulated amongst the students at Wilson college. A total of 300 responses was collected.

## LITERATURE REVIEW

Online lectures

Wiam Elshami, Mohammad Taha and respective co-authors- studied the satisfaction level of online learning in the new normal with the perspective of students and faculty at medical and health science Colleges.

Piyush Joshi, Dr Shweta Dewangan- studied the impact and development of online education has made over a period. How education has evolved, and everything changed to digital platform. How it has impacted a country like India where there is so much diversity.

Girisha Lakshman Naik and respective co-authors -the study was conducted to investigate/identify the knowledge, practice and utilisation of online courses and the quality of understanding amongst the students and faculties during lockdown period of the covid-19 pandemic situation in India.

Shaikh Mohammad Imran- The paper presents future perspective in relation in relation to e-learning in India, where demand within higher education is no different from that seen in developed country. The major set that might hinder the e learning is the mind set of people in India.

## RESULTS

For the purpose of this research, the researcher collected data with the help of questionnaire, total number 300 of response was collected through the questionnaire. Analysis of the data and interpretation as follow.

### Data Analysis

1. Department of respondents.

Department	Number of responses
BCOM	65
BAF	44
BMS	35
BMM	33
BSC-IT	19
Microbiology	30
Psychology	36
Physics	07
Mathematics	16
Other	10

2. Year of respondents

Year	Number of responses
Second year	227
Third year	73

3. Device used for online lectures

Device	No of responses
Laptop	81
Smartphone	144
Desktop	45
Tablet	30

4. Satisfactory level of students

Level of satisfaction	Number of responses
Satisfied	120
Dissatisfied	51
Neither satisfied nor dissatisfied	129

5. Satisfaction of teaching methods

Satisfied with the teaching methods	Number of responses
Yes	123
No	27
Sometimes	150

6. Has online lectures effected mental health

Has it effected mental health	Number of responses
Yes	144
No	156

7. Do students get distracted during online lectures

Distracted	Number of responses
Yes	135
No	87
Sometimes	78

8. Lecture should continue in which mode

Mode of lecture	Number of responses
Online	81
Offline	219

## INTERPRETATION

Among our 300 respondents we saw that majority of the student belonged to second year of their undergraduate courses followed by third year students. This helps us to understand the satisfaction level better and overall progress of online lectures as a lot of students amongst the respondents are those who started their academic year online and passed to the next year that is their second year or from second year to their final year.

The total number of students who are satisfied with online lectures are 120, 51 are not satisfied and the rest that is 129 respondents that is the majority are neither satisfied nor dissatisfied with the ongoing system of online lectures. The reason being, it allows them with flexible schedule and saves travelling time for students but at the same time it becomes difficult for students to socialise, interact and build confidence as they are in the confines of their home with minimum to no exposure to the real world and its experience. Which develops awkwardness and anxiety amongst them and blocks their confidence which is necessary for them in order to develop required skills.

Technology plays a vital role in the mode of online lectures from device to internet connection everything needs to be there in order to attend the lectures that are being conducted online. Out of all the responses that were collected 144 use smartphones, 81 respondents use laptop 45 respondents use desktop and 30 respondents use tablet to attend online lectures. Out of which 156 respondents agreed that online lectures have not affected their mental health and 144 respondents agreed that online lectures have affected their mental health. This is because a lot of students have to strain their eyes in order to understand the concept that's being taught during online lectures that causes headache, backpain and many other issues which thereby effect their mental health this is as we all know phone screen are smaller in size when compared with other devices . Along difficulties due to the screen size the major issue that is faced by majority of respondents is internet connection. Majority of the respondents reasoned that along with interaction and socializing, internet connection is also one of the major reasons of their dissatisfaction and discomfort. Out of 300 a total number of 135 respondents said yes, 78 respondents said sometimes and 87 said no in terms of distraction they face while attending lectures online As students attend lectures from their home the chances of them getting distracted increase due to many reasons as the atmosphere around them or their surrounding in which they attend their lectures, siblings, social media, games and laziness. This has resulted in dissatisfaction with the teaching method or rather the quality of teaching that is being provided to them, when asked how satisfied you are with the teaching method majority of students that is 150 respondents said they are not always satisfied with the method of teaching, while 27 respondents are dissatisfied and the remaining 123 respondents of the 300 are satisfied with the teaching method. It was noticed out of 300 respondents 65 respondents belonged to B.COM department, 44 respondents

belonged to B.A.F department and 35 respondents belonged to B.M.S department and majority of them faced difficulty in subjects that were related to accounts. 30 respondents were from microbiology and 07 from physics department, mostly respondents from science background who are suffering from major difficulties as the subjects mostly have both theory as well as practical. To understand the concept of practical is difficult without performing them, which is not possible to the current situation of online lectures.

## **DISCUSSION**

### **Findings**

- Majority of students are not satisfied or are not sure with the on-going education system of online lectures.
- This has also affected the quality of learning as it becomes difficult for students who have practical based subjects.
- From the total number of respondents who are not satisfied, respondents who belongs to BCOM, B.A.F, B.M.S, Microbiology, Physics are facing major difficulties. Respondents from BCOM, B.A.F, and B.M.S find subjects related to accounts to be affected due to online lectures whereas respondents from science field like microbiology, physics, etc are facing difficulties towards their practical aspect of syllabus.
- Majority of the respondents disagreed with the fact that online lecture has affected their mental health. People who are affected due to online lectures are due to the limitations they face, be it the screen size of their device which also leads to other issues such as headache, backpain, irritation in their eyes which thereby affects their mental health.
- Many respondents are comfortable with online lectures as it reduces their travelling time.
- Students often get distracted while attending online lecture.
- Many find it difficult to interact, socialise and communicate due to online lectures due to awkwardness and anxiety.
- Majority students wishes that offline lectures should resume.

## **CONCLUSION**

- This research has helped us to understand that the respondents find it quite tricky to get along with this new system of online lectures as they were well versed with offline mode of education.
- Students might have got acquainted and familiar with online lectures with the course of time yet the level of satisfaction amongst the respondents was very minimum regarding online lectures as the new online system was very hard to comprehend for majority of them.
- The greatest advantage many of the respondents had was that they were able to manage their time and use the time to maximum potential in developing skills as during the offline lectures travelling would consume their maximum time.
- Majority respondents coped up with the online lectures well thus avoiding any effect on their mental health.
- Quality of education has been affected due to this shift as many students find it difficult to comprehend what is being taught.
- As mentioned in the finding's students from science field face difficulty in understanding practical based subjects as majority of the subjects are lab centric.
- People are less open towards online lectures and wishes offline lectures to start again.

## **RECOMMENDATION**

- Students should try and take initiative and interact during the lectures.
- Teachers should try and make the concept as interesting and interactive as possible.
- Activities which can increase interaction of students during lectures such as quizzes, debates, group discussions, mock interviews, etc should be conducted frequently.
- There should be one on one doubt solving sessions for students who needs them or when needed.

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- Teachers should record a video of themselves while performing practical's and send it across the study groups so it becomes easier for students to understand it as they are not able to perform them due to the current situation.
  - The study material should be prepared in such a way that it is easier for students to access it and comprehend the subject course effectively.
  - Student should be a little more open to towards all the changes as it is necessary to adapt when time demands for it, in order to move ahead in life.

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## VERTICAL VEHICLE AS A DISRUPTIVE INNOVATION

Aditi Sushilkumar Pandey

**INTRODUCTION**

The concept of elevators has been prevailing since the 1800s. Elevator, also known as Vertical Vehicle is a mode of vertical transport. It has been used for the commutation of people and goods vertically across multiple levels in a multi-story. It is operated like the pulley system. However, instead of the conventional use of ropes, electric motors are put to use in modern-day elevators. An elevator has emerged as a disruptive innovation. Innovation is a process by which an idea is converting into practicality. It means the introduction of a new product or service and includes improvement in such product or service as a result of brainstorming and creative thinking. Disruptive is yet another term commonly used alongside innovation. In simple terms, disruption is something that causes destruction. Disruptive Innovation as a collective term means an innovation that tends to overthrow an existing product or service or cause a considerable change to it. Elevators have aided in multi-disciplinary growth. Multi-disciplinary is a type of growth initiated by a single factor that simultaneously occurs in more than one area of study.

Since elevators have successfully caused ease of living and have been operational around the globe for a very long period, the same has been chosen as a topic for study under disruptive innovation. Whether the assertion that elevators are a disruptive innovation is correct is the main area of study under this project. Other factors in respect of multi-disciplinary growth are also studied in this research paper.

**REVIEW OF LITERATURE**

- Elevators are now compatible with technological developments like IoT resulting in better connectivity which helps provide better comfort and utility to the people. Joseph, Sebi in an article titled *The elevator and its global impact* published in *Fortune India* further explains that using technology can also help reduce the wait time drastically through crowd analysis. Elevators are also expected to play a major role in upcoming industrial developments.
- The distinctive role of elevators in movies has had a vast cultural impact on the minds of the people. The fear of getting trapped in the shafts of the elevators catalyzed. The demonstration of elevator safety brakes by Otis instilled a sigh of relief in people that commutation by elevators was safe. Glancey, Johnathon in the article for *BBC Culture* elaborates on the increase in the construction of multi-stories during the 1850s and its importance in modern-day architecture.

**STATEMENT OF PROBLEM**

With the advent of technology, elevators have become a prominent mode of vertical transportation and have aided in infrastructural developments across the globe. Its impact is also depicted culturally. This research aims to understand how the invention of elevators influences various other disciplines such as real estate, tourism, cost of living of the people, etc. The impact on these is very important in addition to its other benefits.

**OBJECTIVES**

Following are the objectives that were kept in mind by the researcher while conducting this research study:

- To enumerate the factors that make elevators a disruptive innovation.
- To understand the multi-disciplinary impact of the invention of elevators.
- To highlight the consequences faced due to the invention of elevators.

**RESEARCH METHODOLOGY**

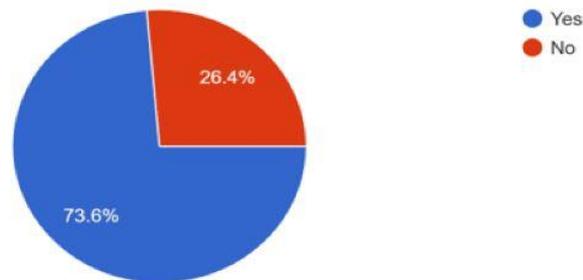
Universe of Research	In and around Mumbai
Sampling Method	Random Sampling Method
Sample Size	85
Methods of data collection	Primary Data & Secondary Data
Methods of primary data collection	The pre-structured questionnaire, Telephonic interview, and websites.
Methods of secondary data collection	Magazines, Websites

**ANALYSIS AND INTERPRETATION**

The responses received for the survey questionnaire were analyzed by the researcher. A question enquiring of whether an elevator existed at the residence or workspace was answered by the respondents which revealed that

in around 73.6% of cases, an elevator existed. This highlights that elevator since its introduction has gained a huge customer base. This indicates that not only is this an innovation but also provides a pleasant experience to its users. One of the characteristics of disruptive innovation is fulfilled by elevators thereby facilitating ease of living.

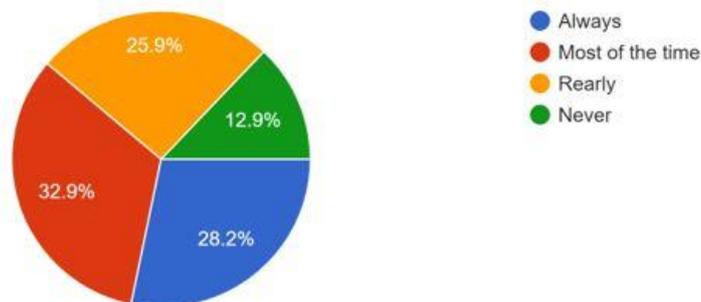
Do you have an elevator at your residence/workspace?



Further, a telephonic interview revealed that the elevators have immensely contributed to reducing the cost of living of the people especially in the most advanced cities around the globe. With the advent of elevators, the real estate sector has been able to create more space than it could have been possible without the use of such elevators. Multi-story buildings for residential as well as commercial purposes have aided in accommodating more people and substantially eliminated the space constraints in these growth centers. Since the cost is now distributed among a greater number of potential buyers, it has led to a control on the real-estate prices and an increase in the affordability of residential homes and workspaces. This can also be seen from the viewpoint of the real estate sector. For them, elevators have been a blessing in the form of taller construction projects. This can be seen as a simultaneous multi-disciplinary impact of elevators on the real estate industry, corporate job market, and the economic condition of the masses. It is also a reason for the boom in the tourism industry, for example in the case of Burj Khalifa, Willis Tower, and other such tall skyscrapers.

With numerous benefits, elevators also come with a few consequences. Some of them have been interpreted by the researcher based on the responses received to the survey. Multiple cases of accidents, injuries, or even death have been reported due to failure of operations of the elevators which have questioned the safety and security associated with them. Since elevators are compact spaces, they may also act as breeding grounds for disease-causing germs and bacteria. Apart from the health consequences, these also lead to congestion. The particular reason for the same is multiple people commuting to the same location at the same time since workspaces now have been consolidated. The respondents reveal that only 61.1% of them take the stairs ‘always’ or ‘most of the time’ and the rest of them resort to elevators and ‘rarely’ or ‘never’ take the stairs. This highlights that elevators can also be held responsible for cultivating lethargy in the masses. The same is represented below:

How often do you take the stairs?



The researcher also interpreted that elevators have an added advantage of providing speedy commutation. Without this factor, skyscrapers would have been non-existent. For an instance, Willis Tower is the tallest building in Chicago having 110 floors and a Skydeck on the 103<sup>rd</sup> floor. It uses 80 miles of elevator cable and

has 104 elevators moving at the speed of 12 feet per minute. Moreover, the tallest building in the world, Burj Khalifa holds the world record for having the 'Tallest service elevator in the world' of 504 meters. Burj Khalifa features 57 elevators that travel at a speed of 10 meters per second.

### **FINDINGS AND CONCLUSION**

Based on the responses received on the questionnaire, the following significant findings have been noted:

- Elevators are an integral part of the daily commutation of most individuals.
- Instead of speedy commutation, elevators can also lead to delay in schedules.
- Poor traffic management and ill servicing cause hindrances in elevator operations.

It can be concluded that elevators have a high probability of being categorized as disruptive innovation. The particular reasons being tremendous ease of commutation, impact on different disciplines such as real estate, tourism, and the corporate industry, and its economic impact on the lives of the people. Though being qualified enough to be a disruptive innovation, it entails certain consequences, namely lethargy, risk of spread of communicable disease, traffic, and elevator malfunction.

### **SUGGESTIONS / RECOMMENDATIONS**

Following suggestions have been provided by the researcher:

- Efficient and timely servicing of elevators must be done.
- Regular service reports must be inspected by Government officials.
- Proper training must be provided to both residents as well as the building management on safety measures and actions to be taken in case of an emergency.

### **SCOPE FOR FURTHER RESEARCH**

- A study can be done on the new technological advancements or innovations in elevators to enhance their performance.
- A comparative study can be done on the use of different modes of internal commutation such as staircase, elevators, and escalators.

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**A STUDY ON THE EFFECT OF BIG DATA ANALYTICS ON THE FINTECH BANKING SECTOR  
WAS PERFORMED IN THE MUMBAI SUBURBAN AREA**

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**Divya Srinivasan Iyer**

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**ABSTRACT**

*This study aims to evaluate the impact of big data analytical capabilities, both positive and negative on the bank performance, employee performance and to try to establish a relationship among these variables, where the mediating role of Fintech innovation in commercial banks operating in a Mumbai suburban area, Dombivli is considered. Fintech innovation aims to promote the development of the banking sector, but it also brings a lot of potential risks.*

*Keywords. Big data, Big data analytics, Data Analytics, Banking.*

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**INTRODUCTION**

Big Data is the very front end of the pipeline which primarily focuses on variety, velocity, and volume of data. This then lends its strength to the data science field as the data collection ends up for all the bases for any type of analysis going forward. The main properties of this technology are volume, velocity, variety, value, and veracity.

Such data sets from various sources are beyond what our usual information processing systems can manage the four ways that financial institutions, banks use Big Data are Fraud Detection, Financial Regulatory, and Compliance Analytics, Improve Customer Service Through Big Data, and Anti-Money Laundering Strategies.

Big data analytics (BDA) is emerging as a hot topic among scholars and practitioners. BDA is expected to have tremendous impacts within a variety of industries. Analysis of big data allows analysts, researchers, and business users to make better and faster decisions using data that was previously inaccessible or unusable. Businesses can use advanced analytics techniques such as text analytics, machine learning, predictive analytics, data mining, statistics, and natural language processing to gain new insights from previously untapped data sources independently or together with existing enterprise data. Some banks launch

AI-powered apps where users can get advice on financial literacy, spending, saving, and investment - and all this based on their personalized requests. These applications use Predictive Analytics to monitor transactions in real-time and identify consumer habits, providing them with valuable insights.

**Big Data involves the following process :**

1. Data Mining
2. Data Collection
3. Data Storing
4. Data Cleaning
5. Data Analysis
6. Data Consumption

**Financial Technology (FinTech)** is defined as the technology and innovation that aims to compete with traditional financial methods in the delivery of financial services. Fintech is a broad term used to describe financial services that leverage technology, innovation, and data.

It is often used interchangeably with financial technology or banking technology. A fintech company can be an innovative bank or credit union, a digital platform designed to provide consumer-oriented financial products, services, and information. Fintech is becoming one of the most promising industries with a CAGR (The compound annual growth rate) of 23 %, from 2020 to 2026, as per Market Data Forecast. Thus, it is essential for any business dealing in financial institutions to have implemented FinTech.

The impacts of Fintech on the Banking Industry are in the following ways: 1. Mobile Banking-Fintech and mobile banking have become one of the crucial revolutions for the customers, banks, and anyone related to the financial profession fraternity. Because of these revolutions, it has become possible for customers to have access to banking transactions 24 hours a day 7 days a week. It is no longer restricted to stringent banking hours.

2. Online Transactions- Over 80% of transactions take place online rather than going to physical bank. Customers prefer online banking because it is easy, convenient, saves a lot of time and energy, quick and efficient compared to the traditional banking system with less integration with the FinTech models.

3. e-Wallets.- It can be defined as “A digital wallet, also known as e-wallet, is an electronic device, online service, or software program that allows one party to make electronic transactions with another party bartering digital currency units for goods and services.” Some of the well known examples of e-wallets a Paytm, MobiKwik, google pay also known as GPAY.
4. Segmentation of the customer base- After the initial analysis of the income-expenditure structure, the bank divides its customers into several segments according to certain indicators. This information helps to offer clients the right services in the future.
5. Risk assessment and fraud prevention- Big Data analysis helps banks to cope up with processes that require compliance verification, auditing, and reporting. This results in the simplification of operations and reduces overhead costs.

**OBJECTIVES:**

1. To evaluate the impact of big data analytical capabilities, both positive and negative on bank performance.
2. To evaluate the impact of big data analytical capabilities, both positive and negative on employee performance.
3. To establish a relationship among the above-cited variables.

**REVIEW OF LITERATURE:**

Angappa Gunasekaran, University of Massachusetts.

Shahriar Akter, University of Wollongong, sakter@uow.edu.au .Steven Ji-Fan Ren, Shenzhen University.

Rameshwar Dubey, Constituent Of Symbiosis International University.

**RESEARCH METHODOLOGY:**

RESEARCH UNIVERSE	MUMBAI SUB-URBAN REGION-DOMBIVLI AND KALYAN
SAMPLING METHOD	PURPOSIVE SAMPLING - BANK EMPLOYEES, BANK MANAGERS, AND FINANCE PROFESSIONALS
SAMPLE SIZE	23
METHOD OF DATA COLLECTION	PRIMARY DATA AND SECONDARYDATA
METHOD OF PRIMARY DATACOLLECTION	PRE-STRUCTURED QUESTIONNAIRE
METHOD OF SECONDARY DATA COLLECTION	RESEARCH PAPER

**LIMITATIONS OF STUDY:**

1. The research is limited to only Financial Professionals, Bank Managers, and Bank Employees.
2. The sample size is limited due to the limited time to collect data.

**ANALYSIS AND INTERPRETATION OF DATA :**

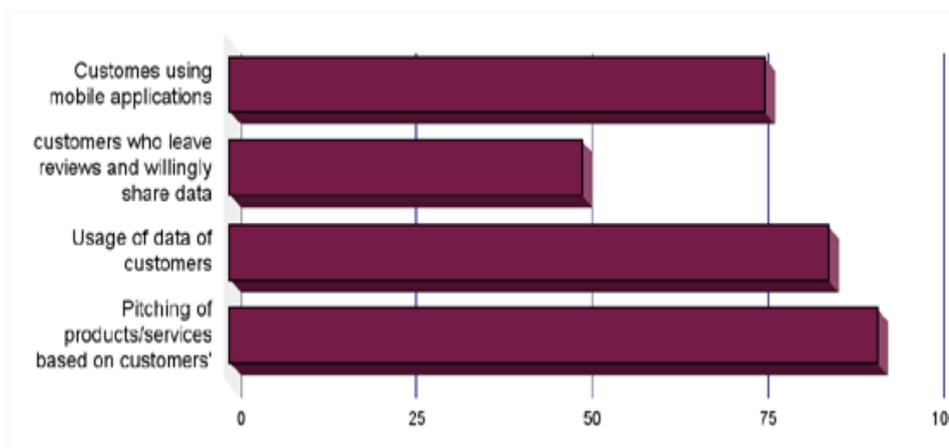
The impact of big data analytics on bank performance and employee performance is that it has been increasing the productivity levels of people of each department whether it is from the credit assessment department, loan approval department, customer relationship management department, vigilance department which has eventually led to banks performing better and more efficiently. It has become a lot easier for the collection of data, implementation, and marketing of proposals and new products to the best-suited group of customers. This has led to the banks becoming more customer-centric. Also, data analytics has led to the formulation of more suitable schemes, the banks or financial companies can understand the spending patterns of customers. The early detection of risks can help in preventing huge losses for the banks which otherwise may be incurred. Big Data helps in analyzing problems on a large scale and divides them into smaller ones with the help of analytics. On the other hand, by agreeing to reveal personal data, customers’ right to privacy and security is compromised and they become susceptible to data breaches. Incidents of people falling prey to scams that offer a huge amount of money or a stalker who gets access to an address because of a profile are public are increasing rapidly. Especially during the ongoing Corona Virus (COVID-19) pandemic which led to many people losing their jobs, families losing their main bread-earning member to COVID-19, people migrating back to rural areas, etc., it has been seen that over 70% of complaints that has been filed in the local police stations and other crime authorities pertain to Cyber Fraud, Money Laundering, and similar cases. The negative impact of big data has reached

industries like retail and banking; these industrial sectors are most likely to scrutinize customer behavior and their user activity to increase their market reach and acquire financial profits.

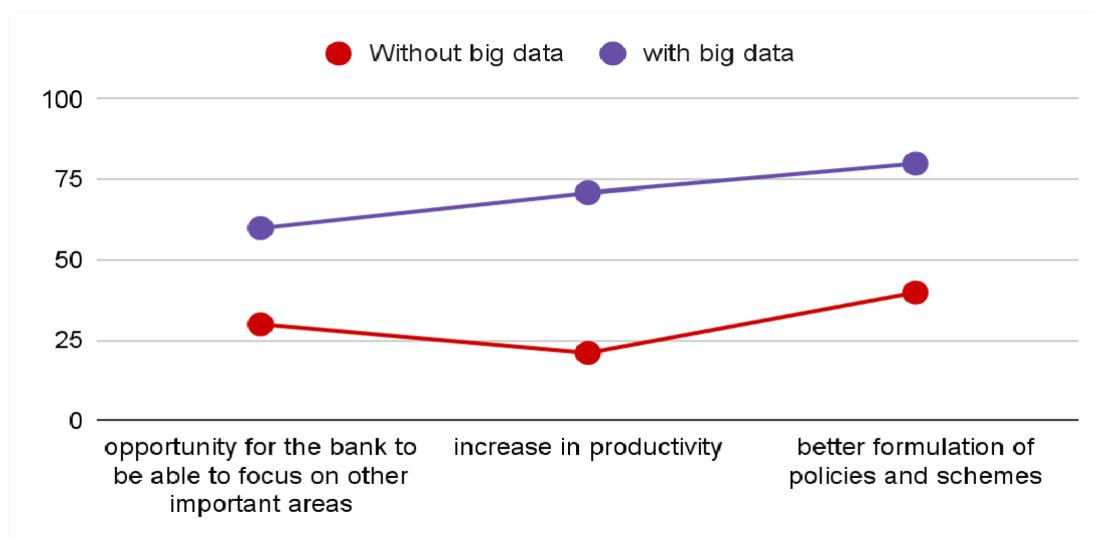
**Data Collection and Sample Size:**

Following data was gathered and accumulated over a period of 3 weeks 2 days.

- Managers and employees of Canara Bank, Catholic Syrian Bank, and ICICI Bank were asked to rate their usage of customer data anonymously on a scale of percentiles on the following parameters:
  - The number of customers who have started using mobile applications for doing banking transactions.
  - The number of customers who leave reviews, mark their location, create accounts on social networks, and are willing to share their data.
  - The ease in using data of the customers and formulating suitable plans and schemes, effective pitching.



- Managers and employees of Canara Bank, Catholic Syrian Bank, and ICICI Bank were asked to rate their increase/ decrease in productivity anonymously on a scale of percentiles on the following parameters:
  - The increase in time and opportunity for the bank to be able to focus on other important areas for making the banking services better.
  - Savings in time and an increase in productivity, if any.
  - Ability to focus on critical things like the introduction of a more efficient and useful product/ service.



