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Parichay Maharaja Surajmal Institute Journal of Applied Research

Your "Idea" of today may become a "thought" of tomorrow. A "flash of truth" envisioned by you today may prove to be a "Law" of tomorrow, therefore let them not slip away into darkness, show them the light of the day; get them published.

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Factors Responsible for the impact of Post Partum Depression on the Productivity of Working Women in the Era of Covid-19

Surbhi Pahuja[1] , Dr. Nandan Velankar[2]

Abstract The study attempts to analyze the relationship of postpartum depression with the productivity of working women in the economy during the era of Covid-19. Several antecedents affecting postpartum depression are being evaluated and analyzed to provide a framework where the organizations can understand its critical nature and as well as can plan the required activities that may reduce its impact on women so that hyper-efficient organizations can be built. All these factors have a critical impact on the productivity of working women and thus may also affect the economy. The researcher surveyed 100 respondents through a questionnaire.

Keywords: Postpartum depression, productivity, baby blues, attrition rate, absenteeism, Covid -19

INTRODUCTION

Postpartum depression is grabbing the attention of numerous people because even though it is intangible, its impact can be seen and felt in women across the globe. According to a study conducted by (Bharathy A, 2018), in a recent poll published by Times Jobs 2017, the vast majority of working women do not find their workplaces to be female-friendly [1]. This is especially important now as our country has a large and diverse youthful workforce, including men and women, and more women are beginning to enter the workforce.

According to (Upadhyay RP, Chowdhury R, Aslyeh Salehi, Sarkar K, Singh SK, Sinha B, Pawar A, Rajalakshmi AK, Kumar A , 2017) "Even though India's national mental health program was launched in 1982, maternal mental health is still a minor program component" [2]. According to the literature reviewed, the contributing components include physical, environmental, and emotional aspects, all of which impact productivity. Hormonal changes that occur during childbirth may be among the physical reasons. Another crucial physical factor is a lack of quality sleep. The stress and worry that comes with taking on new responsibilities and taking on a whole new and different role, in addition to the physical considerations, play a significant influence on PPD.

The quality of the female's physical surroundings, the type of social environment, whether or not the female is given the power to decide on routine and big decisions in her life, and the type of communication done by the female are all examples of environmental elements. However, a variety of psychological characteristics appear to be crucial in determining success. According to (Terry DJ, Mayocchi L, Hynes GJ ,1996) Postpartum depression is more likely to occur in women who have had previous emotional difficulties (both before and during pregnancy) [3]

In each woman's life, there is a complex history of relationships that has been marked by difficulties, misunderstandings, incorrect views, and possibly unintentional mistakes. Each mother's experience is a unique narrative of how her child or children were conceived. If this story causes her to wonder if she is ready for this new responsibility or will be able to cope with this new stage of life, all she encounters is a series of questions, the existence of which is referred to as Postpartum Depression. A woman's emotional and psychological wellbeing might be severely harmed by this phenomenon, which is more than a physical disease in itself. The most important thing about Postpartum depression is that it is intangible. But its impact can be seen and felt on women around the globe.Evidence suggests that the lack of such assistance is associated with an increased risk of postpartum depression

According to an article written by Maria Jose Prados, Ph.D. and Gema Zamarro on August 20, 2020, in "The Evidence Base: Informing Policy in Health, Economics, and Well-Being," "Due to the COVID-19 pandemic, schools and daycare centers across the country closed in March 2020", and childcare needs skyrocketing. Simultaneously, "social distancing recommendations and stay-at-home orders have made it difficult, if not impossible, for informal caregivers like grandparents or other family members to assist with child care responsibilities. This situation is difficult for people who work from home and those who continue to work outside the home. Women, particularly working mothers, may bear the brunt of the negative consequences. Before the crisis, women already carried a heavier burden than men in

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providing child care, and child care arrangements are critical determinants of the female labor supply. While the current crisis' employment shock initially affected both genders, the COVID-19 public health crisis could have a significant impact on women, particularly on their career trajectories and the wellbeing of working mothers".

"Dr. Rohaidy's colleague, Graciela Jimenez, a psychotherapist with Baptist Health, explained, The usual recommendations we make to moms with postpartum depression are not easy to implement during COVID-19. We tell them to be social, get out of the house and ask friends or family members to come over and support them. Now, new moms are at home without the extra help they need to care for themselves, their home, and their newborn." If one feels worried about family and their safety because of the coronavirus, that person, like many other moms, is just maybe overly cautious right now.

REVIEW OF LITERATURE

(Kumar, 1994) stated, "except for a few notable exceptions, the majority of relevant research into psychiatric disorders associated with childbearing has been conducted in developed countries, primarily in Western Europe and North America"

According to this theory, some societies are said to have no postpartum depression at all. There was remarkably little evidence of postnatal depression in the anthropological literature, According to anecdotal evidence from Nigeria, South Africa, and India, non-psychotic postpartum depression is extremely rare in these countries; this finding was bolstered by anecdotal evidence. Higher rates of maternal morbidity, on the other hand, could lead to the under-reporting of cases. Authors point out that the definition of depression varies considerably between cultures, "therefore the problem cannot be solved by simply adopting a Western notion of depression to other cultures. Comparative research in cross-cultural settings tries to determine if there are differences in the clinical presentation in different contexts". 'Amikiro,' when women express the desire to devour their baby. Similarly, it's critical to determine whether or not observed variations in childrearing methods mitigate or exacerbate the adverse psychological effects of maternal postnatal sickness on the child. "In the era of social distancing, the support systems that usually promote mental health during the vulnerable transition into motherhood, such as social support from family and doulas, are missing. This makes new mothers even more at risk for mental health issues"

"Postpartum depression is the result of a dynamic interplay between biological, psychological, and social risk factors, all of which can be amplified by the current pandemic. However, COVID-19 presents unique barriers to engaging supports, particularly those outside the home. Partners are a logical first choice, but if one is not present (or able), it may be helpful to seek outside help from family or friends. It's crucial to ensure that anyone who comes in contact with new mothers and infants is at low risk for the coronavirus".

JULI FRAGA WROTE ON THE EDITOR'S PICKS, THE LILY

"On March 18 — a day before California became the first state to issue a stay-at-home order — Courtney Pladsen, 34, a nurse practitioner who lives in Portland, Me., gave birth to her first child. Like many of the hundreds of thousands of U.S. women who have given birth during the coronavirus pandemic