- The negative factors were rated as follows by the bank managers:

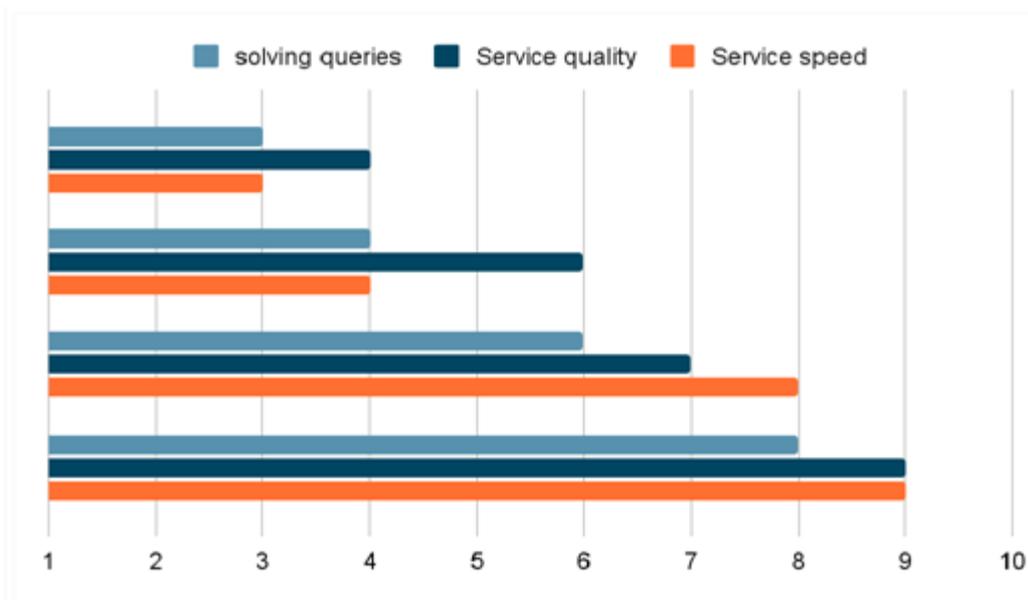
Challenges	Customer's privacy concern	Difficulty in collecting data	Others
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Negative /nil	-	-	-
Upto 35%	20% (average)	-	-
Up to 70%	-	40% (average)	-
More than 70%	-	-	-
Remarks/causes	Security concerns regarding passwords and pin	Due to permission asked by websites and applications for allowing the collection of data and permitting cookies, customer tend to think their crucial security pins and money movements are getting traced.	<ul style="list-style-type: none"> <li>Collating data can become challenging sometimes eventually leading the staff to put in more work and energy in some small tasks which would have been carried out quickly otherwise.</li> <li>Even if the banks are able to collate customer data spread across departments, a lot of irrelevant data needs to be sorted out before the data becomes usable for the processing and analysis of data.</li> </ul>

2. The analysis below is performed using the pertaining subset of the total data collected, comprising of feedback from around 20 customers. Following data was gathered and Accumulated over a period of 3 days. Customers visiting the Dombivli branch of Canara Bank, ICICI Bank, Catholic Syrian Bank were asked to rate the bank

Anonymously on a scale of 1 – 10 on the following parameters:

- Is the customer happy with the quality of service?
- Is the customer happy with the speed of service?
- Are customer queries addressed effectively?



When we plot the data, there are some curious findings.

**FINDINGS AND CONCLUSION:**

1. Big Data Analytics has a positive impact on the efficiency and productivity of the banks
2. The increase in savings in time of the bank employees is more.
3. Customer privacy concern is one of the negative impacts.
4. Breach of customer privacy has led to fraud and misuse of customer data.
5. Risk management is one of the major uses of Big Data Analytics which means that there is a positive relationship between these two variables (Big data and Fintech Banking)

**SCOPE FOR THE RESEARCHER:**

1. The study can be undertaken with a larger sample size and across institutions of various disciplines.
2. A cooperative study can be done on the financial and non-financial advantages of Big Data Analytics

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**LAKMÈ- PROBATIONER OF INDIAN COSMETIC CULTURE**

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**ABSTRACT**

*India won its freedom in 1947. Its economy remained unstable for many years. Upper-class women were spending most of their foreign exchanges on cosmetics, whereas middle and lower-class women had no access to quality makeup due to the unavailability of low-cost, good quality products and openness to traditional methods.*

*On the request of then Prime Minister Jawaharlal Nehru, J.R.D. Tata came up with a brand that appealed to all classes of women of Indian society with an in-depth understanding of cosmetic technology and Indian women's needs.*

*In 1952, the first Indian cosmetic brand started as 100% subsidiary of Tata Oil Mills. The name Lakmè was given to admire the renowned French Opera, which is also a parallel entity of Hindu Deity Lakshmi. The entry of Simone Tata as managing director in 1961 brought significant improvement in Lakmè. She became chairman in 1982.*

*The brand faced a lot of competition when the overseas brand entered India after economic liberalization in 1991, yet affordable- quality products attracted Indians.*

*Lakmè focused on creating brand image via aggressive marketing strategies and roped-in familiar faces of Bollywood actresses to be brand ambassadors, to break the social taboo of make-up around Indians. In 1996, Lakmè was sold to Hindustan Lever Ltd. (now- Hindustan Unilever) for 200 crores as the Tata industry assumed that dedicated FMCG could do better justice to the brand.*

*Lakmè gained popularity for Lakmè Fashion week, a bi-annual fashion event; and Lakmè Salon, which has grown to more than 240 stores.*

*With a diverse range of world-class cosmetic products and services, the brand has gained the trust of consumers of all age groups. Lakmè was ranked 36th among India's most trusted brands (Brand Trust Report 2014). With a market share of 17.7% in cosmetics and annual revenue of \$150 million, Lakmè is India's one of the largest cosmetic brands.*

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**INTRODUCTION**

The cosmetics sector comprises hair care, skin care, make-up, toiletries, fragrance, etc. The US Food and Drug Administration (FDA) defines cosmetics as "materials designed to be applied to the human body for cleaning, embellishing, encouraging appeal or changing the appearance without influencing the structure or functions of the body".[1]. In India, per capita spending on grooming products is the lowest in the world. Indian consumers spend on an average approx. ₹ 16 per week on beauty and personal care.[2]. Indian beauty and personal care market was estimated to be valued at about 20 Billion US dollars in 2020 and is forecast to grow at double digit CAGR of 16.39% through 2026 [3]. Hence the Indian cosmetic sector is one of the most remunerative and stable industries in the country highlighting a enormous growth potential [4]. Traditionally the Indian cosmetic culture withheld a stronghold with Indian brands like Lakme, Lotus, Biotique, Emami, Vicco, Dabur etc which faced competition with the foreign entrants to the Indian market. [5]

Lakme was the first Indian cosmetic firm established in 1952 as a 100% subsidiary of Tata oil mills with the appreciation of former Prime Minister Jawaharlal Nehru to check the outgoing foreign exchanges on overseas beauty brands. The brand identity was a major challenge faced back then, because Lakshmi Lipstick or Lakshmi Kajal would not have been accepted by the Indian women inclined towards buying foreign brands. The brand took the title from Leo' Delibes' French opera which is also a parallel entity of Hindu Deity Lakshmi, who is renowned for her beauty.[6] Lakme appealed to both the groups of women ( upper and middle class) with its affordability and quality. Earlier the lower and middle class women were acquainted with the use of traditional beauty methods like application of Multani mitti, charcoal derived Kajal and Surma.[7]

In 1961, Simone Tata, Naval H. Tata's French wife joined in as Lakme's Managing Director.[8] She was a breeze of feminine air in the male-dominated society. Being a western-born lady she gripped the brands key formula and played a vital role in creating Lakme a household name. She is better known as 'Cosmetic Czarina

of India'.[9].It is because of the devotion and hard work of Simone Tata that Lakme rose to greater achievements.

Lakme launched its first salon in 1980 [10]. In 1980 the government imposed a 100 percent excise duty on cosmetic products, including the domestically manufactured ones. This led to a drop in margins. Simone Tata met the former finance minister, Dr Manmohan Singh, to solve the issue. In the succeeding Union Budget meet, the excise duty was reduced to a certain extent as a result of the efforts of Simone Tata who opposed and brought in the signatures of the members in favor of reducing the excise duty.[11]

In 1989 Simone Tata was appointed to the board of Tata Industries. In 1996 Tata sold Lakme to Hindustan Unilever for ₹ 200 Cr, as they thought a dedicated FMCG company could do better justice to the brand [12] .In 1999, Lakme launched its Mumbai based bi-annual event Lakme Fashion Week. [13]

**Why is Lakmè a Disruptive innovation in India?**

Despite the independence, India was still in the clutches of social taboo and prevalent primitive mindset, make-up was considered as a sign of unwanted attention and was not well appreciated by all the classes of the society. Lakme came up with a brilliant marketing strategy and roped in the young and famous Bollywood faces to promote and advertise their products, which in a way smashed the social stigma around usage of Make-up. This aggressive strategy not only disrupted the stereotypical thinking but also encouraged the Indian women towards Make-up, thus boosting the economy of the Indian Cosmetic Culture.

**OBJECTIVES-**

The main focus of the study is as follows:-

- To understand precursor for development of cosmetic industry in India
- To analyze evolution of Lakmé
- To promote the marketing strategy of Lakmé.
- To examine competition of Lakmé with other brands.

**LIMITATION-**

- Limited sample size: The study was limited to 50 subjects that may not represent the entire female population of India. Because of the reduced time period, sample size was limited to 50 subjects.
- Data collection method: A pre-planned questionnaire was created in Google forms which was then circulated in the mass to collect the responses. Personal interviews could've been implemented to gather more precise information.
- Age Group: The ideal response was expected to be in equal numbers for all the age categories but maximum responses were from the age category of 18-25.

**RESEARCH METHODOLOGY-**

Based on the data collected from the primary and secondary sources, the study consists of information acquired through pre-structured questionnaires created on Google forms for an online survey of 10 questions; a random survey method was used to collect the data.

The investigation department includes:

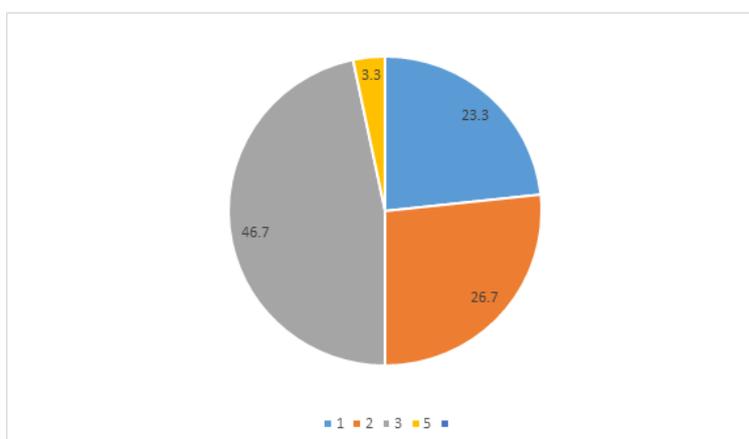
- General questions
- Questions based on brand
- Questions based on personal preference

Research Universe	Female of age groups (18-60)
Sampling Method	Snowball Sampling
Sample Size	50
Method of data collection	Primary and secondary
Method of primary data collection	Pre-structured Questionnaire

Method of secondary data collection	Research paper and review article
Data acquisition/ processing	Microsoft Excel

**Data analysis and interpretation [14]**

1. Did you know that Lakme was the first cosmetic brand established in India? 81.63% people knew that Lakme was the first cosmetic brand in India, while 18.36% people were unaware of the fact, based on the responses collected.
2. How do you prefer buying cosmetics? According to the survey, 51.1 % females preferred buying cosmetics products via both methods i.e. Online & Offline. About 16.32% females opted for an Offline method for buying cosmetics. Lastly, approx. 10.2 % of females were comfortable in buying cosmetics via digital platforms and online stores.
3. What aspects do you consider while buying cosmetics? Based on the conducted survey, 88.5% of females focused on Budget & Quality over other claims which are offered by the cosmetic industry like natural, organic, free from harmful chemicals etc.
4. Which cosmetic brands do you prefer buying? Other than Lakmé most females were well versed with the brands like Maybelline, L’Oreal, MAC, Estee Lauder and hence opted for considering these brands
5. Have you used Lakmè products? If yes, specify which. The results for this specific question were manifold, conveying a better popularity among the consumers.
6. According to you, what makes Lakmè popular? 91.83% of females voted for product quality and budget friendliness offered by Lakme.
7. Have you visited the Lakmè website? 53.06% of respondents have visited the Lakme website whereas 46.93% respondents have never visited Lakme’s website.
8. If you have visited Lakmè website, then what kept you engaged? 92% of people who have visited Lakme’s website have agreed that the product portfolio was an important attraction that kept them engaged on the website longer than expected.
9. Have you used Foundation Finder and Try-on? 30% of the respondents have visited Lakme’s digital services like Foundation Finder and Try-on which are available on their website.
10. If yes, how much would you rate these features? The results of the above question is illustrated in the form of Pie-chart



**OBSERVATIONS-**

Through a comparable analysis of Lakme with its competitors, Lakme emerged as a popular brand supported by the brands mentioned in The Brand Trust Report 2012. Lakme was ranked 104th among India's most trusted brands and following year it was ranked 71st on the list. In 2014, Lakme was ranked 36th among India's most trusted brands according to the Brand Trust Report 2014. [15]

Marketing analysis- Lakme has an extraordinary marketing strategy in order to attract customers all over the world. The marketing strategy enforces the marketing mix of Lakme, which analyses the brand and company that covers 4Ps (Product, Price, Place, Promotion) of the marketing mix. [16]

**Product:** Lakme’s prime focus is to create and manufacture cosmetic products in such a way that it caters to the needs of the Indian market. Lakme offers a wide product portfolio.

**Product portfolio-** The products offered by Lakme are for skin care and make-up for eyes, lips, face and nails. The services include Lakme Beauty salons, for face, body, hair and nails.[17]

**Price:** One of the reasons that Lakme is ahead of its rivals is ensuring a high quality product at the lowest possible price range. Lakme’s products have a decent price range that attracts the Indian customers. Indian females are very cost-conscious and frugal for the value of the money, hence they are very tight in experimenting. The total price of the product is finalized on various elements based on economic factors, production cost, marketing cost, overall cost etc.

**Place:** Lakme promoted two categories of distribution channels. They are offline (Department stores, cosmetic discounter, warehouse clubs, and mass

Merchandisers) and online (Website and online retail stores)

**Promotion:** The last element in the marketing analysis is promoting the brand image and communicating the brand in the market. There are different methods of promoting products through word of mouth, sampling, advertising, and point of purchase. Being title sponsor of Lakme Fashion week and hiring celebrities for campaigns are a part of Lakme’s impressive marketing plan.

Lakme’s competitors [18-19]

S.no	Company	Year of Establishment	Reasons
1	MAC	1985	Global presence and variety of product range
2	L’Oreal	1909	Latest innovation, technology and research with high annual sale
3	Maybelline	1915	Huge choices for each product with excellent products and quality, generates 190% of Lakme's revenue.
4	Revlon	1932	Products for all skin type and complexion
5	Bobbi Brown	1991	Global presence and wide range of products

Lakme is currently struggling with the entry of organic and natural products in the cosmetic industry.[20] Companies like Garnier, The Body Shop, Kama Ayurveda and Lotus Herbals are fulfilling consumers' demand for natural and organic products. [20]

**Growth and Development strategy-** On 5th october 2021, Lakme joined hands with PETA US 'Global beauty without bunny' to go Cruelty free.[21] This encouraged Lakme to avoid animal testing and provide high performance, world class products while displaying an important message to the society.

This step led to the development of product testing techniques using biotechnology, artificial skin, skin 3D printing techniques and breathing derma methods.

**RECOMMENDATION-**

- **Natural products-** Due to the inclination of consumers towards natural products Lakme must introduce more natural products.
- **Improvement in foundation finder and virtual try-on-** There is significant requirement for improvement in Foundation finder and virtual try-on features present on Lakme’s website. This will help consumers to choose the best products according to their skin complexion.
- **Masculine products-** Nowadays, male consumers are becoming aware about skin care and other cosmetics products, male beauty and skin care products can be a new focus area for Lakme.
- **Customization-** with the increase in the trend of personalization many popular brands are offering personalized skin care, hair care and cosmetic products based on their needs and demands. This move has proven to be a game changer for many brands and a declining interest in generalized products.

- Hair-care segment- Although Lakme is a well-known brand for cosmetics, the hair care segment is relatively less popular among the mass.

### CONCLUSION

India's ever-increasing population significantly multiplies and promotes the scope of cosmetics. Lakme scanned this as an opportunity and occupied an esteemed position in the Indian industry. This paper was conducted to throw light on the idea, motive, need and the launch of the Indian cosmetic company Lakme. All the observation and findings of the paper are carried out through a structured analysis method. Lakme was established with an aim to emerge as a brand targeting an untapped segment of the Cosmetic industry in India that was essentially as good as the prevalent foreign brands. The analysis therefore offered in-depth details of Lakme. Lakme is now renowned as one of the most trusted brands in India coupled with an unmatched comprehensive beauty experience through its products and services. Hence Lakme transformed the Indian Cosmetic Industry in an impeccable way.

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**RESHAPING FOOD SYSTEM IN THE ADVENT OF CONVENIENCE FOOD**

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**ABSTRACT**

*During the last decade, people have been consuming convenience food. It's broadly popular among youth. Convenience foods are defined as types of foods that save time in food acquisition, preparation, and cleanup. Convenience foods play an important role for the people who live apart from their families, people who don't have cooking knowledge and working women. For them convenience food serves better over traditional food. There are various types of convenience food in the market. Some of them can be eaten instantly, by heating food up while others need simple cooking methods like frying and adding water. Such a food system was first used by military service during a state of war, but then they were widely adopted in countries like the USA, Japan and many more. This food system disrupted the traditional food culture of respective countries and became part of modern food culture. Many socio-economic factors added to the acceptance of such food culture. In India the convenience food was introduced much later and it's gradually taking root in Indian food systems. This paper aims towards recognizing the attitude of Indians towards convenience food. For this purpose we present an analysis which has been conducted with samples of 200 Indians (students, working class and homemakers) particularly in the Mumbai region (Mumbai and Thane) and their responses were calculated by an organized questionnaire, administered personally. This analysis considers factors like "price influence", "health issues", "taste", "luxury or need", "mood", "familiarity", "quality or quantity" and most importantly, "do Indian youth see this as a substitute for lunch and dinner?". Findings from this study will help producers to know about their target audience and whether it is going to be disruptive in upcoming years.*

*Keywords: Convenience food, Health issues, Working class, Students, Homemakers.*

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**INTRODUCTION**

Indians are so particular if it comes to our food specially regarding its taste, its authenticity, habit of consuming food. Ayurveda in its journey evolved dishes that create the perfect balance in the body and has introduced most of the cooking styles that are termed healthy today, like pan frying, roasting, steaming. The chore of cooking is done two to three times a day, especially by a vast majority of women. When you are cooking to eat, not living to cook, it is not an art. It is a constrained, high-pressure and laborious task. Home cooking is more of a craft than an art, unambiguous and scientific. It needs to be done in the most efficient manner. So in order to encounter this problem and make life easier and more efficient the new entrenched innovation has been set ie. "CONVENIENCE FOOD" which not only saves your time but also reduces your cooking chores, that gives you the feel of "Ghar Ka Khana" at affordable price, premium quality and nutritious value along with organic packaging and excellence hygiene that ensures "YOU EAT RIGHT, LIVE LIFE". It may also be easily portable, have a long shelf life or offer a combination of such convenient traits. Although restaurant meals meet this definition, the term is seldom applied to them. Convenience foods include ready-to-eat dry products, frozen foods such as TV dinners, shelf-stable foods, prepared mixes such as cake mix, and snack foods.

**REVIEW OF LITERATURE**

Convenience food is commercially prepared for ease of consumption. Modern convenience food saw its beginnings in the United States during the period that began after World War II. Many of these products had their origins in military-developed foods designed for storage longevity and ease of preparation in the battlefield and now in today's era convenience foods have also been described as foods that have been created to make them more appealing to the consumer. "JUST LIKE GRANDMA USED TO PREPARE IT" Many older people stressed that they wanted to eat healthy food. The differences between self-made food and convenience food were explained through various paths of reasoning. One of the grounds offered for the healthiness of self-made food was that a self-made meal always includes vegetables or fresh ingredients. Participants in this study felt that today's convenience food is not nutritionally balanced. They did not regard convenience food as complete food because it lacks fresh ingredients such as vegetables and greens in the form of a salad, for example.

**STATEMENT OF PROBLEM**

Types of convenience foods can vary by country and geographic region. Some convenience foods have received criticism due to concerns about nutritional content and how their packaging may increase solid waste in landfills. Even bad meals were often associated with ready-made food, and good meals with self-made food. Many older people stressed that they wanted to eat healthy food. The differences between self-made food and convenience food were explained through various paths of reasoning. One of the grounds offered for the

healthiness of self-made food was that a self-made meal always includes vegetables or fresh ingredients. Participants in this study felt that today’s convenience food is not nutritionally balanced. They did not regard convenience food as complete food because it lacks fresh ingredients such as vegetables and greens in the form of a salad, for example. But various methods are used to reduce the unhealthy aspects of commercially produced food and fight childhood obesity. The results revealed that existing convenience foods do not have the same impact on home cooks with attributes. This problem can be solved with smart food systems that utilize information and communication technology, which allow home cooks to explore information on convenience foods that match their preferences and enable food providers to offer food that matches the specific tastes of home cooks. But in recent years, the evaluation of convenience food has changed. It came to be considered not to have a negative effect on health and is now positioned as a tool to support dietary habits of elderly and other people. In advanced countries where the population is aging, convenience foods are expected to improve the eating habits of the elderly.

**OBJECTIVES OF THE STUDY**

- To find out the people's liking towards convenience food how they consider it like a fancy item or a necessity
- To determine the pattern most likely people prefer convenience food in respect of lunch, breakfast, snacks and dinner at which time they consume more or less
- To understand which age group is more likely in favor of convenience food what are the opinion of the younger generation and what older people say in respect of convenience food as a disruptive innovation
- To analyze the areas of problem like great quality, affordability and reasonability of pricing and healthiness provided by the convenience food companies and how they are trying to improve the quality of the product.
- To review the people's opinion on convenience food as a disruptive innovation whether it will disrupt the local cloud kitchen (Poli-Bhaji Kendra) as food can be cooked by less effort and in so less time.

**RESEARCH METHODOLOGY**

Data Collection: The following techniques were used for primary data collection for the research.

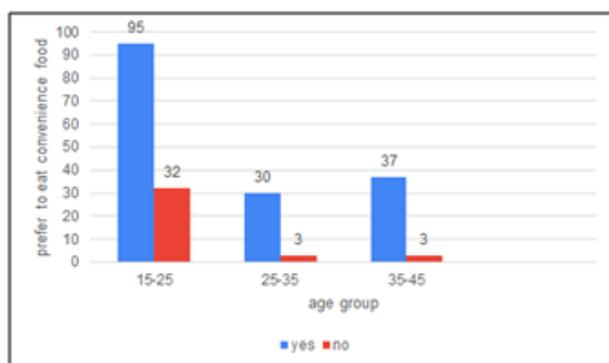
Questionnaire: A soft format of Questionnaire was prepared in Google forms which the respondents filled up using the link provided.

Sample Technique: This study was conducted with samples of 200 Indians (students, working class and homemakers) particularly in the Mumbai region and their responses were calculated by an organized questionnaire, administered personally. Which included male and female respondents from 15 to 45 and above years. This analysis considers factors like “price influence”, “health issues”, “taste”, “luxury or need”, “mood”, “familiarity”, “quality or quantity” and most importantly, “do Indian youth see this as a substitute for lunch and dinner?”.

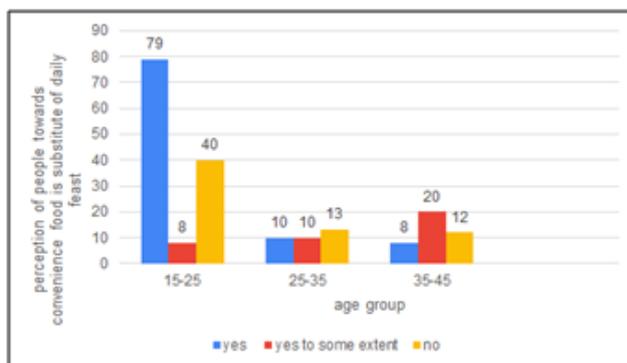
Secondary data was collected from other sources which include journals, books and the internet.

**ANALYSIS AND INTERPRETATION OF DATA**

Analysis of Data is done from results obtained from 200 samples in the Mumbai region(Mumbai and Thane). The results obtained from this are represented graphically.

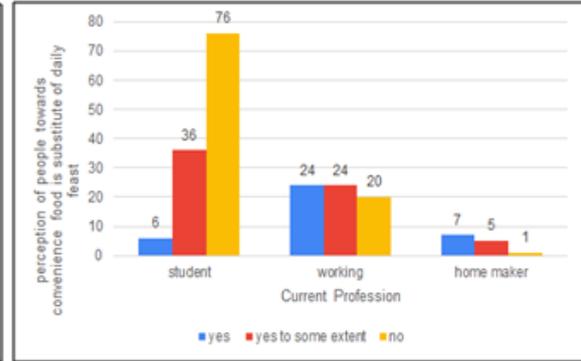
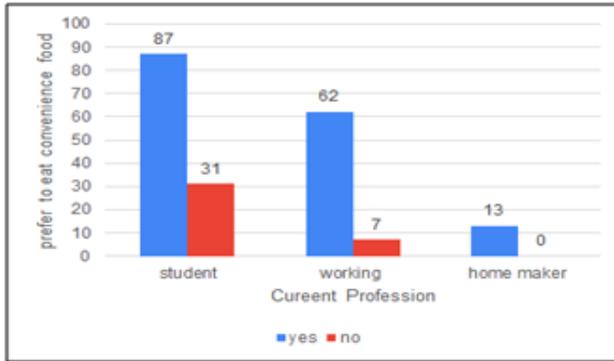


**Fig.1** Age groups prefer to eat convenience food.



**Fig.2** Perception of people about convenience food

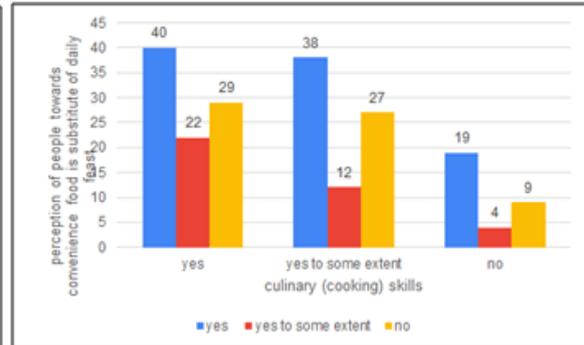
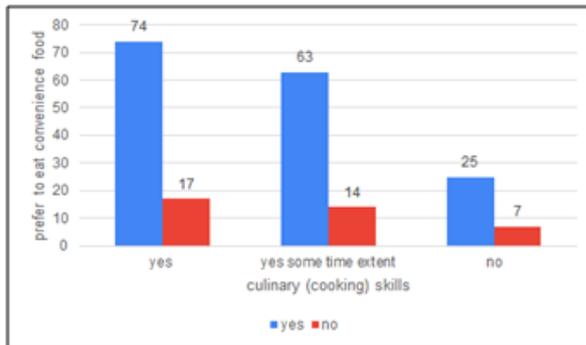
Preference of Different age group people for convenience food is shown in Fig.1. Perception of different age groups towards convenience food as a substitute for daily shown in Fig.2. As one can see in the graph people prefer to eat convenience food but they don't want to eat it as a daily meal. This can be seen in the age group 25-35 fig.1 30 people say yes and 3 people say no but in fig.2 10 people say yes, 10 people say yes to some extent 13, people say no to convenience food as a daily feast. Same with the age group 35-45. But in the age group 15-25 only 8 people prefer to eat convenience food and say no to convenience food as a daily feast.



**Fig.3** Different professions prefer to eat convenience food. **Fig.4** Perception of people about convenience food.

Different professions prefer to eat convenience food shown in Fig.3. Perception of different professions towards convenience food as a substitute for daily food shown in Fig.4. As one can see in the graph people prefer to eat convenience food but they don't want to eat it as a daily meal. This can be seen in the fig.3 87 students say yes and 31 students say no but in fig.4 6 students say yes, 36 students yes to some extent, 76

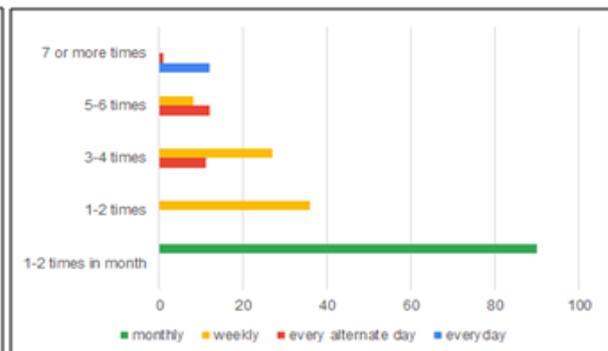
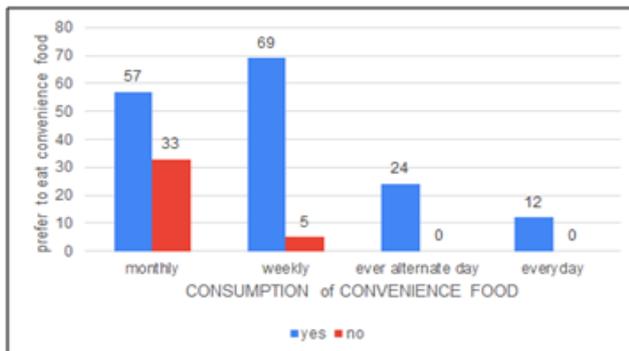
Students say no to convenience food as a daily feast. Same follows with others.



**Fig.5** Culinary skills of people and their preference

**Fig.6** Perception of people about convenience food.

The culinary skills of people according to their preference towards eating convenience food shown in Fig.5 The culinary skills of people according to their preference towards convenience food as a substitute for daily food shown in Fig.6. As one can see in the graph, people's knowledge about culinary skills does not affect their consumption. People who know culinary skill, who know to some extent and who don't know at all, everyone prefer to eat convenience food. Want to eat a daily meal.



**Fig.7** Consumption of convenience food

**Fig.8** Consumption of convenience food on weekly basics

Consumption of convenience food on monthly, weekly, alternate day and everyday basic shown in Fig.7. Number of times a week people consume convenience food is shown in Fig.8. As one can see in the graph,

fig.7 69 people consume convenience food in a week, 24 people consume convenience food every alternate day, 12 people consume convenience food everyday. In fig.8 90 people consume convenience food 1-2 times in a month, 38 people consume convenience food 1-2 times in a week, 37 people consume convenience food 3-4 times in a week, 21 people consume convenience food 5-6 times in a week, 14 people consume convenience food 7 or more times in a week.

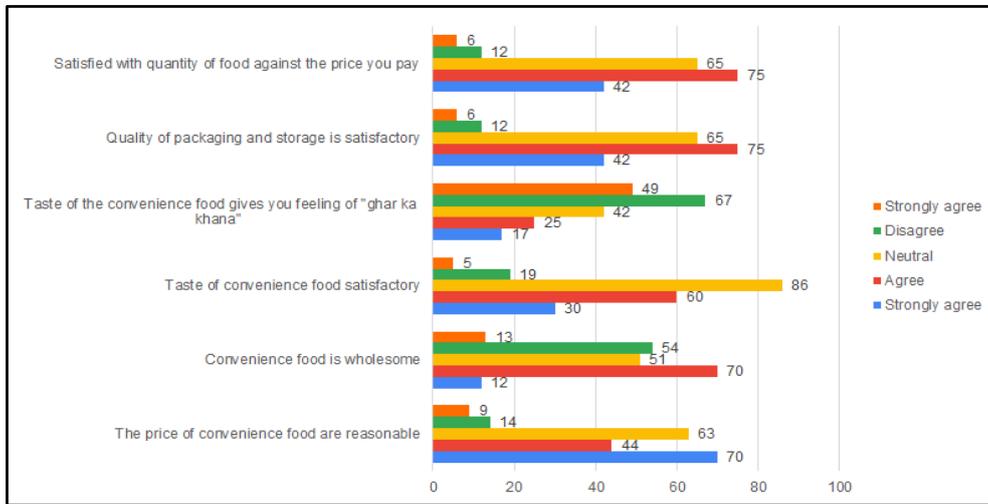


Fig.9 People view on convenience food.

As one can see in the graph, people are satisfied with the quantity of food against the price they pay for convenience food. 65 people neutral 75 people agree and 42 people strongly agree with it. People are satisfied with the quality of packaging and storage. 65 People are neutral about taste, 75 people agree that taste is satisfactory and 42 people strongly agree that taste is satisfactory. People are satisfied with the taste of convenience food. 86 People are neutral about taste, 60 people agree that taste is satisfactory and 30 people strongly agree that taste is satisfactory. According to people, convenience food is wholesome. 51 People are neutral that convenience food is wholesome, 70 people agree that convenience food is wholesome and 12 people strongly agree that convenience food is wholesome. Price of convenience food is reasonable according to people. 63 People are neutral that convenience food is reasonable, 44 people agree that convenience food is reasonable and 70 people strongly agree that convenience food is reasonable. But people don't agree that convenience food gives the feeling of 'ghar ka khana'. 67 people disagree and 49 people strongly disagree that convenience food gives the feeling of 'ghar ka khana'.

Number of people preferring convenience food as a different meal shown Fig.10. As one can see in Fig.10 54 people consume convenience food as breakfast and 113 people consume convenience food as snacks. 64 people consume convenience food as lunch and 59 people consume convenience food as dinner. According to it one can get people to prefer eating it or love it as snacks and breakfast not as lunch and dinner. But in upcoming years it can be eaten as lunch and dinner because for now the number of people eating convenience food it's not bad. More than ¼ of people eat convenience food as lunch and dinner.

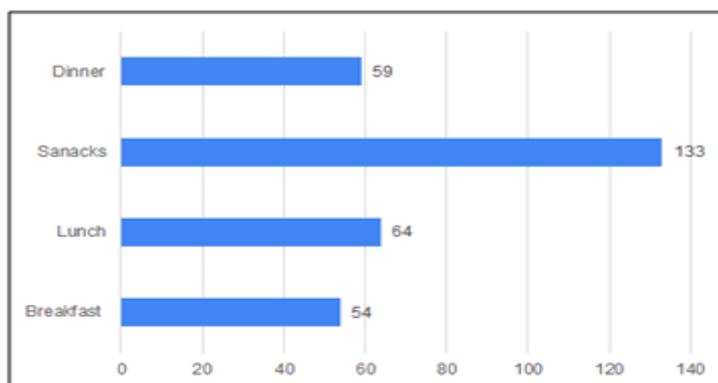
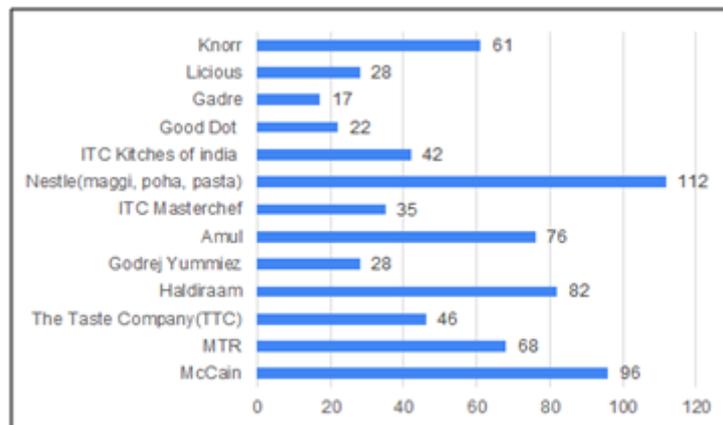


Fig.10 People prefer convenience food as meal.

Number of people prefer a particular brand shown in Fig.11. As one can see in the graph, fig.11 people prefer Nestle(112 people), McCain(96), ITC Masterchef(35 people) and Amul(76 people) mostly as snacks and breakfast.

Haldiram(82 people), MTR(68 people), The Taste Company(TTC 46 people) are mostly consumed as lunch and dinner.

Snakes and breakfast items are consumed more as we see in fig.10 and fig.11.



**Fig.11 People preferences towards brands.**

### FINDINGS AND CONCLUSIONS

Since every coin has two sides every innovation tends to overcome the flaws of the former one, likely convenience food is disruptive innovation as it conquers cloud kitchens, luxurious restaurants and buffets by serving the food with same authenticity at affordable price and maintaining its quality and quantity and satisfying its consumers. Though it has few flaws, each and every company is trying their best to give consumers the most satisfaction. Most of the companies have come out with the solutions for all the questions and fear of customers regarding their health and packaging quality. It is also noted that convenience food can be used in emergency situations when a quick meal needs to be prepared. Right now it's not fully disruptive in India like it is in countries like Japan, USA. But in the upcoming year it will be disruptive in India as per our survey.

### SUGGESTIONS / RECOMMENDATION

- It suggested that Check expiry date of the product while purchasing. Go through packing labels of the manufacturer where details are given . Follow all steps of cooking.
- The outcome of this study is based on the responses from samples of the Mumbai region. The outcomes might vary with respondents of other fields within the Mumbai region (Mumbai and Thane) or other cities based on various factors thereby giving scope for further research.

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**AN EMPIRICAL STUDY ON ONLINE V/S OFFLINE EDUCATION SYSTEM WITH REFERENCE TO SELF-FINANCE DEGREE COLLEGE IN WESTERN SUBURBAN MUMBAI REGION**

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**INTRODUCTION**

Learning is not limited to the acquisition of knowledge; it also includes the transformation of behavior, attitudes and habits of individuals which takes place through experience, training, observation, etc. Offline education was considered as the primary source of education at degree level in India. One of the core advantages of Offline education was personalized and two-way communication. The brick-and-mortar classroom lost its prominence as an only learning option with the advent of Covid19. Post pandemic the teaching in degree colleges/institutions refrained to an online education system. This switch over by many institutions during the pandemic was unplanned, but online education ensured continuity in the education. Gemma Josephin an article, states 5 reasons why online education will be the future. According to her the flexibility, accessibility, wide selection, customization and being cost-effective are the prime drivers for making online education successful. Online learning is completely based on the internet and therefore many works of literature have referred to it as "distance education", "virtual learning", "internet-based learning", "e-learning" and "web-based learning".

Information technology-enabled systems and the widespread penetration of the Internet/World Wide Web (WWW) have enabled online learning possible. It provides a platform where self-guided individuals can select and learn the courses of their choice and upgrade their knowledge and skill. E-learning enabled an individual to learn anywhere and anytime in the environment of their choice. It provides a low-cost alternative to the students; the Government of India has taken initiatives like Digital India and Skill India to spread digital literacy. Some examples of such initiatives are Swayam (MOOCs based on curriculum taught from 9th class till post-graduation) which provides quality learning with valuable certifications from prominent institutions like IIT, AICTE, etc., e-Basta (digital form of books), e-Education (free Wifi and broadband in schools), MOOCs (Massive Online Open Courses), NandGhars (digital tools as teaching aids) and India Skills Online (learning portal for skill training). It has enabled educators to spread their knowledge beyond the classroom and influence larger audience. E-learning has also enabled working students to upgrade their knowledge as per industry requirements.

But it is difficult to oversee the advantages provided by traditional education i.e. developing and maintaining interpersonal relationships, access to library and research material, sports ground and gymnasium, extracurricular activities, and much more. These advantages can't be availed through e-learning. This could be the reason why parents prefer to enroll students in regular/traditional learning where students not only enhance knowledge, learn a skill, develop confidence but also learn discipline and time management which are essential aspects for the holistic development of a student. This research will scientifically conclude the preferences of the degree college students and teachers with respect to the online and offline education systems.

**Objectives of the study**

1. To evaluate online and offline education systems with reference to degree college students.
2. To appraise online & offline education system from degree college teachers perspective
3. To verify whether the demographic variables has any impact on the preferences of the education system

**Scope of the study**

1. The study will highlight the preferences of degree college students and teachers with respect to the education system
2. The study will verify whether there is an association between the demographic factors and the choice of the education system

**Hypothesis**

H1: There is no association of gender and class on the preferences of students with respect to the choice of education system

H2: There is no association of gender, teaching experience and subject taught on the preferences of teachers with respect to the choice of education system

**RESEARCH METHODOLOGY**

The study is based on primary and secondary research. A convenient sampling method is used for the data collection.

**Universe:** Students studying and Teachers teaching in the self finance degree college in Mumbai Western Suburban region

**The tool used to collect data:** Structured questionnaire

**Platform used to collect information:** Google forms were used to collect responses

**Sample size:** In the case of students 373 and in the case of teachers 41

**Period of study:** Jan to Aug 2021

Various statistical tools like Excel, graphs and formulas are used for the interpretation of results.

**LIMITATION OF THE STUDY**

The study is limited to the Mumbai Western Suburban region, considered only self finance degree college students and degree teachers of science, commerce and arts stream. The research is conducted during 2021-22. The sample size is restricted to 373 in the case of students and 41 in the case of the teachers.

**ANALYSIS AND INTERPRETATION OF STUDENT'S DATA****General observations:**

1. For the study undergraduates students were considered and 40 percent of respondents were from first year, 26 percent were from second year and 34 percent of students were from third year.
2. Amongst students in the female category 38.27 percent were from first year, 23.47 percent from second year and 38.27 percent from third year. In the case of male 42.37 percent were from first year, 29.38 from second year and 28.25 were from third year.
3. It is seen that 32 percent of the students prefer online education and 68 percent of students prefer the offline education system.
4. It is observed that amongst females 72.96 percent prefers offline and 27.04 percent prefers online education system. Amongst males the preference for offline education is 61.58 percent and for online education system is 38.42 percent.
5. The most important reason being it develops bonding and team work among students, next important reason was development of physical and mental connectivity, followed by development of socializing skills and development of communication skills.
6. The most important in the sequence is as follows: Can complete multiple courses at a time, enough time is left for hobby classes, enables to work while studying and saves commuting time.

**ANALYSIS AND INTERPRETATION OF TEACHERS DATA****General observations:**

1. It is observed that 89 percent of male teachers prefer offline education systems and 75 percent of female teachers prefer offline education systems.
2. 83 percent of teachers teaching theory subjects prefer offline education systems, maximum preference of teachers teaching practical subjects is 75 percent and 69 percent of teachers teaching both theory and practical subjects also prefer offline education systems.
3. The most important reason for the teachers to prefer offline medium of education is that it enables them to understand the strengths and weaknesses of students in better way, followed by that the valid reasons are offline education system enables better interaction with students and colleagues, enables effective evaluation of students performance, it results into better work-life balance and also enables students to make use of infrastructures like computer labs, library and other laboratories for practical.
4. The most important reason for teachers to prefer an online education system is it saves commuting time as pointed out by maximum responses. The other reasons in the order of importance were better work life balance, it provides time to self enhancement in terms of knowledge and skills and they are also of the opinion that offline education is a time consuming process whereas online education results in efficiency in terms of student connect and evaluation.

**HYPOTHESIS TESTING**

**H1: There is no association of gender and class on the preferences of students with respect to choice of education system**

H1 is further divided into two parts a and b.

**aH<sub>0</sub>: There is no significant association between gender of the students and their preferences with respect to the choice of education system**

**Table 1** Chisquare test results for gender of students and their preference of education system

Gender	Offline education(fo)	Online education (fo)	Total	Expected frequency for Offline education (fe)	Expected frequency for Online education (fe)	For those who opted for Offline education (fo-fe)2/fe	For those who opted for Online education (fo-fe)2/fe	Chisquare calculated	Table value
Female	143	53	196	132.42	63.58	0.85	1.76		
Male	109	68	177	119.58	57.42	0.94	1.95		
<b>Grand Total</b>	<b>252</b>	<b>121</b>	<b>373</b>	<b>252.00</b>	<b>121.00</b>	<b>1.78</b>	<b>3.71</b>	<b>5.49</b>	<b>3.84</b>

**Source: Compiled from primary data**

Table 1 states that, degree of freedom is 1 and at 5% level of significance our calculated X<sup>2</sup> value is 5.49, which is greater than the table value of X<sup>2</sup> i.e. 3.841. Hence our H<sub>0</sub> stands to be rejected and H<sub>1</sub> will be accepted which states that there is significant association between gender of students and their preference of education system.

**bH<sub>0</sub>: There is no significant association between the class in which students are studying and their preferences with respect to the choice of education system**

**Table 2** Chisquare test results for class in which student studying in degree college and their preference of education system

Class	Offline education(fo)	Online education (fo)	Total	Expected frequency for Offline education (fe)	Expected frequency for Online education (fe)	For those who opted for Offline education (fo-fe)2/fe	For those who opted for Online education (fo-fe)2/fe	Chisquare calculated	Table value
First year	88	62	150	101.34	48.66	1.76	3.66		
Second year	62	36	98	66.21	31.79	0.27	0.56		
Third year	102	23	125	84.45	57.05	3.65	20.33		
<b>Grand Total</b>	<b>252</b>	<b>121</b>	<b>373</b>	<b>167.55</b>	<b>137.51</b>	<b>5.67</b>	<b>24.54</b>	<b>30.21</b>	<b>5.991</b>

**Source: Compiled from primary data**

According to table 2. degree of freedom is 2 and at 5% level of significance our calculated X<sup>2</sup> value is 30.21, which is greater than the table value of X<sup>2</sup> i.e. 5.991. Hence our H<sub>0</sub> stands to be rejected and H<sub>1</sub> is accepted which states that there is significant association between class in which students study and their preference of education system.

**H2: There is no association of gender, teaching experience and subject taught on the preferences of teachers with respect to the choice of education system**

H2 is further divided into a, b and c parts for testing

**aH<sub>0</sub>: There is no significant association between gender of the teachers and their preferences with respect to the choice of education system**

**Table 3** Chisquare test results for gender of teachers and their preference of education system

Gender	Offline (fo)	Online (fo)	Total	Expected frequency for offline preference (fe)	Expected frequency for online preference (fe)	For those who prefer offline (fo-fe)2/fe	For those who prefer online (fo-fe)2/fe	Chisquare calculated	Table value
Male	8	1	9	7.02	1.98	0.14	0.48		
Female	24	8	32	24.98	7.02	0.04	0.14		
<b>Grand Total</b>	<b>32</b>	<b>9</b>	<b>41</b>	<b>32.00</b>	<b>9.00</b>	<b>0.17</b>	<b>0.62</b>	<b>0.791</b>	<b>3.841</b>

Source: Compiled from primary data

Table 3 states that, degree of freedom is 1 and at 5% level of significance our calculated X<sup>2</sup> value is 0.791, which is lesser than the table value 3.841. Hence we fail to reject H<sub>0</sub> and H<sub>1</sub> stands to be rejected. There by it can be stated that that there is no significant association between gender of teachers and their preference of education system.

**bH<sub>0</sub>: There is no significant association between subject taught by the teachers and their preferences with respect to the choice of education system**

Table 4 below depicts that, degree of freedom is 2 and at 5% level of significance our calculated X<sup>2</sup> value is 1.003, which is lesser than the table value 5.991. Hence we fail to reject H<sub>0</sub> and H<sub>1</sub> stands to be rejected. There by it can be claimed that that there is no significant association between subject taught by the teachers and their preference of education system.

**Table 4** Chisquare test results for subject taught by the teachers and their preference of education system

Type of subject	Offline (fo)	Online (fo)	Total	Expected frequency for offline preference (fe)	Expected frequency for online preference (fe)	For those who prefer offline (fo-fe)2/fe	For those who prefer online (fo-fe)2/fe	Chisquare calculated	Table value
Both theory and practical subjects	9	4	13	10.15	2.85	0.13	0.46		
Practical subjects only	3	1	4	3.12	0.88	0.00	0.02		
Theory subjects only	20	4	24	18.73	5.27	0.09	0.31		
<b>Grand Total</b>	<b>32</b>	<b>9</b>	<b>41</b>	<b>32.00</b>	<b>9.00</b>	<b>0.22</b>	<b>0.78</b>	<b>1.003</b>	<b>5.991</b>

Source: Compiled from primary data

**cH<sub>0</sub>: There is no significant association between teaching experience of the teachers and their preferences with respect to the choice of education system**

**Table 5** Chisquare test results for years of experience of the teachers and their preference of education system

Years of experience	Offline (fo)	Online (fo)	Total	Expected frequency for offline preference (fe)	Expected frequency for online preference (fe)	For those who prefer offline (fo-fe) <sup>2</sup> /fe	For those who prefer online (fo-fe) <sup>2</sup> /fe	Chi square calculated	Table value
11-15 years	8	1	9	7.02	1.98	0.14	0.48		
1-5 years	4	2	6	4.68	1.32	0.10	0.35		
16 and above	6	1	7	5.46	1.54	0.05	0.19		
6-10 years	14	5	19	14.83	4.17	0.05	0.16		
<b>Grand Total</b>	<b>32</b>	<b>9</b>	<b>41</b>	<b>32.00</b>	<b>9.00</b>	<b>0.33</b>	<b>1.19</b>	<b>1.522</b>	<b>7.815</b>

Source: Compiled from primary data

Table 5 depicts that, degree of freedom is 3 and at 5% level of significance our calculated  $X^2$  value is 1.522, which is lesser than the table value 7.815. Hence we fail to reject  $H_0$  and  $H_1$  stands to be rejected. There by it can be claimed that that there is no significant association between teaching experience of the teachers and their preference of education system.

### FINDINGS OF THE STUDY

From hypotheses testing it was established that there was significant association between the preferences of the students with respect to education system and their gender and the class in which they study in the degree college. However, in the case of teachers there was no association between the preference of education system and their gender, subject taught and the years of experience.

The further findings of the study are divided into two parts, one related to the offline education system and the second with respect to the online education system.

- Offline education system:** It was observed that 68 percent of students preferred the offline education system. The preference for online education was more amongst male students (38 percent). 72.96 percent of female students prefer offline education. The most important reason stated by students towards the preference of offline education system is "it develops bonding and teamwork among students". Teachers teaching theory subjects were the highest to prefer offline education systems (83%). It was observed that 89 percent of male teachers preferred offline teaching. Maximum teachers preferred offline teaching systems because they felt it can identify the strengths and weaknesses of students in a better way.
- Online education system:** It was observed that 32 percent of students preferred the online education system. In comparison to females, males preferred more online education systems (38.42%). It enables to enroll for multiple courses was the reason quoted by the majority of those who preferred the online education system. The maximum preference towards the online education system was shown by teachers who taught both theory and practical subjects (31%). Female teachers showed more inclination towards the online education system (25%). The most important reason given by teachers for the preference of the online education system was 'Commuting time is saved'.

### SUGGESTIONS

- To the students:** It is noted that students of degree college prefer the offline session of the education system. The reason quoted by them as reflected in the table 8 is also valid but the advantages offered by online education system can't be overruled and therefore it is suggested that although they have enrolled in the offline education system, they should seek deeper insights into the subjects of their choices by enrolling in the online courses to get a deeper understanding and diversity into the subject matter.
- To the teachers:** Although the importance of the offline education system and the benefits derived from it cannot be overruled, it is pertinent to note that by introducing hybrid kinds of teaching the lectures can be made more interesting for the students. Also, virtual platforms have enabled teachers to offer their teachings and knowledge to students beyond their classroom. Through online teachings, teachers can help those who have not attained formal education and people from the working class who are keen on updating their knowledge.

**CONCLUSION**

These findings show that teachers and students of Degree College have a preference towards an offline education system. This could be because the students have enrolled for a regular offline education system and what they are availing now because of the pandemic is online learning. Another factor that can be considered here is online education can be availed at any point of time and at any age, whereas formal degree education is preferred by regular students of a certain age, in the case of a degree the normal age is 18 to 20 years. So being regular students they may be keen on coming to college campuses and experiencing the college days rather than studying online. The regular student can simultaneously study for online courses of their choice. The older students won't prefer to come for a regular college degree but now they have the option of online education. This research concludes by establishing that although online education system has lot of advantages but as far as regular degree college students and teachers of the Western suburban region of Mumbai are concerned, they prefer an offline education system.

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**CONTRIBUTION OF ASHTANGA YOGA IN REDUCING STRESS AND INCREASING EMOTIONAL STABILITY****Sunita Wadhawan<sup>1</sup> and Madhusudhan Penna<sup>2</sup>**<sup>1</sup>PhD Research Scholar, Kavikulaguru Kalidas Sanskrit University CG Road, Chembur, Mumbai<sup>2</sup>Professor, Kavikulaguru Kalidas Sanskrit University, KKSU Ramtek Nagpur**ABSTRACT**

*Stress is adversely affecting everything; our working capacity, personal and professional relationships, physical and mental health. When this imbalance occurs even at the most subtle level, thinking starts and we start limiting ourselves. Our ignorance leads to ego attachments and gives birth to egocentric personalities. Yoga has been known from ancient times as a great antidote to stress. People experience its physical and mental benefits, especially when the dangerous Corona is lurking on our head like a Damocles sword. Establishing a consistent yoga routine is the best way to beat stress, create positive growth and focus on self-improvisation. The eight limbs of Yoga are Yama, Niyama, Asana, Pranayama, Pratyahara, Dharana, Dhyana and Samadhi.*

*Along with Ashtanga one has to know the predisposition of three gunas, (satva, Rajas and Tamasa) accordingly choose the predominance of Karma, Hatha, Raja, gyana yoga. So, Yoga is an empirical science. It aims at the harmonious development of body, mind and soul. Everyone should follow one discipline in Yoga primarily. Then combine it with Karma Yoga, Hatha Yoga, Raja Yoga, Bhakti Yoga and Jnana Yoga.*

*Yoga combines several techniques used for stress reduction; it provides the combined benefits of breathing exercises, stretching exercises, fitness programs, meditation practice and guided imagery.*

*Yogic teachers have to take Prakriti and Pancha kosha concept, as every individual has different permutation combination, so attention has to be towards customization, that people sustain emotional storms all their life and they have to be saved from further emotional turmoil or any serious ailment.*

*According to the Upanishads, our human nature, or Prakriti, comprises five different dimensions. Our mortal body, (the temple of our individualized atman,) expands into more subtle layers of energy around our spiritual center. Human beings consist of five distinct energy sheaths called "koshas" that surround our jivatman. The pancha koshas (five sheaths) guide towards better understanding of our psychological and spiritual development.*

*Benefits of Yoga include reduced stress and anxiety, sound sleep, reduced, cortisol levels, improvement of many medical conditions, allergy and asthma symptom relief, lower blood pressure, addictions control and cessation, lower heart rate, spiritual growth, sense of well-being, reduced muscle tension, increased strength and flexibility and slowed aging process. Its practice can also give psychological benefits, such as stress reduction, mood upliftment, increased self compassion and a sense of well-being, and spiritual benefits, such as a feeling of connectedness with God or Spirit, or a feeling of transcendence.*

**INTRODUCTION**

In India much credence is given to Gurukul parampara, where the disciple would sit at the feet of the Guru and acquire the knowledge with all sincerity and devotion. With the changed norms of the society due to Covid 19, the preference is for online education.

Naturally it is expected of a Yoga teacher that he or she will also follow the norms and impart the training to the knowledge seekers to the best of his/her ability. While talking of health of adults in general and specifically Emotional health, Yogic teachers have to deal with the most fragile species who have sustained the brunt of emotional storms all through the years and they cannot afford to be subjected to any emotional turmoil or any serious ailment which may weaken them further.

The human personality is a psychosomatic personality. In simple words physical health and mental health are interdependent. Any imbalance in one is bound to affect another. The threshold of stress and strain bearing capacity differs in every individual.

Therefore, the mute question is how to reduce stress using Yoga? Since covid is a unique situation of mental unrest do we need a new approach to deal with this problem?

The befitting verse which comes to mind is

चिंतायाश्च चिंतायाश्च बिन्दुमात्रं विशिष्यते |

चिता दहति निर्जीवं चिन्ता दहति जीवनम् ॥

The verse means the pyre burns the dead body, and stress burns down the whole life! In Sanskrit, there is only one difference in the spelling of the words चिन्ता (stress) and चिता (funeral pyre); just an extra dot on the top for the Anusvara or nasal sound.

### **Understanding Stress**

Stress is defined as the state of mental or emotional strain or tension resulting from adverse or demanding circumstances. Stress is basically a physiological and psychological response to an event that upsets our personal balance in some way. Stress may lead to other variables like anxiety along with depression and aggression.

When one experiences a threat, physically or emotionally; the body's defences start working for the rapid response to that threat; known as fight or flight response, where the sympathetic nervous system over works and fatigue may creep in slowly.

### **Effects of Stress**

Stress is studied and understood at the physical body level by the modern medical system as an imbalance of the neuro-endocrine system and the neuro-transmitter level. When the threat is sensed, a small part of the brain called the hypothalamus sets off a chemical alarm, and stress hormone is secreted. It makes the person ready for the response to the threat. The response can be fight or flight. Amygdala is a small part sensitive towards emotions.

During this process, all the energy in the body is used for reducing the reaction time for the response. At the same time, body processes are not essential for immediate survival; such as the digestive system or reproductive system slow down and energies are diverted towards skills to cope up with the current situation, a wonderfully designed mechanism inbuilt in the human system.

Nowadays, most people experience the threat to emotional balance, rather than a physical one. There are many reasons for the physical and mental response to stress; such as small things like an argument with a friend or family member, monthly bills, traffic jams, etc.; or big things like an accident, death of a loved one, etc. These are the main causes of stress.

The stress hormones elevate heart rate and blood pressure as well. Physical effects of stress are headaches or backaches, muscle tension, and stiffness, diarrhoea or constipation, nausea, chest pain, rapid heart rate, weight gain or loss, frequent colds, etc. Cognitive problems like memory problems, indecisiveness, inability to concentrate, seeing only the negative, constant worrying, poor judgment, etc. Effects of stress on our emotional self are moodiness, agitation, restlessness, short temper, irritability, impatience, inability to relax, sense of loneliness or isolation, depression, in general unhappiness, etc. It affects our behaviour in the form of eating more or less, too much or too little sleep, using alcohol, cigarettes or drugs to relax, nervous habits like nail biting, overdoing activities (exercise or shopping, etc.)

Dr HR Nagendra sees Stress as a state of imbalance. Imbalance at the mental level gradually reflects at the physical levels. Imbalances at the emotional level manifests caused by one's strong likes and dislikes. At the psychological level the imbalances lead to conflicts and often manifest as petty and narrow ego-centric behaviour. Lack of holistic knowledge and a balanced outlook, at the subtle levels are responsible for imbalance found at gross levels.

Thus, while understanding stress, a holistic concept of man is kept in view and not merely his bodily existence. The Taittiriya Upanishad has presented this holistic concept of man systematically as having five major sheaths of existence.

Emotional imbalances in the form of strong likes and dislikes bring about imbalances in prana (the vital energy) in the Pranamaya Kosa (Vital sheath) which percolates to the Annamaya Kosa (physical sheath) causing stress symptoms and hazards. Origin of desires and action guided by strong likes and dislikes (and not by what is right and wrong) will be the expression of imbalance at Manomaya Kosa (Astral sheath). In Vijnanamaya (Wisdom sheath), The avidya goes on reducing until in Anandamaya Kosa (Bliss sheath) it is all bliss. This state is a totally stress-free state.

### **New perspectives in Stress Management**

Yoga has been known from ancient times as a great antidote to stress. People experience its physical and mental benefits, especially when the dangerous Corona is lurking on our head like a Damocles sword. Establishing a

consistent yoga routine is the best way to beat stress, create positive growth and focus on self-improvisation. Let us explore how Yoga and some of the natural Yogic ways can help us address this subtle yet daunting disease?

यमनियमासनप्राणायामप्रत्याहारधारणाध्यानसमाधयोऽष्टावङ्गानि॥२.२९॥

yamanyamāsanaprāṇāyāmapratyāhārādhāraṇādhyānasamādhayo'ṣṭāvāṅgāni ॥

The Ashtanga yoga, the eight-fold path of yoga, includes:

1. Yam (restraining self from many activities which are not approved by social norms and which lead to unhealthy lifestyle as described by yogic tradition)
2. Niyam (observing discipline)
3. Asanas (the physical activity of group of muscles in specific postures and concentrating on self)
4. Pranayama (practice of controlling and regulating once breath in a specific described manner)
5. Pratyahara (withdrawing many pleasures or habits of life)
6. Dharna (focusing once attention at a particular thought or activity)
7. Dhyana (concentrating the thought on a particular figure or reciting spiritual rhymes repetitively to attain a higher level of consciousness)
8. Samadhi (a blissful state of consciousness where one attains complete tranquility and has a feeling of oneness with the cosmos).

The first five ingredients are by regulating self and the external word while the last three are manipulating the internal self which Patanjali has described as Bahiranga (external) and Antaharanga (internal) practices, which may run in consonance to each other or parallel.

Pratyahara is fifth of the eight limbs, composed of two Sanskrit words, prati and ahara. “Ahara” means “food,” or “anything we take into ourselves from the outside.” “Prati” is a preposition meaning “against” or “away.” “Pratyahara” means literally “control of ahara,” or “gaining mastery over external influences.” There are four main forms of pratyahara: indriya-pratyahara—control of the senses; karma-pratyahara—control of action; prana-pratyahara—control of prana; and mano-pratyahara—withdrawal of mind from the senses.

Yogic disciplines which have been described in Upanishad are Karma Yoga (action), Bhakti Yoga (devotion), Gyana Yoga (knowledge and wisdom), Hatha Yoga (yogic asanas), Antenatal (postures and relaxation/breathing), Mantra Yoga (sound vibrations), Laya Yoga (attain transcendence), Raj Yoga (physical and mental purity-Shuddhi), Iyengar Yoga (maintain proper body posture), Kundalini (breathing techniques), Vinyasa (postures with coordinated breathing), Ashtanga (8 limb), Kripalu (psychotherapy), Siddhi Samadhi yoga (meditation and breathing) and Integrated (physical postures, breathing exercises, and meditation)

The great sage Patanjali uses the term (klesha) which aptly describes stress. In his text yoga sutras (yoga aphorisms) he states that we in our original state are totally stress free and blissful. That state, devoid of any tension and pressure, (Even) thinking or feeling is the source of all bliss, knowledge, creativity and freedom. We may call it perfection. Patanjali calls it Svarupa, Self. When this state gets disturbed, when there is an imbalance even at the most subtle level, thinking starts, Avidya – ignorance has set in, says Patanjali. This Avidya leads to further thinking and we start limiting ourselves. Constriction, pressurisation or stress is built up.

Patanjali Yoga Sutra 2.2 (Parisamvad)

### **Klesamulah-Karmasayah-Drsta-Adrsta-Janma-Vedaniyah**

This Sanskrit verse means having Klesa (affliction) as its origin, root repository of Karma seen, experienced consciously unseen, only experienced unconsciously in births to be experienced.

Avidya leads to Asmita the I;ness ego and the associated attachment to ‘I’. Egocentric personalities are characterised by strong obsession, ambitions, likes and dislikes. Emotional imbalances often emerge out of them as upsurges. Else, if they get suppressed, they percolate to the physical level resulting in heart attacks or nerve shattering diseases. When the emotional outbursts like anger continue, we are infatuated and obsessed losing all powers of discrimination and act from the instinctive level. Patanjali called this as Abhinivesa, a state of helplessness, constriction, slavery or. bondage that is the most gross manifestation of stress. He proposed to resort to yoga for thinning of the kleshas ( not a sudden elimination but a gradual systematic process of moving

from higher stress levels to lower ones) and achieving higher states of consciousness characterized by lesser stresses and emergence of greater capacities.

In the Bhagavad-Gita the yoga (scripture of the science of yoga) presents this while process of stress origin, development, aggravation and repercussion in a dramatic narration:

Repeated thinking about objects leads to attachment, attachment to desires, desires (strong likes and dislikes) to anger (greed, lust, fear possessiveness, etc.) which in turn leads to infatuation, lack of awareness and power of discrimination and finally one gets lost.

The dramatic narration matches with the description of Patanjali's comprehensive concept of kleshas. Thinking and imbalance from the perfect state is avidya. Limitations start right there. We get into a repeated thinking loop and develop attachment towards that thought. Ego or Asmita is the result of this crystallised imbalance.

By getting us into better moods, enabling us to be more focused on the present moment, and by encouraging us to give ourselves a break, yoga is a very effective stress reliever. There are several mechanisms in yoga that have an effect on stress levels, meaning there are multiple ways that yoga can minimize your stress levels. Studies show the most effective ways in which yoga targets stress are by lifting your mood (or positive affect), by increasing productivity, by allowing for increased mindfulness, and by increasing compassion. Yoga is now an alternative form of therapy in diseases such as asthma, diabetes, blood pressure, arthritis, digestive disorders and other ailments of a chronic and constitutional nature where modern science has failed. Research into the effects of yogic practices on HIV is currently underway with promising results. According to medical scientists, yoga therapy is successful because of the balance created in the nervous and endocrine systems which directly influences all the other systems and organs of the body.

#### **Asanas (Yogic postures) to reduce Stress**

The Yoga teacher has a very important role to play to help the person to avoid the stress and if at all it is inevitable to counter it successfully. The easy-to-do Asanas that can greatly help you in reducing stress. Savasana, Makarasana, Vajrasana, Bhujangasana, Trikonasana, Virabhadrasana, Padmasana, etc.

The Asanas or Yogic postures work mainly on the brain and nerve connections. There are two functional parts of the brain which are involved in the process of stress. One of them is the 'emotional' part; which serves the emotional function of the brain. Another one is a 'logical' part; which serves the cognitive function.

The emotional part is able to initiate the stress response, while the logical part always tries to turn off the stress response. It also tries to restrain the emotional part of the brain. When the stress response is turned off, the signals from the part of the nervous system which conserves energy and helps in increasing normal body functions (parasympathetic nervous system); are activated. These signals help in relaxing the body.

The stress response and relaxing signals travel through the body along a particular path. There are clusters of nerves along the cervical pathway, known as the vagus nerve which acts like a switch, directly creating and indirectly in the functioning and stimulation of the cranial nerve. Every time one holds a posture, the logical brain is activated. Also, the movements involved in the postures cause the relaxation signals to turn on. This 'stress circuit' gets trained when these postures are practiced regularly for a longer period of time. This helps in the reduction of stress.

Similarly, yogic deep breathing and meditation when practiced properly for a long period of time lead to the optimum functioning of the nervous system and in the development of hidden mental energies which are latent in all individuals. In this way, Pranayama like Anuloma-Viloma or long breathing can make one stress-free. The American Institute of stress in their journal stated 20 to 30 minutes of belly breathing each day will reduce anxiety and stress. Deep breathing increases the supply of oxygen to your brain and stimulates the parasympathetic nervous system, which promotes a state of calmness. Yoga practice helps persons with mental illness by giving a calming effect, increasing awareness, increasing the attention span, acceptance and adaptability and a sense of security.

Swami Vivekananda Yoga Anusandhana Samsthana have conclusively found benefits of the "Integrated approach of Yoga Therapy" (IAYT) which targets all five levels of existence (Pancha Koshas - i.e., physical, (Prana or) subtle energies, mental and intellectual levels), a holistic approach to treat patients with mental illnesses.

In a recent study (2021) Niranjana Parajuli, Balaram Pradhan etc. on effect of four weeks of integrated yoga intervention on perceived stress and sleep quality among female nursing professionals working at a tertiary care

hospital confirmed that after the yoga intervention, perceived stress reduced by 27.01% and the sleep quality improved by 38.68%.

Rosario Andrea Cocchiara, Margherita Peruzzo etc in their *The Use of Yoga to Manage Stress and Burnout in Healthcare Workers: A Systematic Review* analyze and summarize the current knowledge regarding the use of yoga to manage and prevent stress and burnout in healthcare workers. In February 2017, a literature search was conducted using the databases Medline (PubMed) and Scopus. Eleven articles met the inclusion criteria. Seven studies were clinical trials that analyzed yoga interventions and evaluated effectiveness by gauging stress levels, sleep quality and quality of life. A study on Chinese nurses showed statistical improvement in stress levels following a six-month yoga program. A population of medical students showed improvement in self-regulation and self compassion values after an 11-week yoga program. According to the literature, yoga appears to be effective in the management of stress in healthcare workers.

### **Limitations**

Although Yoga is beneficial for all, still there are a few limitations. A few yoga poses should be avoided if certain medical conditions exist like high or low blood pressure, illness, immediately post surgery, sprain or injury, fractures, excessive tiredness, pregnancy, just after meals, going through menstrual cycle or premenstrual, weather too hot or cold or humid also in a hurry.

### **Epilogue**

The Bhagavad Gītā uses the word ‘Yoga’ in many different ways. In the second chapter of Gītā, Lord Krishna has explained the state of ‘Sthitaprajña’; the calm or stable person. (Gītā-2.54 to 2.72). He is the person free from all the mental conflicts, and unaffected by whatever happens around him. That is the highest degree of calmness and a stress-free mind. To attain that stage, Gītā states three prominent ways, namely Jñānyoga, Karmayoga, and Bhakti yoga. Jñānyoga means, attaining stability through the knowledge of the ultimate spirit; Karmayoga means, attaining stability through desire-free actions; and Bhaktiyoga means, attaining stability through implicit faith in divinity.

### **CONCLUSION**

Ashtanga yoga, the eight limbs compiled by Maharishi Patanjali, are very powerful tools of practice. As they are limbs and not steps, there has to be a balanced development of each limb that grows together and seamlessly flows into another. The development of the limbs can be compared to the blossoming of a flower, that spreads its fragrance all around. Yoga is also the practice of Discipline, Dedication, Determination and Devotion and if this attitude is adapted in life it could bring a change like the way in which Mother Teresa adopted and worked with the component of Compassion Karuna throughout her life. Asana, pranayama practices in Bahiranga yoga the external aspect of eight fold yoga facilitate to reduce stress and increase emotional stability whereas Antaranga yoga the internal the inner path of dharana, dhyana and Samadhi help the mind to get concentrated with the practice of meditation. Yoga has to be performed as a way of life. One cannot reach a state of bliss or Ananda without the regular practice of each limb of Ashtanga yoga.

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**STUDY OF ONLINE LEARNING AND ITS IMPLICATIONS ON STUDENTS AND THEIR FAMILY MEMBERS AS PERCEIVED BY STUDENT'S COMMUNITY**

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**1.1 INTRODUCTION**

Students in India were accustomed to classroom learning where face to face interaction with the teacher's was the key to establishing a good rapport with education. Since the 'Gurukul' age the students are comfortable under the competent guidance of their teachers. Exploring new avenues of life becomes easier when they learn subjects taught to them with a handholding approach. The Pandemic seems to disrupt this comfort zone of students. The national lockdown forced the colleges to shift to online learning which has a severe impact on students. The new normal for the academic world wished to embrace the online learning mode as an inevitable mode.

Yet students have to battle out against many odds. Not only they but their families seem to suffer from the setback in terms of anxiety, uncertainty and economic burden. The research paper titled "Study of Online learning and its implications on students and their family members as perceived by Student's Community." tries to reveal the perception of students about online learning and to analyze the impact on their family members because of these changed trends.

**1.1.1 Factors influencing Changes in Learning Methodology:**

The immediate changes enforced in field of education were an outcome of security norms set by government to battle out the Pandemic. This sudden change that occurred in March 2020 shook over the unprepared student's community. Several factors to be reconsidered by the students and parents included-

**Infrastructural Readiness:** The very declaration about e- learning initiated a need for infrastructural readiness for virtual mode. Organizing Computer / Smartphone with Internet connectivity became priority for students.

**Distant Learning and Involvement:** Learning from a place outside the classroom requires complete dedication. The atmosphere and place where the learning happens need to be pro to absorption of knowledge by students. Outside location showcase challenges in terms of external disturbances, interruption and distractions from attentive learning. Thus to focus on learning a conducive environment becomes an essential requirement.

**Renewed Mind-Set and Rational Cognitive Thinking:** With limited resources, sharing with a selfless attitude is the only solution. In families having two to three children who are studying simultaneously it is a big burden on parents to organize all required amenities for their smooth and uninterrupted learning. This invites students accommodating requirements of siblings along with their own necessities.

**Skill Building - The Technical Dimension:** Students need to embrace the opportunity to acquire technical skill sets in changing world. Technology is rapidly evolving and while students expect them to get job ready they should be well versed with the up to date technical advancements. Online learning poses this opportunity to the students to become techno savvy.

**Better Tools and Methods for Gaining Knowledge:** Apart from the traditional learning in classrooms, there is a vast ocean of information that adds value to education. Students need to explore this hidden treasure. The tools and rich information sources available on Internet are the backbone for online learning.

**Evaluated - Yet Differently:** Evaluation of learner's performance is must. The traditional exams were more of a subjective manner and were based on Rote learning. Today the objective evaluation patterns developed to suit the online mode of education ensure students are aware of exact concepts.

**Accomplishment of Learning Goals:** The ultimate goal of education is enlightenment. Among the chaotic surroundings students get engrossed in family miseries and the main goal of acquiring knowledge, managing time and other resources gets diluted. Learning from home calls for a real need of dedication and focus toward academic goals.

**1.1.2 Factors affecting Family Members:**

Family members directly or indirectly get affected by the e-learning mode of education. Factors perceived by students causing development or disruption to their family members include-

**The Positive Dimension:**

- Parents feel relieved as their wards study from home in safe environment.
- Parents feel proud because of the technical prudence their ward acquires at young age.
- Family members feel satisfied with time spent together with children at home.
- Families particularly parents can monitor their wards learning activities.

**The Concerns:**

- Parents have faced economic burden and financial pressures to meet the infrastructural needs.
- Parents seem to be worried about the actual outcomes of e-learning.
- Family members need to plan their routines ensuring no disturbances arise in the up-gradation journey.
- Every member in family needs to share the available scarce resources.

**1.2 STATEMENT OF PROBLEM UNDER STUDY:-**

Education is a field expecting valuable contribution from its versatile stakeholders including academic administrators, teaching community, student community, parents and the other family members. The performance of the students who are the torch bearers of our nation's future cannot be compromised. The Pandemic has imbalanced the equilibrium of social lives. This includes the impact on education sector and the influence it has on the student's development. This research paper titled "Study of Online learning and its implications on students and their family members as perceived by Student's Community." is thus aimed to understand the changes introduced to the world of academics with the mandate of online learning and the students perception about it. It also tries to explore the pros and cons of this new education system those influence the family members and their thinking as perceived by the students.

**1.3 REVIEW OF LITERATURE:-**

Sun, A. et al (2016) have recommended critical guidelines about online learning. Researchers suggest that for benefits of online learning mode the teachers and students need to count on building framework for evaluating, application and exploring self potential and objective of learning. To establish effective virtual learning programs complementing physical learning a systematic planning with respect to content development and its influential delivery are essential.

Aman Jindal et al (2018) have described need of reforming education and its application to make it more practically oriented for youth. Authors suggested rightly that technology is the appropriate platform for devising novel ways of enhancing the social skill sets in learners providing them opportunities to progress in an online education atmosphere.

Shivangi Dhavan (2020) has conducted a very appropriate strength and weaknesses analysis of the e-learning mode of today's world facing pandemic. Researcher has highlighted the agility of this mode as biggest advantage whereas described technical availability and abilities being a major barrier. Researcher also suggests grabbing the opportunities for developing a technology based novel solution to problems still staying aware of the hurdles in infrastructure and investment issues being overcome.

Naik G.L. et al (2021) have highlighted the major transition that occurred in education system with the advent of pandemic. Authors have pin pointed the specific problems faced by students in studying numerical problem based subjects as compared to theoretical subjects in online mode along with the other technical and infrastructural challenges. In the opinion of authors students feel a need for a hybrid methodology inculcating online mode for regular learning with face to face revisions of difficult topics.

Daniela, L. et al (2021) have elaborated the situation from the perspective of parents of wards obtaining online education. Researchers highlight the fact that this mode of learning is challenging for the students and more organized way of dealing from the teaching community is being expected to facilitate the budding learners.

**1.4 OBJECTIVES OF THE STUDY: -**

1. To study the perception of students with respect to the changes introduced to their knowledge acquisition process through online mode of education.
2. To identify the pros and cons of the online learning mode as felt by the family members of students as perceived by the students

**1.5 RESEARCH METHODOLOGY: -**

The primary aim of research was to understand the perception of students from colleges hence the respondents were selected from higher education programs. The sample size selected was 150 students from different demographic and academic backgrounds for gathering the realistic views of students required for the study. The structured questionnaire was split in four major sections pertaining to students profile – 10 questions, study of perception related to online educational mode – 10 statements seeking opinions, study of perception about the impact on family members – 8 statements seeking opinions and lastly 2 questions were asked related to present scenario analysis. Secondary data was collected from research papers and articles presented in conferences, magazines etc. which were relevant to the topic.

This research focuses on identifying and analyzing opinions about comfort and challenges faced by students about the new online learning modes they were forced to undertake because of the pandemic situations. The study also tries to explore the thought process their family members are going through as perceived by the students themselves.

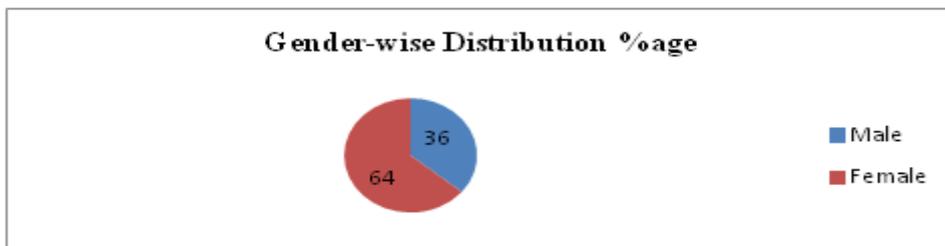
A simple percentage method is used to analyze the collected data.

The major limitations of research include limited sample size and simple analysis techniques. Also this research provides insight about the perspective of family members from the student’s view point rather than them being primary respondents.

**.1.6 ANALYSIS AND INTERPRETATION OF PRIMARY DATA:-**

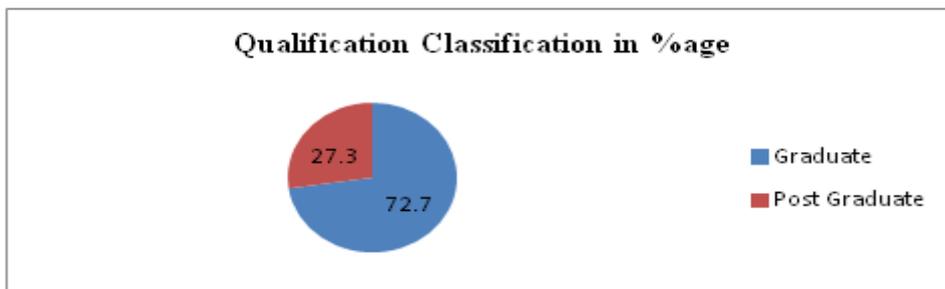
**A) Student’s Profile:**

a) Gender profile:



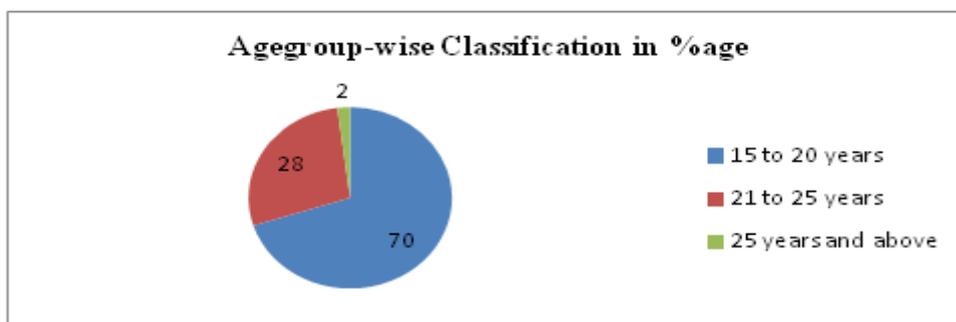
64% Female student and 36% Male student respondents contributed to this research.

b) Qualification Profile:



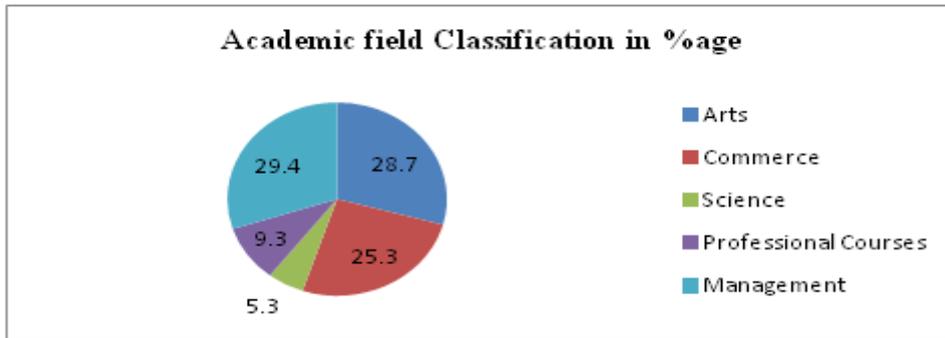
72.7 % respondents pursuing Graduation studies and 27.3% respondents pursuing Post Graduation studies participated in the research survey.

c) Age Profile:



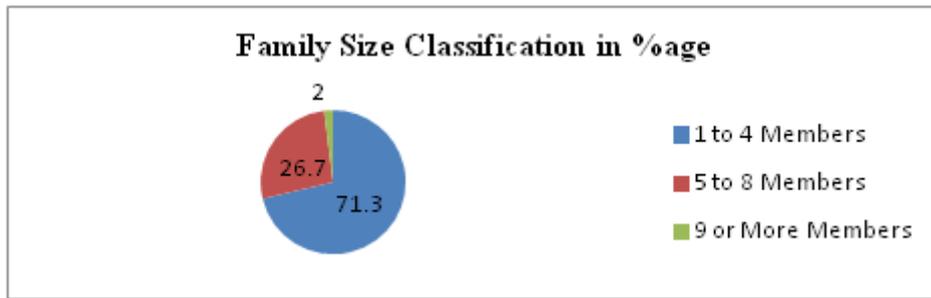
70% respondent students were from age group of 15 to 20 years followed by 28% being from age group of 21 to 25 years.

d) Academic Field:



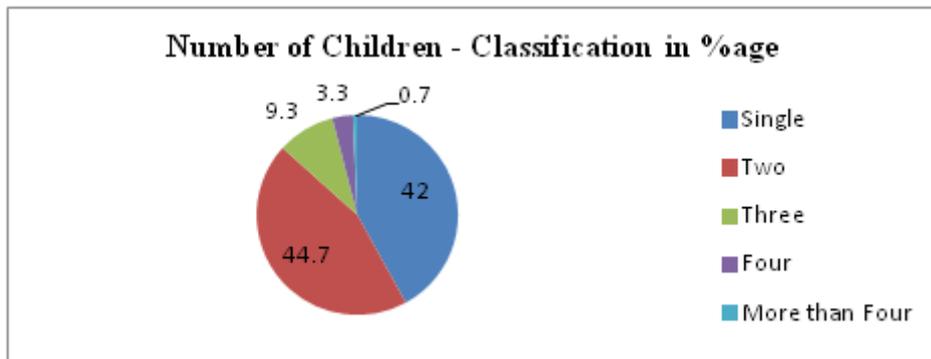
Highest number i.e. 29.4% respondent students were from Management field followed by 28.7% from the Arts stream and 25.3% from Commerce stream.

e) Family Size:



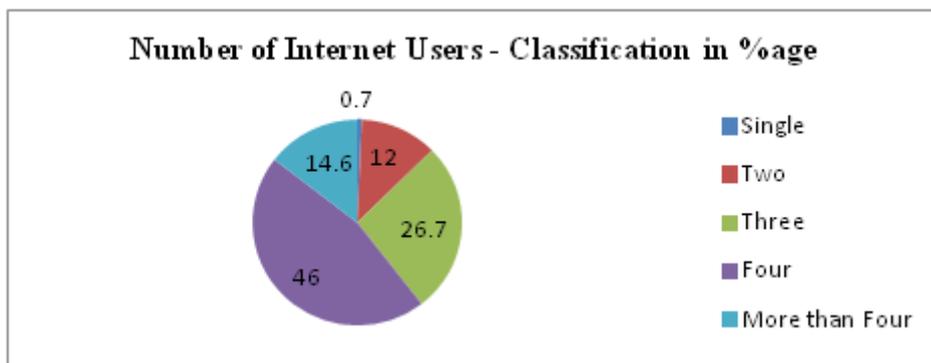
Majority of the respondent students are from families having size confined to 1 to 4 members.

f) Children in Family:



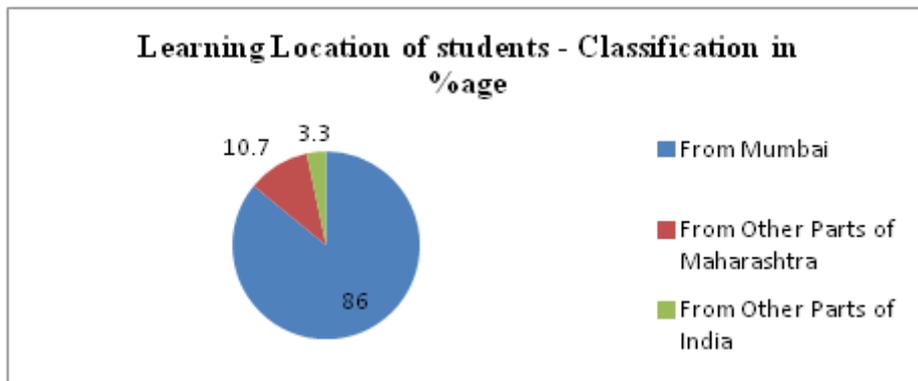
Maximum i.e. 44.7% respondents reported to have 2 children in the family they belong to followed by 42% students come from a family having just a single child.

g) Internet users in family:



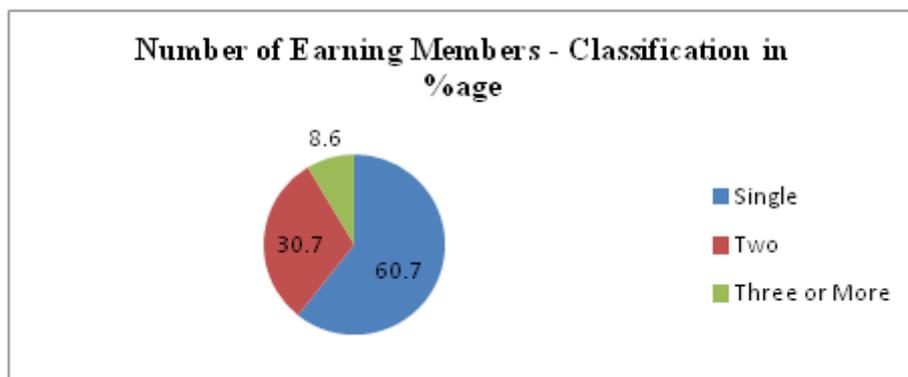
46% respondent students reported to have 4 members in family using Internet followed by 26.7% students come from a family where there are three members in family using Internet regularly.

h) Learning Location of Students:



Majority i.e. 86% respondent students were participating in learning activity from Mumbai.

i) Earning Members in family:



Maximum i.e. 60.7% respondent students come from families having a single earning member.

**B) Students Perception about Online learning mode of Education:**

Perceptions were recorded on a range of scale as under:

1-Strongly Disagree, 2- Disagree, 3- Neutral, 4-Agree and 5- Strongly Agree.

Stmt. No.	Statement for Opinion	% SD	%D	%N	%A	%SA	Highest Response
B1	It was easy shifting from physical classroom education to online mode.	14.67	22.67	34.67	20	8	Neutral
B2	Newer skills were required to be learned in this transition.	3.33	12.00	26.00	41.33	17.33	Agree
B3	Arranging prescribed infrastructure suitable for online sessions was the first challenge felt.	4.00	6.67	34.00	35.33	20.00	Agree
B4	There are distractions or disturbances in learning while studying from home as compared to classroom learning.	3.33	10.67	18.00	20.00	48.00	Strongly Agree
B5	Online learning is constrained by resource sharing like Internet bandwidth, device availability etc.	2.00	6.67	25.33	37.33	28.67	Agree
B6	Online learning has improved student's technical skills while learning using digital devices.	6.67	14.00	30.67	26.00	22.67	Neutral
B7	Exams and evaluation have become	8.67	8.67	19.33	40.00	23.33	Agree

	different and more objective knowledge and question oriented.						
B8	It requires a focus to concentrate on learning goals in online learning as compared to physical face to face learning in classroom.	2.67	9.33	24.00	32.67	31.33	Agree
B9	Online learning provided an opportunity to know newer platforms of interaction, learning and information searching.	2.67	8.00	25.33	35.33	28.67	Agree
B10	Online learning comparatively has limitations about concept understanding and personal attention from teachers.	5.33	6.00	23.33	28.00	37.33	Strongly Agree

<b>Key Interpretations</b>
<b>34.67%</b> respondent students have preferred to stay <b>Neutral</b> , followed by <b>22.67%</b> respondents those <b>Disagreed</b> to ease in transition to online mode.
Maximum i.e. <b>41.33%</b> respondent students <b>Agreed</b> to the fact that new skills were needed for this online mode of education.
Majority of respondent students i.e. <b>35.33 % Agreed</b> that the organizing of infrastructure for online platform was the first challenge felt by them in this transition.
<b>48%</b> Respondent students <b>Strongly Agreed</b> to the fact that there is lot of background disturbance in learning outside the college campus.
Highest number of respondent students i.e. <b>37.33% Agreed</b> that online learning is affected adversely by resource availability and sharing.
<b>30.67%</b> respondent students have preferred to stay <b>Neutral</b> , followed by <b>26%</b> respondents those <b>Agreed</b> that online learning improvised the student’s technical skills.
Maximum i.e. <b>40%</b> of the respondent students <b>Agreed</b> to the point that exams and evaluation patterns show significant changes in online learning.
Majority of the respondent students i.e. <b>32.67% Agreed</b> to the fact that more attention and focus for attaining learning goals become essential in online mode.
Maximum respondent students i.e. <b>35.33% Agreed</b> to obtain opportunities for knowing newer methods of learning in online mode.
Majority of respondent students i.e. <b>37.33% Strongly Agreed</b> that Online learning has limitations in obtaining personal attention and doubt clearing.

**Part C) Perception of Parents about Online Learning as viewed by Students:**

Perceptions were recorded on a range of scale as under:

**1-Strongly Disagree, 2- Disagree, 3- Neutral, 4-Agree and 5- Strongly Agree.**

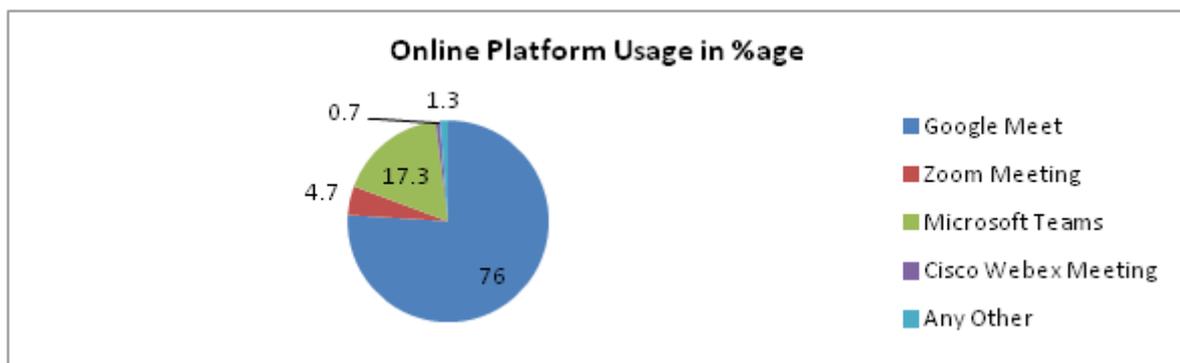
Stmt. No.	Statement for Opinion	% SD	%D	%N	%A	%SA	Highest Response
C1	Parents feel Online learning is a secure mode to learn in Pandemic situations.	6.67	13.33	27.33	28.67	24	Agree
C2	Parents feel happy and satisfied when they see their ward using latest technologies.	9.33	18.67	34.00	26.67	11.33	Neutral
C3	Family members feel happier to spend more time with student which otherwise was difficult in pre-pandemic days.	7.33	16.67	30.00	29.33	16.67	Neutral
C4	Parents feel that they have better control on learning activities of their ward as they	8.00	16.00	36.00	32.00	8.00	Neutral

	are under their personal supervision.						
C5	Parents have felt the economic challenges and financial burdens in organizing the infrastructure for online learning.	8.00	12.67	25.33	34.67	19.33	Agree
C6	Parents have doubt about the actual learning outcomes of this online education mode.	6.00	4.67	28.67	30.00	30.67	Strongly Agree
C7	Family members routine is bit disturbed due to student’s online sessions and their requirements to be fulfilled.	7.33	10.00	21.33	32.67	28.67	Agree
C8	Family members need to share the available resources like Internet bandwidth, digital devices etc. with students for their learning.	5.33	3.33	25.33	38.00	28.00	Agree

<b>Key Interpretations</b>
Maximum i.e. <b>28.67%</b> respondent students have <b>Agreed</b> that their parents feel online learning to be a safer mode in pandemic situations.
Interestingly About <b>34%</b> respondent students have preferred staying <b>Neutral</b> , followed by <b>26.67%</b> respondent students who <b>Agreed</b> that their parents feel happy when they see their children using latest technologies.
Interestingly About <b>30%</b> respondent students have preferred staying <b>Neutral</b> , followed by <b>29.33%</b> respondent students who <b>Agreed</b> that their parents feel happy when they spend time with their wards.
Interestingly About <b>36%</b> respondent students have preferred staying <b>Neutral</b> , followed by <b>32%</b> respondent students who <b>Agreed</b> that their parents feel that they are in position to establish better control on student's learning activities.
Maximum i.e. <b>34.67%</b> respondent students have <b>Agreed</b> that their parents have gone through a economically challenging situation in this transition.
<b>30.67%</b> respondent students <b>Strongly Agreed</b> that their parents seem to be suspicious about the learning outcomes through online learning mode.
<b>32.67%</b> respondent students <b>Agreed</b> to the point that their family members suffer from disturbed routines because of the online learning activities of the students.
Maximum i.e. <b>38%</b> respondent students <b>Agreed</b> that their family members need to share the available technical resources with students for their learning activities.

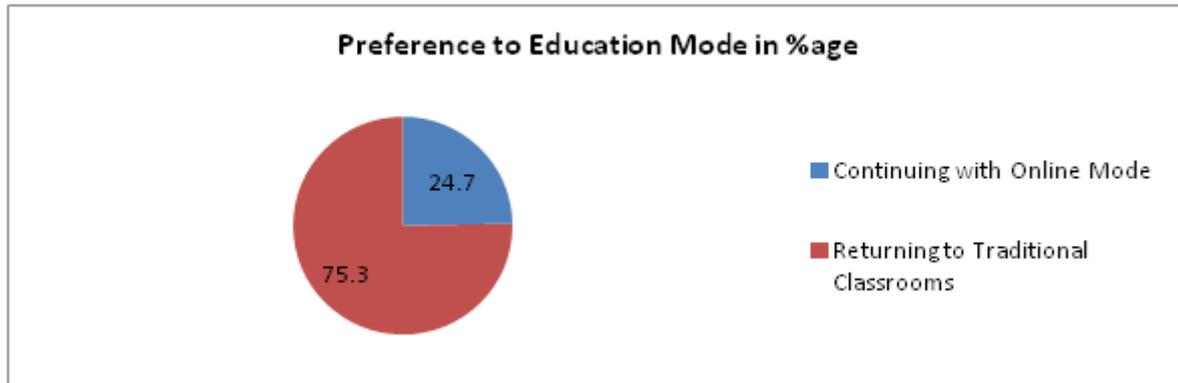
**Part D) Current Situation Analysis:**

a) Online Platforms of Learning:



Majority respondent students i.e. 76% are using Google Meet as online learning platform, followed by 17.3% of them using Microsoft Team.

b) Preference about Education Mode:



Majority respondent students i.e. 75.3% prefer to go back to the traditional classroom mode of learning having face to face interaction with their teachers.

### 1.7 CONCLUSION: -

In the Pandemic affected era the education field has undergone a transition from physical learning in campus to online learning. Students being affected with this transition need to cope up with infrastructural readiness, acquiring new skills, dealing with disturbances, lack of concentration, assessment issues and constraints in getting personal attention from teachers. Parents too seem to have a mixed mindset with regards to Online learning, where though they are happy about their wards learning with newer technologies and being safe with them on the other hand are having doubts about the learning outcomes and are burdened by managing the resources required. Thus though students get a chance to learn new technical tools majority have largely opined to prefer returning to their original conventional classrooms for physical learning.

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**SMARTPHONE, A DISRUPTIVE INNOVATION.****Sharvari Shailesh Sawant**Student, Department of Political Science, KET'S V.G.Vaze College of Arts Science and Commerce,  
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**ABSTRACT**

Surely, Smart Phone is a completely a blessing to mankind but naturally this Smartphone has taken away jobs of so many things which were the most important part of human lives before the introduction of the Smartphone (android / apple touch screen phones).

There were landlines used allover first but now it is a topic for discussion for the new generations!, also mobile phones were introduced by Nokia, but had a very basic functions such as to give a call, type and send a message and to play a few games, but with the introduction of the smartphones everything has changed smartphones helps us to use various internet applications and social media websites for which we had to use the computers and laptops, we can also even set alarms for which we had to use first alarm clocks, now even there is no need of papers or notebooks to use, just open up the notes application from Smartphone and we can take down the important notes and stuff, we can now save a huge contact list without remembering the numbers and the Diaries have completely gone away. These are very few examples to take into consideration. In a smart phone now everything is easy and accessible. You can set alarms, call and also face time with your loved ones wherever you are, you can create documents, Pdfs, presentations, data and Excel sheets, you can even send it to print just using your mobile. The theatres may even undergo at risk in the future because the OTT platforms are at arise which are mostly viewed in smart phones. Even the cyber cafe's got turned down after the introduction of Google, Play Stores etc., which helped this human race in everything is now available at our fingertips.

The LIMITATIONS of this paper is that it only takes into account of various uses and benefits of having a smartphone in the times we live in and how just one smartphone has every possible thing in it.

Keywords - Smartphone, Uses, benefits, introduction, Disruption, disruptive innovation.

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**INTRODUCTION**

SMARTPHONES are one of the most disruptive innovation ever made. It has disrupted so many industries and technologies and made our life more simpler.

Smartphone has added so many things to our lives and also made our life easier and more comfortable but yes surely very quick.

During this lockdown, smartphone has played a very important role in our lives we could do everything and anything through smartphones Lockdown, for sure became less boring due to smartphones and also became a help to so many.

Smartphones have added a charm. Surely, it helps human in almost everything, yes we have already seen it but just one smartphone becomes more of help than a hazard.

**ACKNOWLEDGEMENTS**

I express my heartfelt and sincere thanks and gratitude to the KELKAR EDUCATION TRUST'S VINAYAK GANESH VAZE COLLEGE OF ARTS SCIENCE AND COMMERCE, MULUND EAST, MUMBAI 400081. For lending me this opportunity to present paper on such a amazing topic in the international conference.

The world we are living in, is completely changed is all because of Disruptive Innovations made and made lives more easier.

Again a sincere thanks to the college for organising such a wonderful Conference and letting me learn so many new things and helped me grow and gain knowledge from so many things which were not introduced before.

Also, not forgetting each and everyone who helped in this research and made it more interesting and helpful to everyone.

A sincere Thanks once again!.

**OBJECTIVES OF THE STUDY**

1. This study mainly Aims at studying the various uses and benefits which a smartphone provides. Smartphone provides a number of benefits which has become a part of our lives. So many things have

become easy due to the arrival of smartphone.. Giving a call is now more easier than the landlines and PCO calling; facetimeing friends, relatives and important ones is just a click away. Before the introduction of smartphones we had to carry or keep so many things like A clock and also a alarm clock, a wrist watch, paper and letters and envelope to post with stamps, first we had to go to the bank for transactions but now it's easy with mobile banking. These are very few examples of how Smartphone has changed our lives and also made it easy. Hence, Smartphone has more benefits to mankind and helps in quicker progress.

2. Also to interpret various applications which run as a software in a smartphone which were not before. For example :- letters and envelopes now run as a messaging application, digital cameras now are there in smartphones like a high quality DSLR cameras, first there were board games like Chess and Snakes and Ladders, Ludo now all enjoy it in a smartphone under gaming application etc.,. The *LIMITATIONS* of this paper is that it only takes into account of various uses and benefits of having a smartphone in the times we live in and how just one smartphone has every possible thing in it and how other commodities lost their Monopoly in market and were not able to compete with the Smartphone market.

**STATEMENT OF THE PROBLEM :-**

as stated earlier smartphones have added is to our lives and have added so many elements to get engaged in. Smartphones not only give access to view News, videos, to do important stuff but somewhat adding Ease to our life, it has really taken away our boredom but has added more of a lethargy in life. This problem has addressed in this study further.

**SOURCES USED FOR DATA COLLECTION :-**

For Collecting information on such a amazing and broad topic both the DATA COLLECTION METHODS were used (primary and secondary).

A survey was done through Google forms asking participants about their views on Their Smartphones and how it becomes a help or Disaster. The Survey was only restricted to the views on a Smartphone.

Also, various articles were reviewed to collect the data on smartphones from the Google Search engine and the links of the same are attached at the end.

**RESEARCH METHODOLOGY :-**

1. A survey was done through Google forms for 80 participants of Age above 15 years. The Survey was done to get views on what they feel about their Smartphone and how it is important or not and what they wished how better it could get. Interpretation of the same is done below.
2. Also, many articles were reviewed to collect the data on smartphones and also for the Sales of other commodities like did it gain or lose their markets against Smartphone.
3. The data was collected by the Google search engine and the links of the same are attached at the end of this document. The information has been taken precisely just to interpret or analyze what Smartphone holds globally from various websites which have uploaded the accurate information and has helped this research to completely go on to a next level.

**HYPOTHESIS OF THE STUDY :-**

- The study includes how gadgets which used to work as an 'independent hardware Gadgets' are now a part of Smartphones.
- The increasing use of Smartphones have led the other industries of hardware devices got turned down.
- If we increase the use of smartphone then the sale of Other goods, commodities and services for example text books, books, wristwatches, printing press., etc, will get reduced to a greater extent because everything is available inside the Smartphone.
- In the survey taken the participants felt about the smartphone as more of a *help* than a *hazard* and Expressed their views on Traditional Methods and Smartphone Methods.

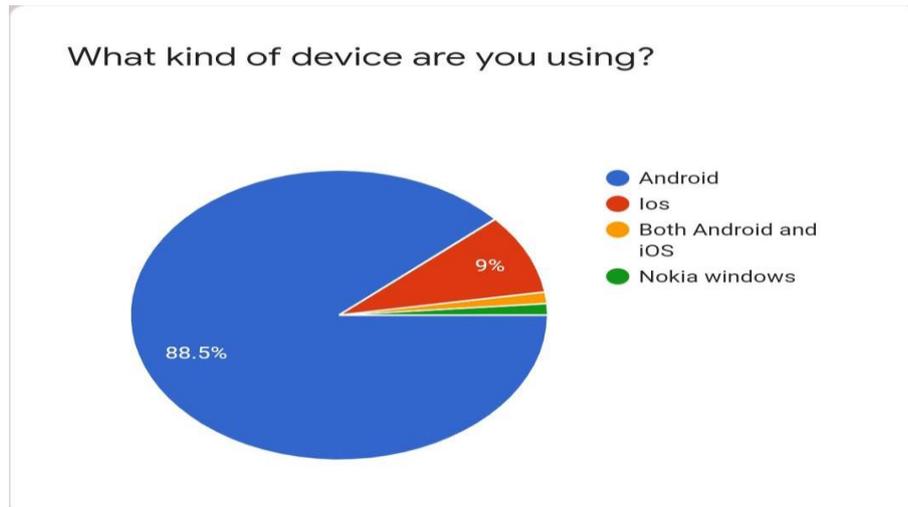
**ANALYSIS AND INTERPRETATION OF DATA :-**

*Analysis and Interpretation of the Survey taken.*

<https://forms.gle/WKRVLnL7Eiqg7w968>

The survey was taken to know the views of participants on a Smartphone and what they feel about it and how important factor it is in their day-to-day lives.

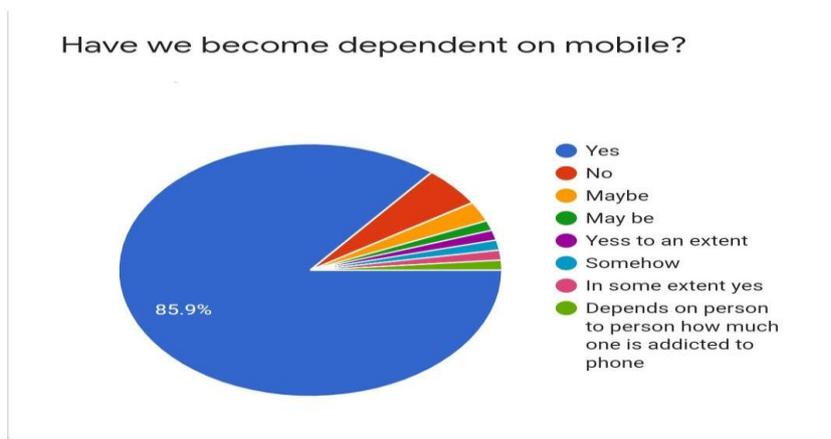
Few were open ended questions and only four were closed ended questions and the interpretation of it is as follows.



1.

The first question which was asked was about What kind of a device or what type of smartphone they were using?

- So, almost mostly 88.5% of the participants were using Android Smartphones.
- 9% of the participants were using ios smartphones.
- 2% from the participants were using both type of smartphones that is android and ios.
- And only 1 participant was using Nokia device Windows device, that is 0.5%.
- Here it is clear that, Android devices are the most used and we can also interpret here that most of the android phones are only considered as smartphones.
- Simply, Smartphone = Android phone.

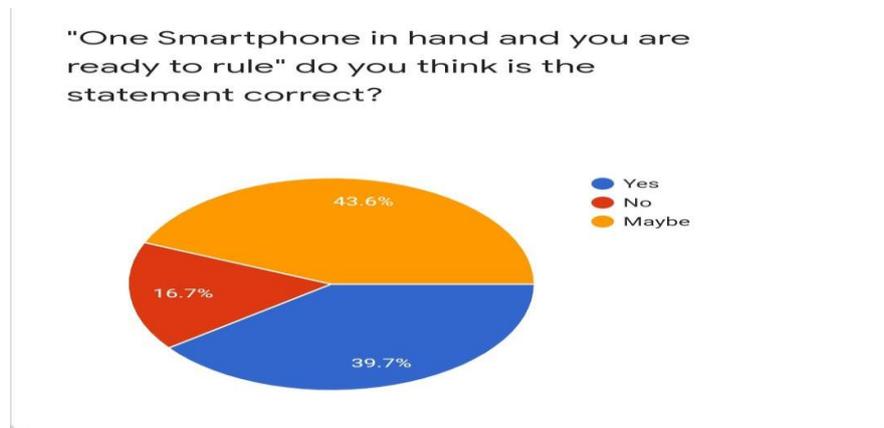


2.

The next question which was asked was that Have we become dependent on smartphones?

- From the total number of participants almost most of the participants felt that they are dependent on their smartphones and an instant answer 'YES' was chosen by 85.9%.
- Few felt 'NO' that they were not dependent on smartphones and gave reasons such as they are knowing their limits in using a smartphone and few felt it is a part of our lives but not our life.
- Few participants also felt it is not a product we can depend upon all the very time but it is to each and every person how he/she uses it and makes most out of it.
- Very few participants participated in the survey felt that Smartphone is not everything., it is a very helpful innovation and has helped the mankind in so different ways but an individual cannot depend on it completely.

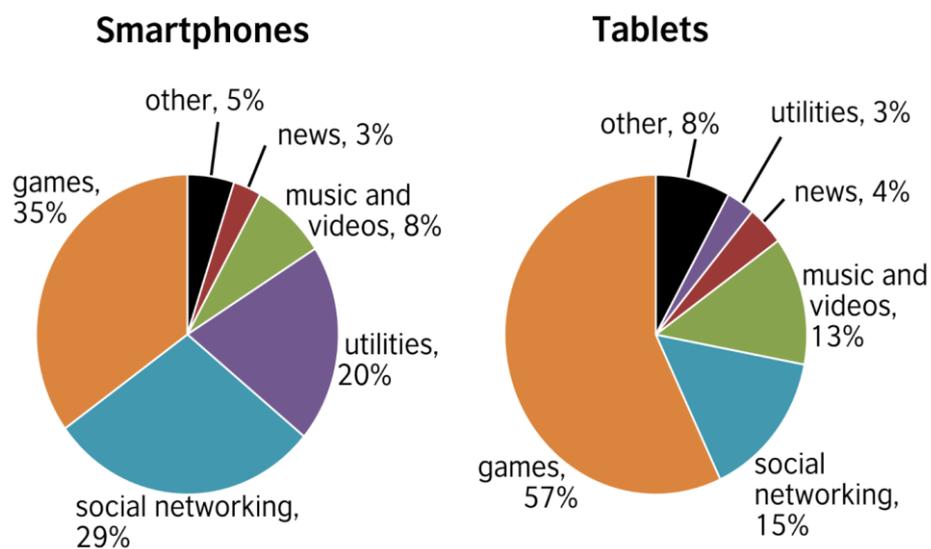
- Here, it gets clear that almost most of it felt that smartphones are very helpful to them and make them feel comfortable when they have a smartphone. It acts as an instant solution to them.
- The answers given by the participants are shown in the figure 2.



The next question which was asked was about the smartphone as more important or not, that is 'one smartphone in hand and you are ready to rule' and The answers given by participants were really very surprising.

- Only 39.7% of the participants felt 'YES' about it and explained it as yes it is a very important innovation and if we have our smartphone then the work, life, world etc., becomes easy to understand and comes closer and is available on clicks.
- Few even said why they chose the option as yes, because smartphone has helped them in the times of corona pandemic and they were able to look after their academics and work simultaneously just by using their Mobiles.
- 16.7% of the participants said 'NO' and felt all the important stuff for them was not alone done on smartphone. It helps them but it is not the only thing which they feel it is going to help them in every situation.
- and surprisingly, 43.6% participants answered 'MAYBE' as they felt it is one of the help to us in our daily and professional lives and Smartphones are not the only thing which helps to succeed.

**Time spent on smartphones and tablets, by category**



4.

The next question which was asked was about the time spent on Smartphones and Tablets and for what they use the most.

**FOR SMARTPHONES :-**

- Participants quickly answered about the use of their mobile for daily utilities and professional purposes and most for the use of social networking sites and others which are listed in the above image 4.
- From the participants, few were teacher respondents and even they felt that the classroom came more closer and it became easier to use smartphone ,so they have also started spending more time than before.

**FOR TABLETS :-**

- Participants said that they used tablets most for Gaming purposes and very less for daily or personal use.
- Tablets give them a wider screens to play games and gives them realistic feeling while playing.
- The other highest use was for to watch Movies, videos etc., as again the participants responded that the wider screens of the tablet are much better to view than smartphone.
- Tablets are also used for other activities but the percentage is quiet less.
- Smartphones here can be seen, is used in day to day utilities and mostly for social media platforms and gaming purposes.
- Tablets are widely used for Gaming purposes and to watch videos and movies and very less for daily or personal use which can be clearly seen in the figure 4.

Participants first felt Smartphone have so much changed their lives which was not few years before or for a few, a decade ago.

The devices which they use feel to them more of a help and know the correct usage of it and see it more as a tool to get early access to everything.

Also, participants spoke upon how smartphones help them in getting doing things early and make their lives more easier.

Few felt it is important part of their lives, as for some it helped in the lockdown to earn a living, for some it was the best place for entertainment or for the place to find everything after searching it on smartphone.

Also, participant spoke about the traditional methods and the smartphone methods.

The participants where asked about the old days without the smartphone where traditional methods like - writing and posting a letter in the post, going in the bank for our work rather than net banking, pco calls over unlimited calls etc., were used for the times we are living in.

90% participants felt that the newer and smartphone technology is best as it is consuming less time and gives more time for other creative activities.

These participants felt that the traditional methods were surely had feelings of attachment or the worth of every moment but were more of time - consuming and needed more efforts,

new or smartphone Technology have better facilities, time - efficient and effortless, quick and more dynamic.

Only 10% of the participants felt that traditional methods were good and kept more lively connections with people even though everything was distant, but then too they felt that newer technology of smartphone is the best, as to cope up with the today's world this technology is surely a savior.

Overall, participants felt that smartphones are very important into this life and will help us more in upgrading ourselves and will help us to develop and stay with this world.

***Applications in a SMARTPHONE***

Smartphones have impeccably changed our lives for a greater extent but they are greatest Disruptive changes it brought with it.

Camera, calculator, dictionary, phone diary, radio, music list, watch, Notepad, e-news etc., or to name a few, we have considered these as smartphone applications which are for our help but this was not before this disruptive innovation.

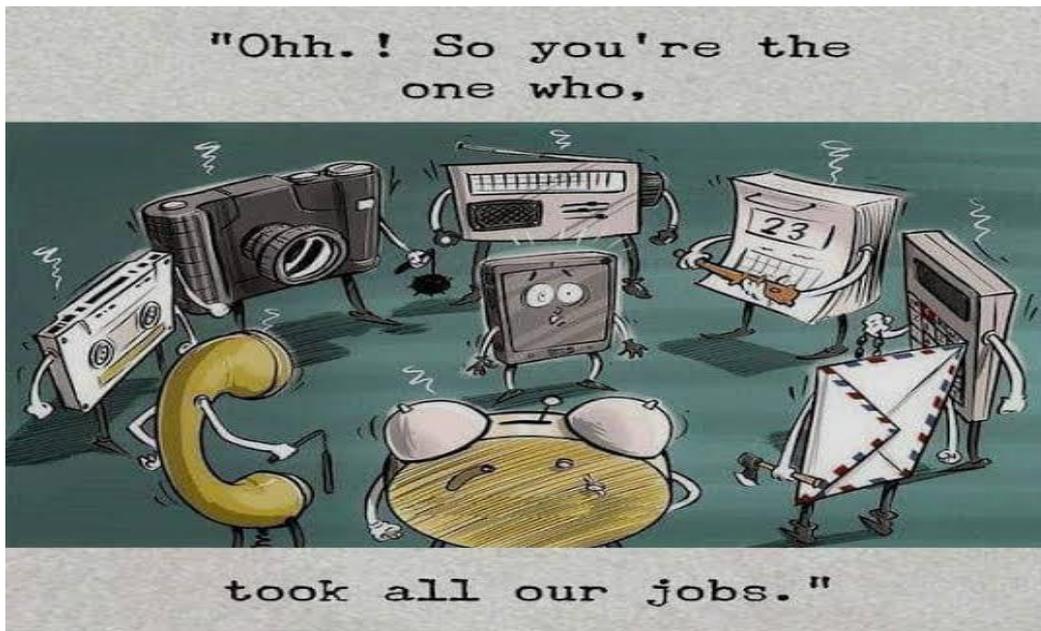
We had digital cameras, square-shaped calculators and scientific calculators, a radio in every house was a must, in the morning setting up the radio picking up the newspaper delivered at the doorstep and having tea was a regular start of those old days in every household but now everything is there in a mobile.

There used to be 3000 paged dictionaries before in every house sitting in pride in every bookshelves but now this thing is completely changed now we have a smart phone to answer and cater all and every need and easiest way to find meaning and answers.

Phone Diaries are completely going to extinct as our phones are ready to help and save a huge contact list without any problem; alarm clocks are the best example to us. Now we set alarms in our Smartphones and have become a part of our lives.

Smartphone has changed everything which was not before life is more easy now and people get more creative and learning time, upgrade and develop themselves to a greater extent.

Below 2 images IMAGE 1. AND IMAGE 2. best explains about how smartphone becomes the greatest disruptive Innovation and how applications which used to run as the hardware now run as a software devices in the Smartphone.



**IMAGE 1.**



**IMAGE 2**

**SIGNIFICANT FINDINGS :-**

- Smartphones (touchscreen Android /ios phones) are one of the most disruptive invented products in the last two decades.
- A Smartphone does it all helps you in saving more time adding more productivity in you.

- Traditional methods like writing a letter and posting it in post, using a landline with no scope for mobility, use of dictionary and books., etc were more time consuming.
- One Smartphone and you are ready for the world we live in.
- Smartphone,more acts as a Help than Hazard.
- More like one smartphone in hand and we are ready to rule.
- Before this invention various applications use to run as independent gadgets now all work under or in a SMARTPHONE.

**CONCLUSION :-**

Smartphones are overall helpful innovation, they have solutions making them more of a helpline than hazard.

Smartphones are the devices of great utility that many people find necessary in their daily and professional life.

So, surely in a nutshell everything that Smartphone does is surely of great help and makes lives more easier for the Mankind and making it more of a help to everyone!.

**SUGGESTIONS AND RECOMMENDATIONS :-**

Nowadays, Smartphones and companies inventing it, adding widescreens and too slim feature technology and now even foldable smartphones are available and too many features are getting added in a smartphone.

Smartphones which currently we are using are the best and adding something irrelevant like 4 to 5 cameras is just something for marketing purposes and making the smartphones more unrealistic to use.

We have appetites for huge screens but making smartphones like tablets will make them lose their markets.

Adding Too many wider screens and too many cameras will make this not so useful disruptive innovation as it may take away the interest from the users.

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**SHOP FROM HOME – A DISRUPTIVE INNOVATION IN THE BEAUTY & FRAGRANCE AESTHETIC****Sadhna Sanjay Kini**Brand Registrations (Regulatory Affairs) Professional, Mumbai

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**ABSTRACT**

*'Time is Money' is a very old proverb but its sanctity has always been understated and undervalued until a few years ago, especially in the field of Beauty and Fragrances. The two fields have co-existed and transformed parallelly with humans right from the Egyptian and Mughal queens (Cleopatra and Nur Jahan) to the modern-day beauty queens (Marilyn Monroe & Audrey Hepburn). Even with the invention of e-commerce in the late 1900s, consumers always refrained from buying cosmetics online due to their customized needs – be it shade selection of foundation and lipsticks (based on skin tone) or choice of skincare products (based on skin type). Similarly, frag-heads have always preferred olfactory evaluation for sensorial satisfaction before the purchase. However, the COVID-19 pandemic pushed the world behind the doors and shut down the brick-and-mortar stores bringing about an aesthetic gap. The consumers who were habituated to visiting these stores had no option but to give in and procure the cosmetics and perfumes online. Even after the restrictions were relaxed and stores opened for the public, the try-before-buy and consult the professional concepts at the stores turned obsolete owing to the risk of transmission and virulence of the virus. Hence, the global beauty and fragrance industry welcomed the two disruptive innovations: Artificial Intelligence (AI) and Augmented Reality (AR) with open arms. These technologies not only bridged the gap of aesthetics (by giving a feel of virtual reality to the shoppers) but also helped the industry stay afloat amidst this harsh economic typhoon. They've disrupted the traditional shopping protocol and have trained the consumers in the Shop from Home concept helping them realize the true essence of 'Time is Money'. This research article focuses on the brands of the beauty and fragrance spectrum that have collaborated with AI and AR to develop virtual interfaces for making online shopping a consumer-friendly experience.*

*Keywords: Artificial Intelligence, Augmented Reality, Beauty, Fragrances, COVID-19 pandemic*

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**INTRODUCTION**

The twenty-first century has witnessed dramatic technological advances in all fields to cope up with dynamic human needs. These new technologies were termed "Disruptive Innovation" by Prof. Clayton Christensen (Harvard). According to him, these innovations were the technologies that *disrupted* the standard operating protocol & core functioning of the business/industry. Although this brought about turmoil in the routine work, it ensured better efficiency in the long-term use (Corporate Finance Institute).

Artificial Intelligence (AI) & Augmented Reality (AR) are the two promising disruptive technologies in today's digital landscape. They have exceeded market expectations and have brought about a revolution in business profitability. These two have blended in such a way that it becomes difficult to disambiguate which technology is into action. Hence, they are referred to as a perfect match in the digital heaven. These technologies finally paved their way into the world of Cosmetics and Fragrances during the pandemic and disrupted the traditional functioning of these industries (Cio).

The COVID-19 pandemic had resulted in a seismic decline in the economy with Beauty and Fragrance segments bearing the brunt of the shopper shake-up (Fig. 1). To decelerate the transmission of this life-threatening virus, a myriad of beauty stores and out-of-home outlets were shut which handicapped the procurement of cosmetics and perfumes. This is when AI and AR revolutionized the spectra of beauty. They not only bridged the aesthetic gap (i.e., sensorial analysis of the product ideal for purchase) but also virtually fulfilled the customer's social instincts of talking, socializing and buying. Although buyers will remain socially distant, they would always be virtually connected. The AI-AR duo has also promoted the remodelling of the beauty industry by enabling personalized (custom-made) products as per the specifications of the consumers. Buyers who were adamant about visiting these stores have now resorted to the convenient *Shop from home* concept that tackles the harsh blows posed by this pandemic on the beauty and fragrance industry (Saad Ali, 2020).

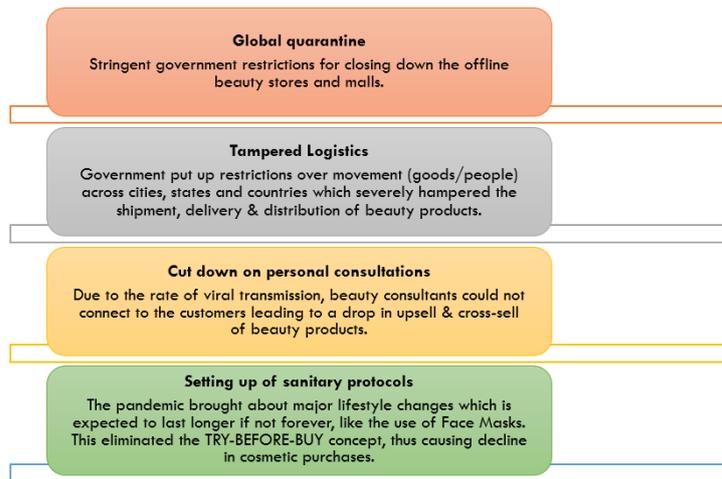


Fig. 1. Factors affecting the personal care industry amidst the pandemic

**Artificial Intelligence (AI)**

Artificial Intelligence is a science that emulates intelligence and mental faculties via computational models (Chandra VSS, 2014; Deshpande N, 2008). In simpler terms, AI is the study of how to make computers perceive, reason and act – which is a humane phenomenon (Bansal B, 2012). It is a set of statistical models & algorithms that operate on machine learning and deep learning languages to perform a particular task without explicit programs (instructions). The AI models make predictions through correlations and then suggest relevant recommendations based on the training data patterns.

Two key indices regulate the recent developments in AI – (a) Computational Powers & Algorithms and (b) Data Availability. In the Beauty and Fragrance world, AI has emphasized digitizing the cognitive capacities by recommending suitable products and brands to the customers by tracking and evaluating their past e-buying habits. The quality of recommendations and predictions put forth by AI is directly proportional to the quantity of training data available. More the data, better the understanding of consumer preferences resulting into relevant & valuable predictions. (Hughes).

**Augmented Reality (AR)**

Augmented Reality is a budding technology that involves the superimposition of computer graphics on the user’s real physical world. It is achieved by the use of Digi-visual elements, audio elements or any other sensorial stimuli, thus giving a composite view (“Augmented Reality Definition”; Silva R, 2003). AR is a component of Mixed Reality (MR), Virtual Reality (VR), telepresence and a few more. However, AR is a technology dwindling mid-way between VR and telepresence. While the surrounding is completely real in telepresence and completely virtual in VR, in AR one sees real-world overlapped with virtual elements (Fig. 2). Although AR has been conceived just a decade ago, the growth and development in this field have been magnanimous.



Fig. 2. Components of Mixed Reality

AR-enabled virtual makeup applications extend a real-life experience of how a particular product looks on them with virtual elements on the screen in the front. Be it accessories (sunglasses, spectacles, jewellery) or make-up products (lip tints, eye shadows, nail lacquers, nail arts), the buyers can implement the “try before buy” concept for the entire collection and can peacefully shop at their own sweet time without stepping out of the house. While some brands wish to create an *in-store* experience at home for buyers, other brands still rely on their beauty outlets where AR technology can come into action.

### AI & AR in the Beauty Aesthetic

The beauty industry has been the most rapidly evolving market globally with the personal care segment bearing the largest volume of approximately \$226,960 million in 2021. The main cause of constant evolution is due to the entry of newer generations i.e., Gen Z under the influence of western trends, social media and e-commerce that are known to have a lasting impact on the shopping behaviour of beauty products (Statista). As per the market survey and resultant statistical report by Statista, the Beauty industry touched the \$504,501 million mark in 2019 which dropped to \$483,338 million in 2020 due to various co-dependent factors associated with the pandemic.

The pandemic has brought about a dynamic shift from the *product-driven* model to a *system-driven* experience wherein buyers don't just purchase a particular product but buy the brand experience instead. Thus, the beauty segment turned to the techno-digital pair that has been on the fringes of this industry for the longest time i.e., AI & AR. This was done to channelize their social media handles for brand endorsements, e-commerce portals & deliver personalized formulations at the customers' will. These developments metamorphosed the brand operations by incorporating a user-friendly interface to fulfil the buyers' *see-it; want-it; buy-it* demands with better efficiency (Launchmetrics).

One of the popular AI-AR learning tools that have silently disrupted the beauty world is ‘Contactless Makeup Trials’. This idea of simulating the “physical buying experience of cosmetics” at home has promoted the *Shop from Home* concept. Several colour cosmetic brands that have leaned onto this software in addition to setting up their e-commerce portals for gearing up the sales are:

#### 1. Makeup Genius by L’Oreal Paris (1<sup>st</sup> Virtual Makeup App)

The first-ever adoption of AR to go mainstream in the beauty sector was by L’Oreal Paris by developing a Virtual Makeup App named *Makeup Genius* that launched on 9<sup>th</sup> December 2014 (Fig. 3a) (L’Oréal Paris – Makeup Genius Virtual Mirror, 2021). When the pandemic struck in 2019, the sudden shift of consumer behaviour did not have a drastic impact on L’Oréal as they had already invested in the vision of the future. This application is a virtual mirror set up with an AR feature called “face recognition” by ModiFace. The software helps the customers to virtually test the products on their faces before they buy them online. Hence, *Makeup Genius* was known to bring “try-before-buy” to digital life.

#### 2. Virtual Shade Selector by Garnier (Virtual Hair Color App)

Garnier – a member of L’Oréal’s Consumer Product Division teamed up with the pioneer of AR – ModiFace to promote the sale of their hair colours in an innovative way. They have developed a software named Garnier Colour Match Tool that helps consumers virtually decide the shade of hair colour from their range (Fig. 3b) (Gupta). The algorithm conducts a one-minute analysis of the current hair color, hair texture, level of grey hair & eventually reflects the selected hair colour on the screen. This is an application that can be put to use for selecting the suitable hair color, either online or offline, and pushing sales in the competitive market.

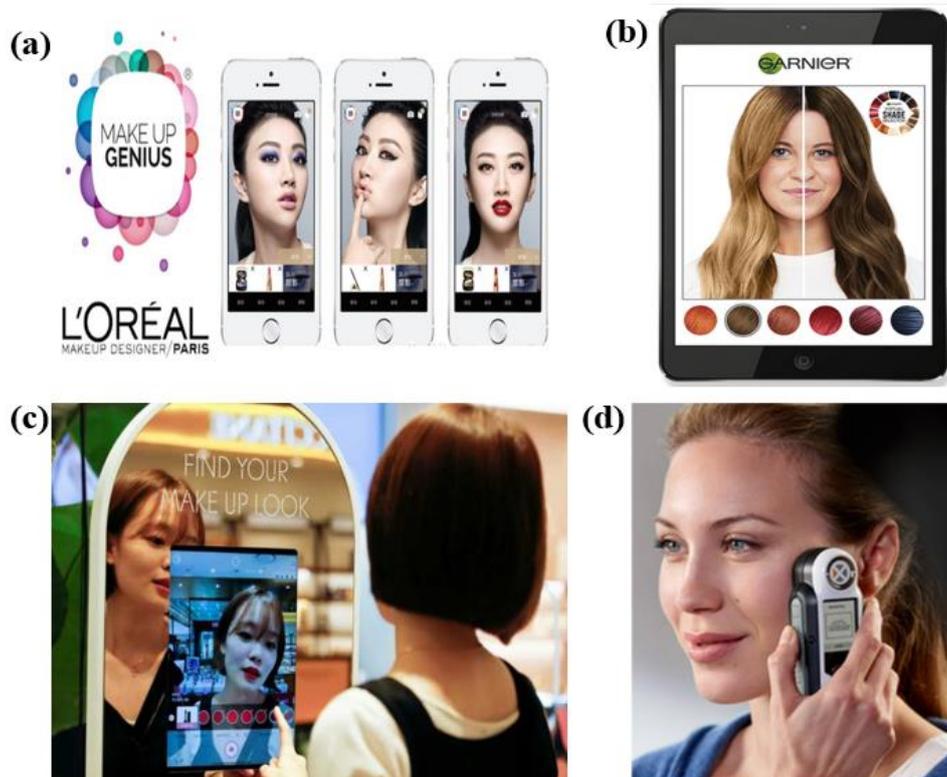
#### 3. Augmented Reality Mirror by Amorepacific

The most recent AR-assisted development in the beauty segment is the *Augmented Reality Mirror* set up in Korea by Amorepacific – a flagship boutique of cosmetics in 2020 (Fig. 3c) (KoreaProductPost Editor). It is a full-length mirror that captures the photograph of the customer’s face & then analyzes the skin for wrinkles, blemishes, texture & tone. Post this assay, the program generates an image of the customer with recommended beauty products applied virtually on the face. This is a highly convenient process as one can see how the colour of foundation, lipstick, blush etc. will look on the face without even being touched. Hence, it is called the ‘touchless cosmetic shopping’ experience.

#### 4. Le Teint Particulier by Lancôme

Lancôme – a member of L’Oréal’s Luxe Product Division has developed a custom-made foundation machine called *Le Teint Particulier* that fills the problem of finding the exact shade of foundation for the skin using AI (Fig. 3d). Lancôme’s beauty consultants analyze the facial skin tone with the aid of a handheld digital

colorimeter. The results are then evaluated by an algorithm that chooses the right foundation shade from their database of 20,000 shades. Based on the results, the shade details are sent to a device that formulates the foundation right in front of the customer (Thomas).



**Fig. 3.** (a) *Makeup Genius* by L'Oréal Paris (b) *Virtual Shade Selector* by Garnier (c) *Augmented Reality Mirror* (d) *Le Teint Particulier*

### AI & AR in Fragrances

As per statistics of 2021, the Fragrance spectrum generates about 10% of revenue in the Personal Care segment with expected revenue of \$60 billion by 2025. The fine fragrance industry is said to retain its market share as the fastest-growing segment with a compound annual growth rate (CAGR) of 3.9% - 4% from 2019-2025. E-commerce in this sector is said to witness an upward push of 4.2% in the same time frame (Ahafonov).

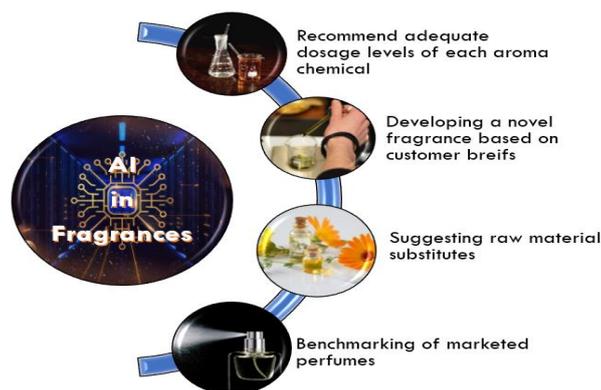
#### • AI in promoting Shop from home in the Fragrance sector

Commerce revolutionized the purchase of perfumes without visiting the fragrance kiosks & stores. Consumers are still apprehensive of real-time physical buying, but they are coping up well with what e-commerce has to offer. When shopping online, it is by default that the buyers are on the lookout to purchase the products/brands that they have experienced or used. There are hardly a few who would experiment and try out new products online. In other terms, e-commerce lends a shoulder to brick & mortar stores in terms of being a replenishment channel and maintaining sales (Schiffer).

Virtual shopping (e-commerce) portals like The Perfume Shop, Nykaa, Parcos, Sephora have hiked up the sales of fragrances especially during the nationwide lockdown. Digital shopping with virtual consultation from the professionals helped them retain & build their customer base. It not only promoted customer engagement by helping them in deciding the most suitable fragrance but also encouraged the frag-heads to step out of their comfort zones & try their hands on newer products. *Shop from home* was introduced as a layer of consumer experience to the fragrance buying protocol (cosmeticsdesign-europe.com).

#### • AI-assisted Fragrances

Before the advent of AI, a perfumer could not imagine developing a new perfume with the help of software. Olfaction (sense of smell) has always been a critical part of fragrance creation. Shattering these notions, AI has proven that understanding the chemistry of aroma chemicals is a crucial aspect in the formulation of a perfume (Fig. 4) (Marr). However, master perfumers always have the upper hand in terms of emotional intelligence over AI. Hence, until AI is capable enough to compete with the humane quotient, rest assured that AI will continue to rely on human expertise in perfume development.



**Fig. 4.** Role of AI in the Fragrance world

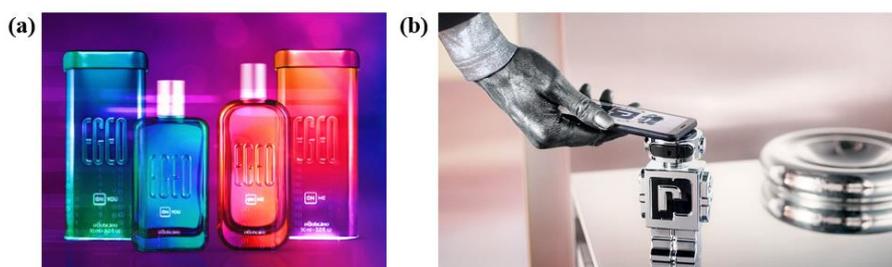
The two most popular AI-developed marketed fragrances are:

### 1. O Boticário Egeo On Me & Egeo On You – The AI fragrances

AI in the fragrance world was no less of a freshly appointed inquisitive young perfumer that played around with aromatic combinations. The Brazilian beauty brand - O Boticário was responsible for overcoming barriers of creativity by developing two novel fragrances with the help of AI, wherein they approached the tech-father IBM for working on the algorithm. They developed a program named Philyra (meaning Greek Goddess of Perfume) as the AI-perfumers. However, since they needed training data (Fragrance database) for better referencing, IBM teamed up with Symrise – a German perfumery house with over a million aroma chemicals and fragrance formulae in their database to build a self-taught program for composing fragrance blends. Of the various suggested AI blends, O Boticário ended up bottling the AI fougère as a pour homme fragrance and marketed it as EGEO ON YOU in 2019 along with its AI blended pour femme counterpart named EGEO ON ME (Fig. 5a) (Ledes).

### 2. Paco Rabanne Phantom – First Connected Fragrance

A magnificent fashion house under PUIIG, Paco Rabanne has always maintained its legacy in revolutionizing the codes of the traditional fragrance world. This pioneer of space-age fashion has launched a techno-digital perfume - Phantom, which is described as a “futuristic aroma”. AI propelled AR algorithms were used to fine-tune the desired emotional impact based on the primary formulation among consumers. The AI-based “Near Field Communication” (NFC) electronic chip has given this fragrance a digital life. Any smartphone that connects with this NFC chip gets access to the Phantom’s Robotic Universe that includes Augmented Reality elements interactive filters and video games, personalized playlist etc. (Fig. 5b) (Santino).



**Fig. 5.** (a) The AI-bred fragrances for O Boticário (b) Paco Rabanne Phantom

## CONCLUSION

Although AI and AR are unique technologies, they work wonders symbiotically. Compact AI models with faster functioning and greater accuracy will be the brain of the AR interface due to their ability to track and decipher the 3D environment. AI and AR have promoted the development of a *phygital* (physical-cum-digital) world, which has helped customers shop at their convenience in this fast-paced life. Customers of the beauty & fragrance industry are relying on technology-based purchases because of precise recommendations & personalised products with a lower scope of manual error, hence, pushing the sales of beauty brands to greater heights.

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**TRENDS AMONG NEW STARTUPS IN INDIA****Vanshita Lad and Jaya Pandey**Student: T.Y.B.Com, K. J. Somaiya College of, Science and Commerce

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**ABSTRACT**

*India has emerged as the third largest startup ecosystem in the world. Despite, a late start, India startup market is already challenging those of the U.S. and China. Startups in India have not only perfected their product-market fit within India but have proved that their business models can easily transition to a larger market outside India. The Government's vision of strengthening the country's startup ecosystem, India has taken a great and a giant leap towards creating an environment that fosters an innovation led culture across the state. There are also many schemes or policies introduced by Government like Pradhan Mantri Jan Dhan Yojana to promote start-ups in the whole of India. Small Industrial Development Bank of India (SIDBI) has also introduced a Scheme to facilitate Women Entrepreneurs to go forward for a startup business. Stand-up India is the scheme which is for the purpose for financing start-ups for SC/ST and Women entrepreneur. All these efforts of Governments and other Ministries combined with the leadership and innovative qualities of the people in the state will provide an enabling environment for start-ups. Mumbai is already a home for many of the successful companies of national as well as of global scale. Also many more such start-ups are likely to emerge in our state over the upcoming years.*

*Keywords: Entrepreneurs, Startup, Innovation.*

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**INTRODUCTION**

India's start-up ecosystem is not a recent phenomenon. The story of Indian start-ups is not just limited to the current century, in fact, it began over four decades ago. Through the 80's, a handful of pioneering IT service companies such as TCS, Infosys and Wipro placed India firmly on the global economic map. A start-up is a company or project undertaken by an entrepreneur to seek development, and validate a scalable business model. At the beginning, start-ups were facing high uncertainty and high rates of failure, but a minority of them was becoming successful and influential. Some start-ups became unicorns; that is privately owned start-ups valued more than \$1 billion.

The size and maturity of startup ecosystem is where a start-up is launched and where it grows to have an effect on the volume and success of the start-ups. The start-up ecosystem consists of the individuals who include entrepreneurs, venture capitalist, angel investors, mentors, advisors, institutions and organizations. Silicon Valley startups are one of the most famous start-ups in the world. Silicon Valley first began rising to the status of tech's sacred land in the 1970's and 80's with the emergence of semiconductor manufacturing. Though Silicon Valley is home to many of the most widely known companies worldwide including Uber, Alphabet, Visa, Netflix and Apple, it still produces an extraordinary number of promising young start-ups with an eye for transforming how we do business.

**REVIEW OF LITERATURE:**

The lifecycle of startups was explained and conceptualized in detail in the research paper of Aidin Salamzadeh. In addition, the paper concluded that there are three main Streams of research on startups, entrepreneurship principles are the most prominent. The lifecycle consists of three main phases, which are the bootstrapping phase, the seed phase, and the creation phase. The paper looked at four main challenges startups can face. Researchers can exaggerate on each of the mentioned steps, and study them Challenges in different fields in addition, scholars can compare existing theories Management, Organization and Entrepreneurship to Develop a Comprehensive theory of startup.

In the research paper of Mahesh Kumar on Growth Pattern and Trends Startup Funding in India it is shown by him that a very small number of startups succeed after the market launch of products or services and continues to develop and make a profit. Start-ups are often seen losing their way from the founding stage of the start-up to achieving business success. Data on the number of start-up companies are based solely on the information gathered from Annual India Start-up Funding Report. The analysis has shown Indian start-up companies prefer primarily funding in four different stages, such as early-stage, growth stage, expansion stage and bridge funding. The result has also shown that maximum funding was received in the expansion stage in both the financial years. Bridge funding is becoming more and more prevalent, almost 10.2 per cent of all deals. The study also concluded that immediately after surviving the first experimental phase, the start-up entrepreneurs gain enough courage to find financial support from other funding sources, such as venture capital and seed

investments, professional qualification of start-up promoters and stages of funding was found to be not significant.

Paramasivan C concluded on the topic Emerging Trends in New Start-up Technopreneurs in his research paper \_ Indian tech entrepreneurs have an incredible opportunity to unleash their full potential on an international level with entry into the field being more flexible than ever. New start-ups are the number one business track in India, particularly with fast-track businesses. The government and policy makers together should create a perfect junction for them, especially as they seem well prepared to dominate the world. These start-ups will create jobs both in India, but also in the global economy.

**Research objective:**

- To study the trends in Growth and Development in New start-ups and learning about existing start-ups.
- To study different policies and schemes introduced by government to promote start-up businesses.
- To study funding received to start-ups in India.

**Research Methodology:**

- The study employed the use of both primary and secondary data which is collected from different modes.
- The data collected is taken from websites, newspapers, etc.
- The primary data survey is done with the help of Google forms.

**Limitations:**

- Measures used to collect the data- We used Google form as primary data for the research on our topic and we also collect information from pre-existing papers as secondary data.
- We collected data from various websites.
- Lack of previous studies in the research area- Literature review is an important part of any research but due to lack of studies in research area we took some information from the research of previous year's research papers.

**Need for Study:**

- For obtaining more knowledge about start-ups and its trends.
- For learning the policies of government introduced during covid-19 for new start-ups.
- The need for knowing the impact of covid-19 on start-ups.
- For knowing evolution of start-ups with changing trends.
- For knowing why, the fall of great 2019 didn't stop India to grow.

**Scope for Study:**

- Our research paper is performed within boundaries of India.
- Our scope for this research is also to know about the growth of Metropolitan cities due to start-up business.
- We did study on various emerging start-up hubs in India

**Sample Design:**

- Our Research consists of Random Sampling for information purpose.
- Our Research has a descriptive research design where we have studied various case studies related to start-ups, surveys and so on.
- Our Research Samples consists of Students, Teachers and Employed peoples.
- Our Research has an unbiased manner of sampling as it is randomly done.

**Challenges faced by today's start-ups:**

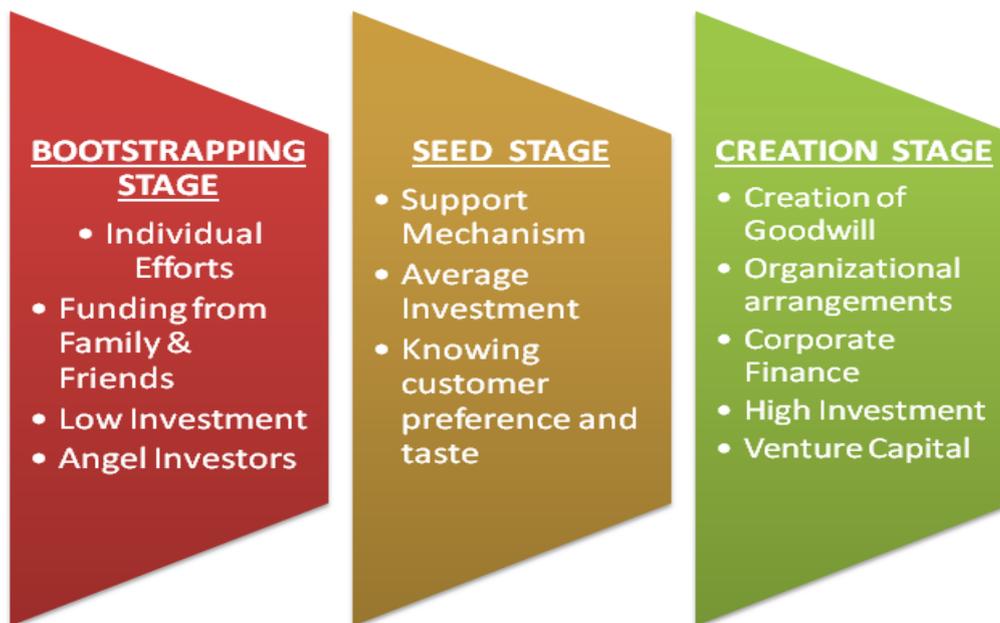
Start-ups play a key role in country's growth and development, but the COVID-19 crisis is reducing their creation, challenging their survival in market and also limiting their growth to a great extent. Due to COVID-19 many businesses have to operate through online platforms. So start-ups were facing issues at the initial stage likely other big companies. On the other hand, some innovative young firms have reacted fast and flexibly to

the pandemic. In this pandemic, it was a bit difficult for many start-ups to shift from physical jobs to digital jobs.

But today's youth is more advanced in technological aspects. Today's Youth start-ups have started doing their businesses through social media platforms overcoming all the problems given by this pandemic of COVID-19.

Also, the government schemes and policies helped the start-ups to overcome these challenges. These schemes helped them to facilitate the growth of their business and expansion through social media platforms. People may think that the trend of start-ups is decreasing but it is other way around. Start-up businesses has started to increase by carrying on their business activities online and earning comparatively huge profits since the customers also have now become more social friendly due to the pandemic situations.

#### Lifecycle of Start-ups (Source: self elaborated)



**Bootstrapping Stage:** Bootstrapping is the process of building a business from scratch without attracting investment or with a minimal external capital. It is a way to finance small businesses. This stage mainly involves the start-ups owners use their own money or maybe borrow from their friends, relatives or family members. Bootstrapping is a stage of individual level where there is a low or minimal cost of investment. Moreover, Angel investors are more likely to invest in this stage.

**Seed Stage:** After the bootstrapping stage, the owner enters into a new stage, which is known as Seed Stage. This stage is where the founder seeks for support mechanism. Funds raised at this stage are used for knowing the customers' demands, preferences, and tastes, and then formulating a product or service accordingly. At this stage, there is an average investment to grow the start-up business. Many start-ups fail at this stage since they could not find support mechanisms and they can turn to a low profit company with a low rate of success in their start-up. On the other hand, those who succeed in this stage and receive support can have higher chance to grow and become more profitable in its business.

**Creation Stage:** Creation stage is a stage when a company starts to sell its products to their customers, enter the market and hires their employees. In this stage the venture starts to initiate and build its reputation in market and starts to create goodwill for it. It can be called as a growth stage where companies try to expand their business and also increase their profitability. At the end of this stage, corporate finance is considered as the main choice for financing the firm. Here, Venture capital could facilitate this stage, by funding the venture for its growth and expansion purpose.

#### Trends among new startup in India

*Enhanced Digital Awareness and Acceptance:* Earlier, People were not having appropriate knowledge of online media. Due to Covid-19, people came to know about the online means and modes of doing things. Thus, there is a growth in start-ups in recent era due to proper digital awareness.

*Changing Points of Business Focus:* Covid-19 Pandemics have changed the main point of Focus of businesses from offline mode to online mode. Start-ups are growing because of the Online mode as companies and start-

ups can easily communicate with their customers and suppliers and co-ordinate with each other through online mode only.

*Social Indulgence will attract Business:* There is an inclination seen towards more indulgence by start-ups in social issues, offering more corporate social responsibility. Businesses are contributing more towards social matters that are directly connecting them to the end-users, bringing in a two-way advantage – Contribution to society and increased business focus.

*AI getting more prominence for start-ups:* AI has started to influence business environment to a greater extent. Many start-ups have started using ML (Machine Learning) and AI (Artificial Intelligence) in their start-ups. Using AI isn't an easy task and hence there are organizations still not comfortable but with time. But ML and AI are sure to assist start-ups to establish themselves faster and in an effective manner those who will learn using them effectively.

*'Work From Home' will be in Fashion:* The pandemic has paved a new road to the concept of work from home. It did exist earlier but never did we all realize that remote working could also yield the same amount of productivity as on office premises. Start-ups are very keen now-a-days with the model of work from home so that they can lessen other expense areas, especially when they are in the beginning phase.

*Robotic Technology will spread its utilization in start-ups:* Robotic Technology though considered a challenging and difficult technology; robotics has emerged as a much-needed technology in the start-up sector. In future years, we can witness increased use of robotic techniques paving their ways and establishing the business, depending upon the current global scenario. For start-ups, robotic technology benefits in many ways like Reduction in their cost, Quality and Accuracy, Robots can perform complex tasks easily which helps start-ups to be highly efficient in today's era.

*Virtual Health and Wellness start-ups would be in Demand:* Due to the Covid-19 pandemic situations, people are more focused on health and wellness. Virtual Health and Wellness start-ups have paved their way and gained immense popularity in this pandemic situations. The situations now-a-days have called for an increase in virtual services and hence start-ups are focusing more on areas where such online services can easily be provided.

*5G and High-Speed Internet to be the need for start-ups:* 5G was already in demand as in this pandemic everything is done online by lot of people and with the new way of working, the need for the same is felt much more. Business owners feel the need to have good speed connectivity for their functioning so that their processes can execute to the best possible output.

*Ecommerce and Online Education start-ups go strong:* As the online world is much in demand, two sectors have continued to stay amidst are the Ecommerce and online education sectors. Both the sectors are growing rapidly and both have showcased increased adoption globally and hence start-up entrepreneurs are very keen to invest in these areas to come up with effective solutions.

*Complete Virtual Start-ups will be witnessed increasingly:* Due to pandemic starting a business or start-up is getting much more difficult. Business owners are working hard towards establishing business ventures that can completely operate in a virtual manner. Start-ups are trying to catch the positive and advantageous part of the pandemic by working in a virtual environment that has its own pros.

### **Unicorn start-ups in India- An emerging trend:**

In the venture capital industry, the term "UNICORN" refers to any start-up that reaches the valuation of \$1 billion. The term was first coined by Aileen Lee, the founder of Cowboy Ventures when she referred to the 39 start-ups that had a valuation of over \$1 billion as unicorns. The term initially was used to lay emphasis on the rarity of such start-ups. The definition of unicorn start-ups has remained unchanged since then. However, number of unicorn start-ups since then has gone up.

Most of the unicorns are privately owned which gets their valuation bigger when an established company invests in it.

### **List of Unicorn start-ups in India and their stories of emerging into a successful start-ups.**

1. **Pay TM:** It was founded by Vijay Shekhar in 2010, Pay TM is owned by One97 Communications, founded in 2010, when mobile had just entered the life of common man in India. Gradually One97 Communications moved from mobile top-up service to bus and train ticket booking, bill payment enabler to a full-fledged payment service provider for businesses and was named Pay TM. With the current valuation of around \$ 25 billion, Pay TM has certainly come a long way.

2. **Meesho:** Founded by Sanjeev and Aatrey Barnwal in 2015, Meesho provides a reselling platform for small and medium businesses that allow them to start their online venture through social media channels like Facebook, Instagram, and Whatsapp. The Bangalore-based company has supposedly registered 100K registered suppliers to over 26K postal codes across 4000+ cities, generating a current valuation around \$3.5 billion to \$4 billion.
3. **PharmEasy:** PharmEasy was founded by Dhaval Shah and Dharmil Sheth in 2015, and it provides a whole suite of services such as sample collections for diagnostic tests, teleconsultation, medicine deliveries, etc. It also provides a solution for pharmacies to use procurement combined with delivery and logistics support. So far, PharmEasy has connections with over 60K pharmacies and 4K doctors. The current valuation of this company is around \$4 billion.
4. **Urban Company:** Urban company is founded in 2014 by Abhiraj Bhal, Raghav Chandra, and Varun Khaitan. It is an all-in-one platform that helps users hire premium service professionals, from masseurs and beauticians to sofa cleaners, carpenters, and technicians. Urban company has built a network of 40,000+ trained service professionals and has served over 5 million customers across major metropolitan cities around the world. The current valuation of this company is around \$2.1 billion.

**FINDINGS:**

- Through our survey of this research, we found that many people are interesting in start-ups of 'Work from Home'.
- We found that start-ups lead to economic growth and development of our country.
- We also found about the trends in start-ups like many ecommerce start-ups have appeared in pandemic like Kirana stores with online facilities, groceries delivery, food delivery, etc.
- We found that people are being confident in online shopping due to Covid-19 pandemic and hence, start-ups are paving their way and growing day-by-day.

**CONCLUSION:**

Through our research on trends among new startups, we conclude that startups have been supported on much larger scale than before by our government as due to these pandemic situations, we all came to know the advantages of doing things online. Our Government is also promoting startups by introducing various policies like Credit Guarantee for startup businesses and also startups are given tax exemption for almost 3 years. Startups are also provided with legal support in patent filing process. Government has also launched Startup India Action Plan which offers support to startups in India. The results have also shown us that maximum level of funding is received at the expansion stage. Further, we conclude that COVID-19 pandemic has thought everyone to advance themselves and has helped the startup businesses to knowing the advantages of starting and doing their businesses through online networking.

**REFERENCE:**

- This is the link of Google forms from where we conducted our survey for primary data collection:
- [https://docs.google.com/forms/d/e/1FAIpQLSedFhema4qa\\_rkVbMZ1uJW0Zkq5WFWUysJWbWWJTaVvt2SvLg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSedFhema4qa_rkVbMZ1uJW0Zkq5WFWUysJWbWWJTaVvt2SvLg/viewform?usp=sf_link)

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5. <https://www.inventiva.co.in/stories/paayel/indian-startups-and-their-scope-in-india>
6. <https://www.startupindia.gov.in>

# MANUSCRIPT SUBMISSION

## GUIDELINES FOR CONTRIBUTORS

1. Manuscripts should be submitted preferably through email and the research article / paper should preferably not exceed 8 – 10 pages in all.
2. Book review must contain the name of the author and the book reviewed, the place of publication and publisher, date of publication, number of pages and price.
3. Manuscripts should be typed in 12 font-size, Times New Roman, single spaced with 1” margin on a standard A4 size paper. Manuscripts should be organized in the following order: title, name(s) of author(s) and his/her (their) complete affiliation(s) including zip code(s), Abstract (not exceeding 350 words), Introduction, Main body of paper, Conclusion and References.
4. The title of the paper should be in capital letters, bold, size 16” and centered at the top of the first page. The author(s) and affiliations(s) should be centered, bold, size 14” and single-spaced, beginning from the second line below the title.

### **First Author Name<sub>1</sub>, Second Author Name<sub>2</sub>, Third Author Name<sub>3</sub>**

1 Author Designation, Department, Organization, City, email id

2 Author Designation, Department, Organization, City, email id

3 Author Designation, Department, Organization, City, email id

5. The abstract should summarize the context, content and conclusions of the paper in less than 350 words in 12 points italic Times New Roman. The abstract should have about five key words in alphabetical order separated by comma of 12 points italic Times New Roman.
6. Figures and tables should be centered, separately numbered, self explained. Please note that table titles must be above the table and sources of data should be mentioned below the table. The authors should ensure that tables and figures are referred to from the main text.

## EXAMPLES OF REFERENCES

All references must be arranged first alphabetically and then it may be further sorted chronologically also.

### • **Single author journal article:**

Fox, S. (1984). Empowerment as a catalyst for change: an example for the food industry. *Supply Chain Management*, 2(3), 29–33.

Bateson, C. D.,(2006), ‘Doing Business after the Fall: The Virtue of Moral Hypocrisy’, *Journal of Business Ethics*, 66: 321 – 335

### • **Multiple author journal article:**

Khan, M. R., Islam, A. F. M. M., & Das, D. (1886). A Factor Analytic Study on the Validity of a Union Commitment Scale. *Journal of Applied Psychology*, 12(1), 129-136.

Liu, W.B, Wongcha A, & Peng, K.C. (2012), “Adopting Super-Efficiency And Tobit Model On Analyzing the Efficiency of Teacher’s Colleges In Thailand”, *International Journal on New Trends In Education and Their Implications*, Vol.3.3, 108 – 114.

- **Text Book:**

Simchi-Levi, D., Kaminsky, P., & Simchi-Levi, E. (2007). *Designing and Managing the Supply Chain: Concepts, Strategies and Case Studies* (3rd ed.). New York: McGraw-Hill.

S. Neelamegham," Marketing in India, Cases and Reading, Vikas Publishing House Pvt. Ltd, III Edition, 2000.

- **Edited book having one editor:**

Raine, A. (Ed.). (2006). *Crime and schizophrenia: Causes and cures*. New York: Nova Science.

- **Edited book having more than one editor:**

Greenspan, E. L., & Rosenberg, M. (Eds.). (2009). *Martin's annual criminal code: Student edition 2010*. Aurora, ON: Canada Law Book.

- **Chapter in edited book having one editor:**

Bessley, M., & Wilson, P. (1984). Public policy and small firms in Britain. In Levicki, C. (Ed.), *Small Business Theory and Policy* (pp. 111–126). London: Croom Helm.

- **Chapter in edited book having more than one editor:**

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- **Unpublished dissertation/ paper:**

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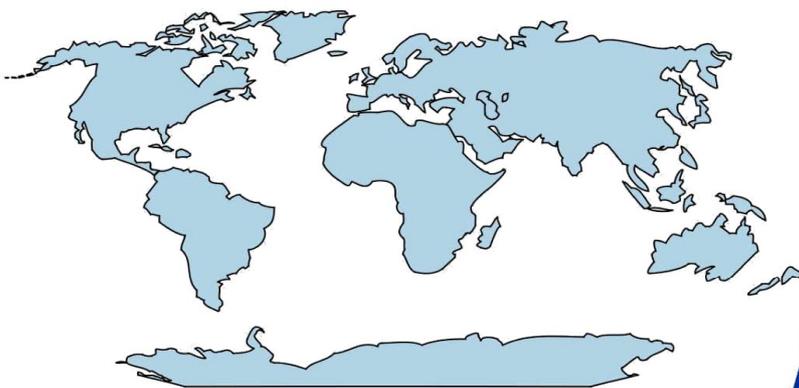
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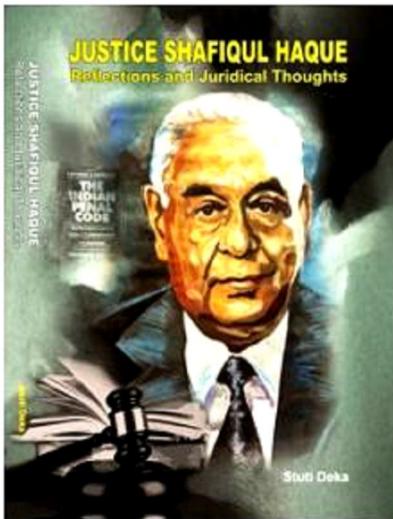


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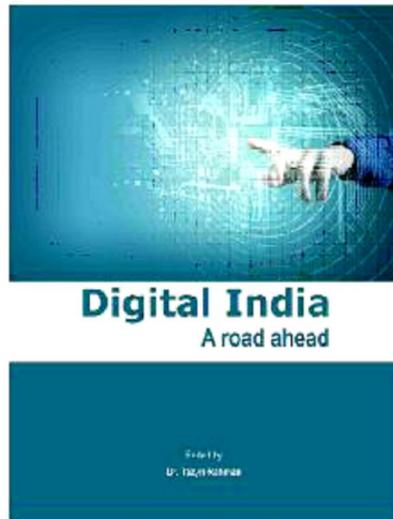
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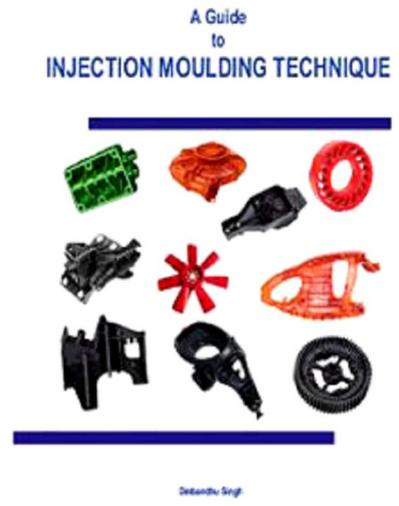
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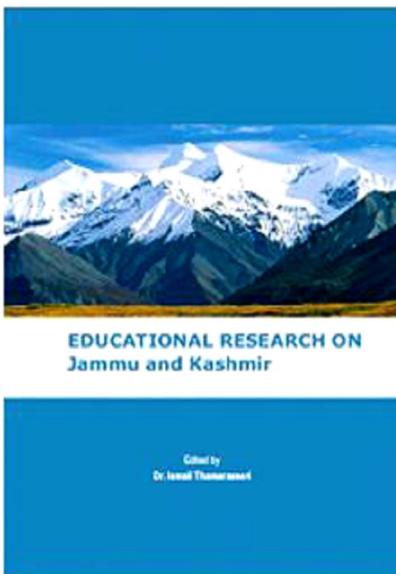
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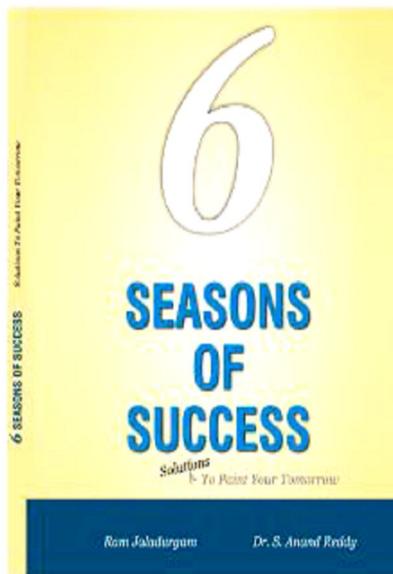
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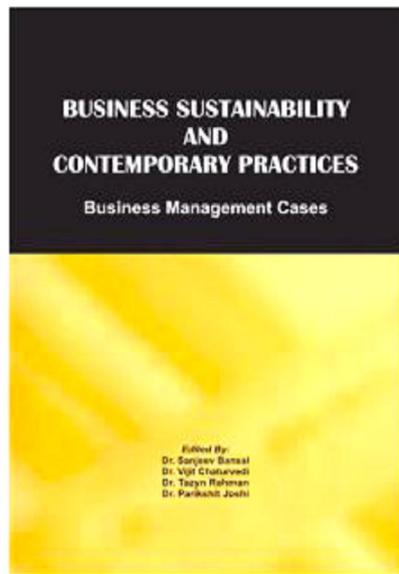
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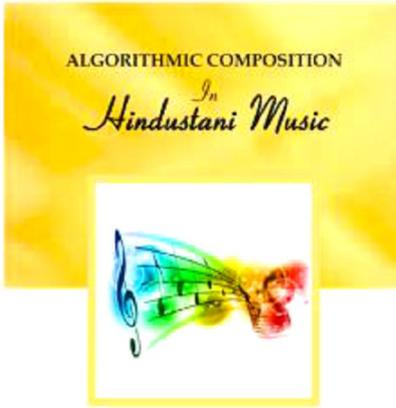
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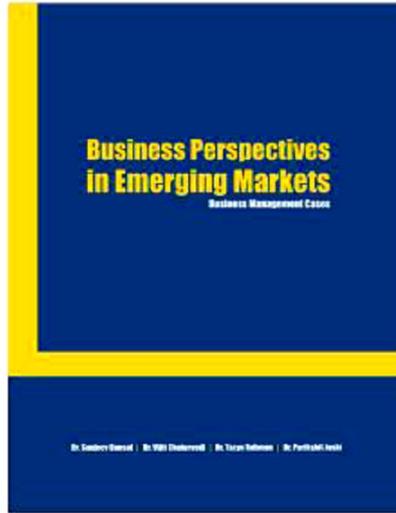
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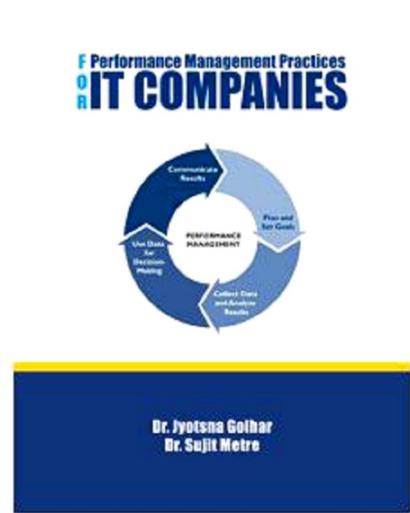
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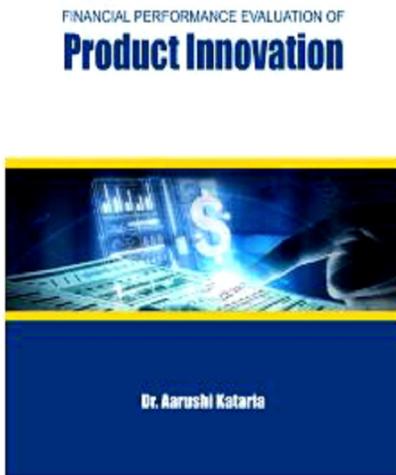
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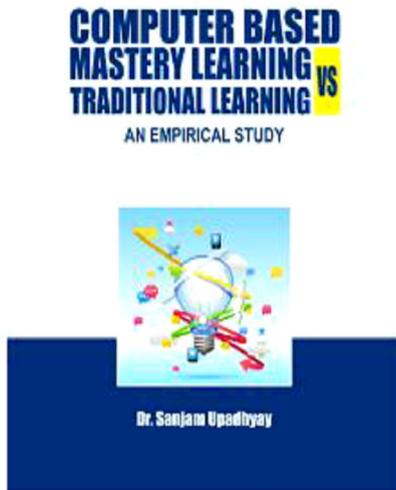
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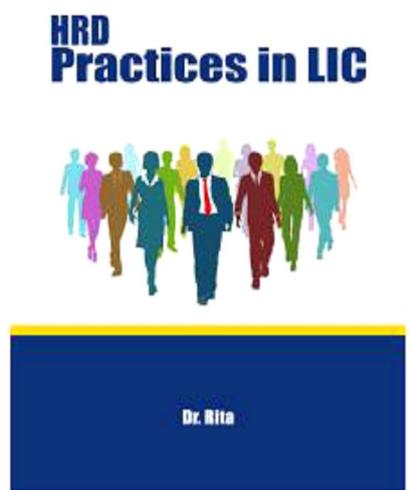
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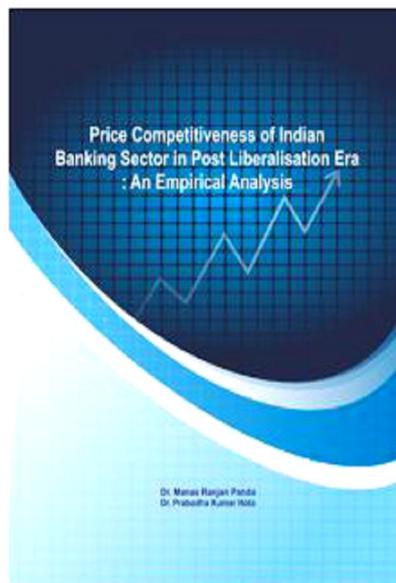
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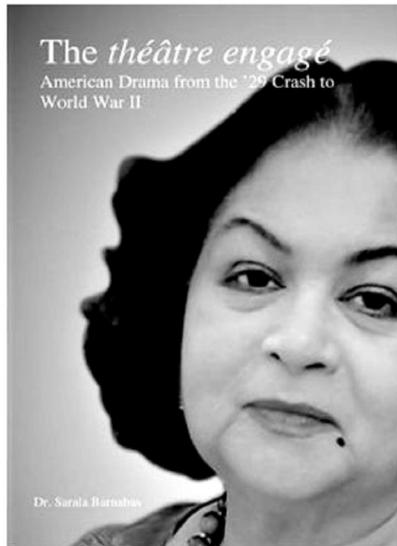
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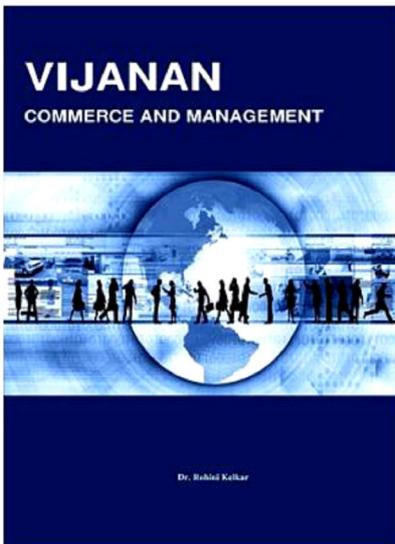
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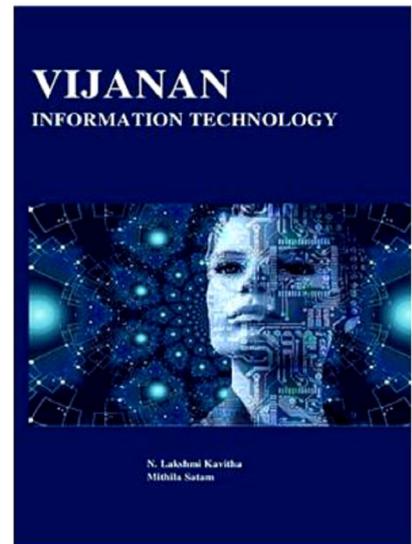
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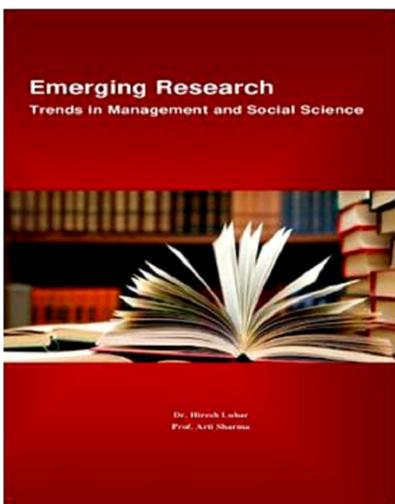
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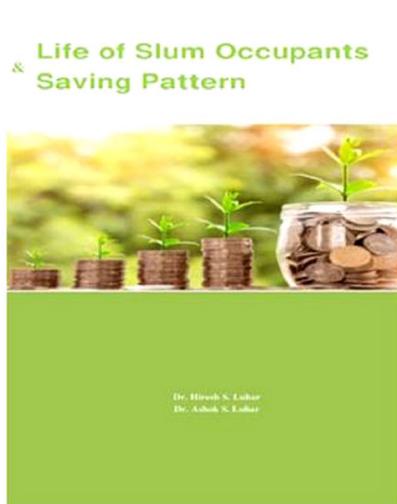
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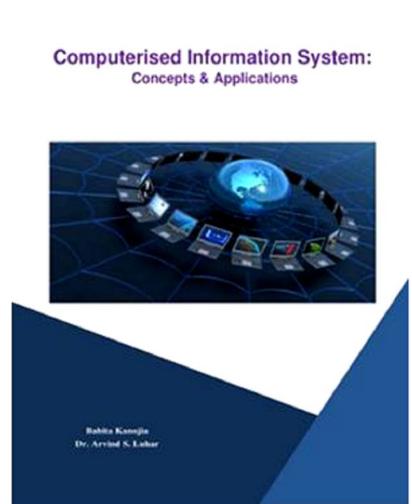
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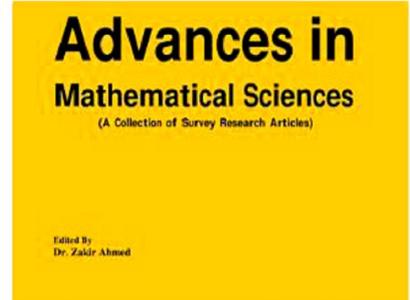
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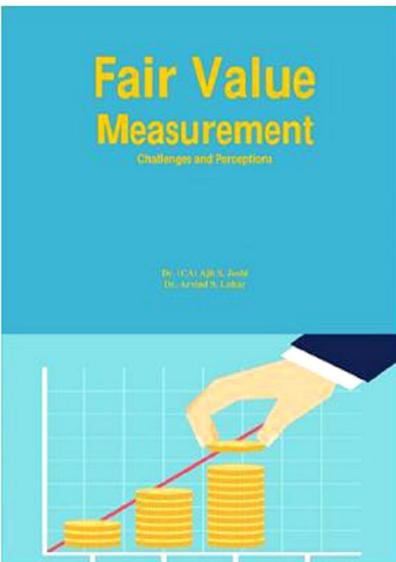
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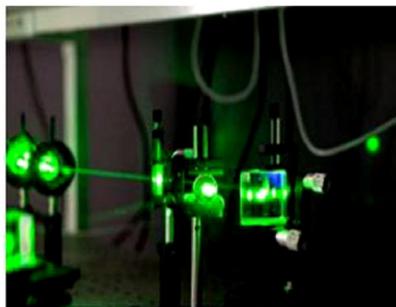


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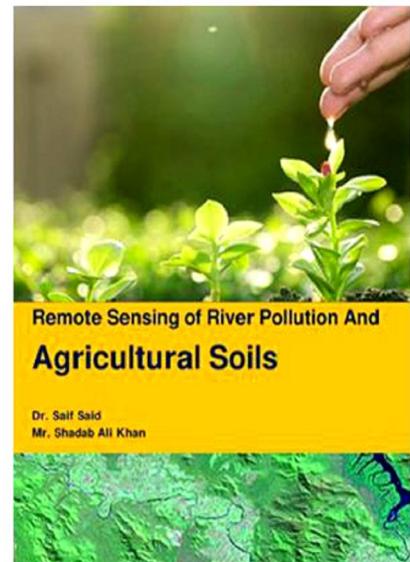
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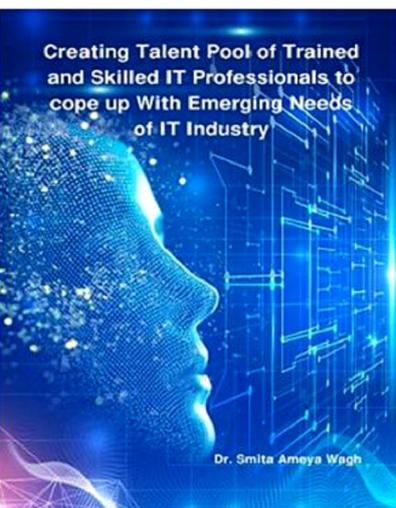
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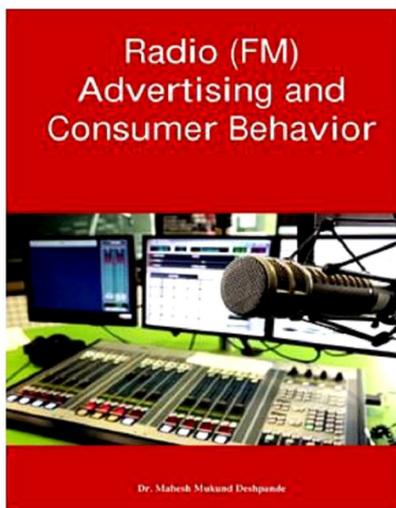
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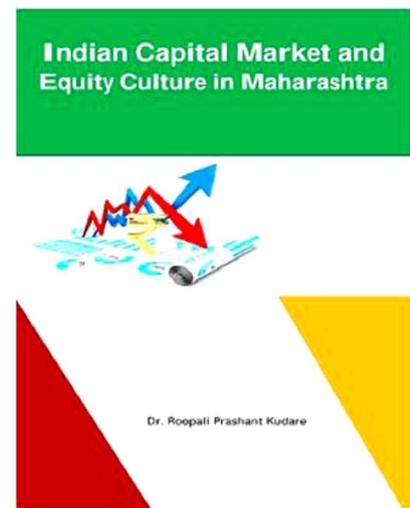
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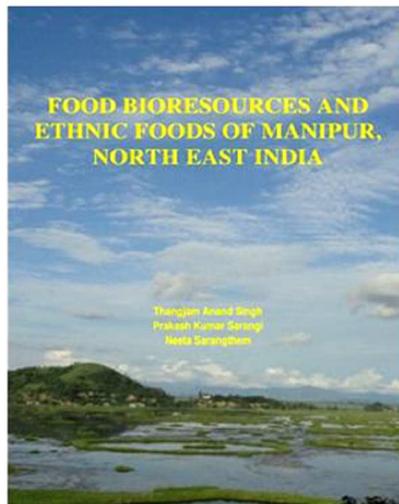
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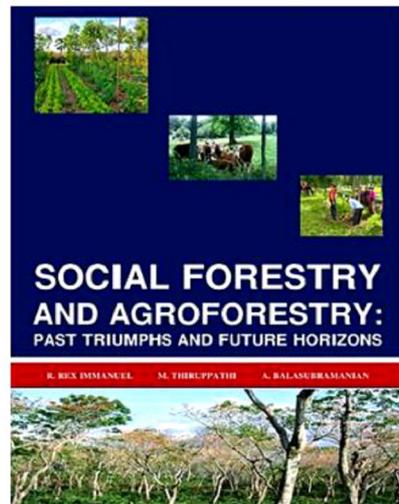
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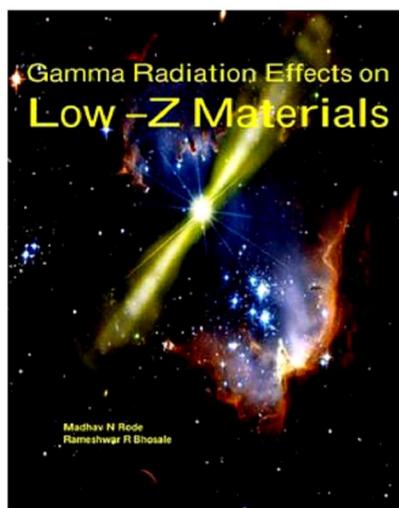
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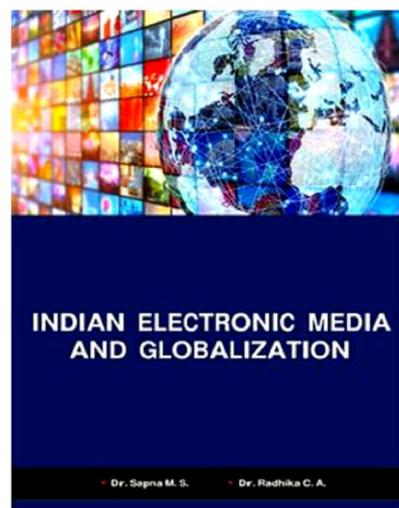
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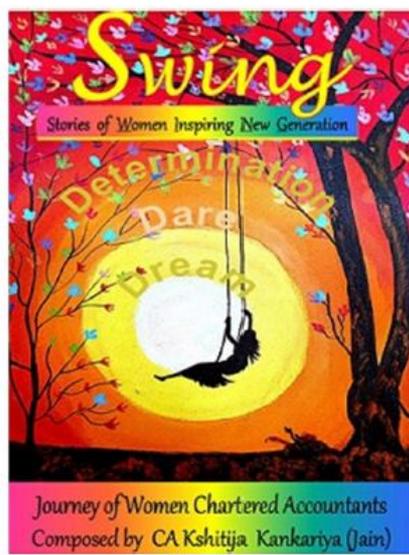
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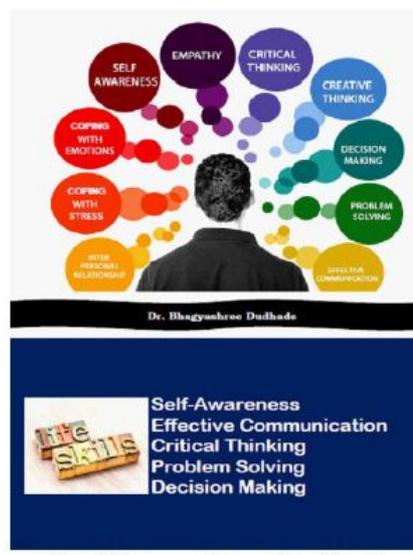
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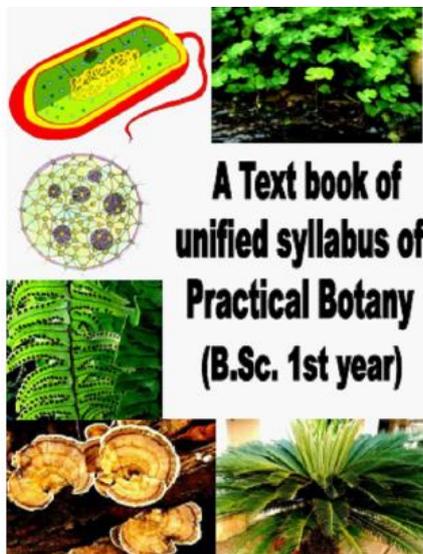
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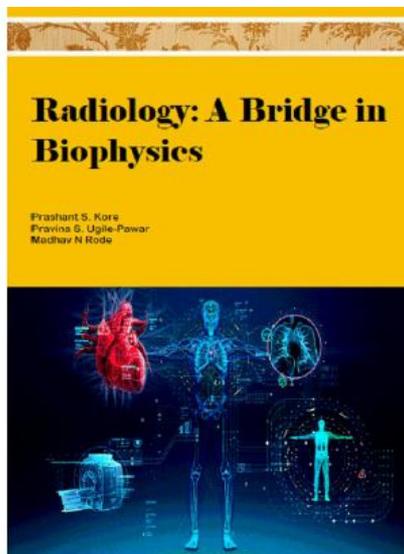


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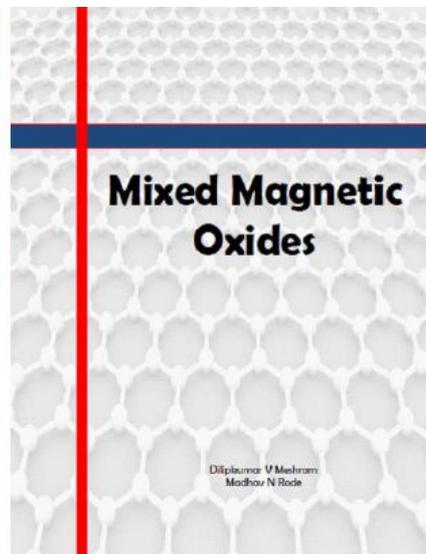
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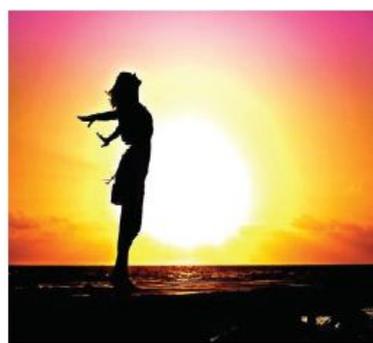
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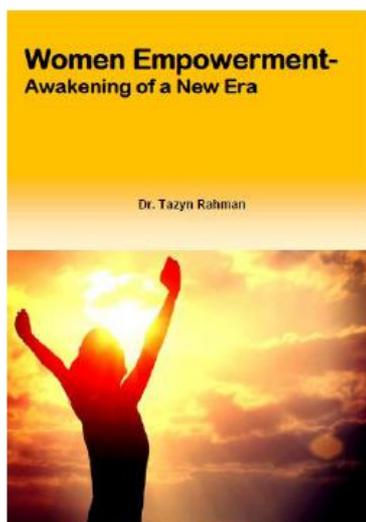


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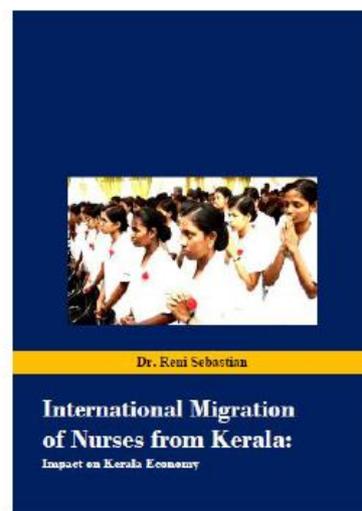
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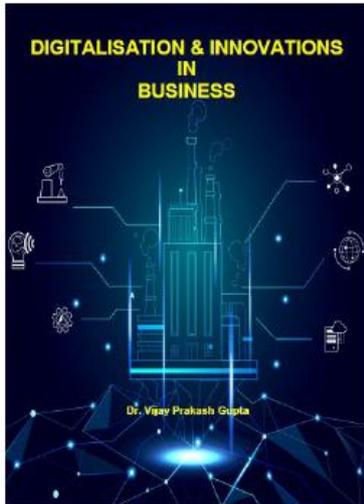
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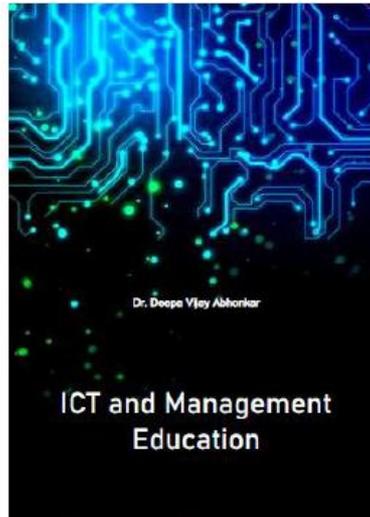


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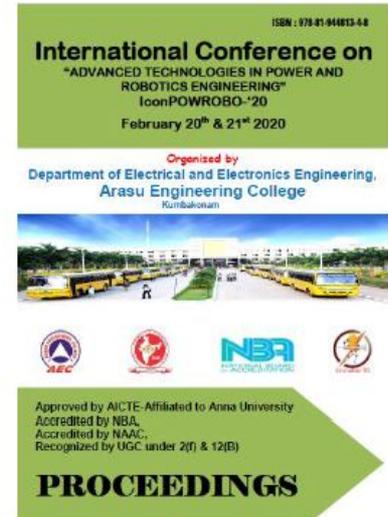
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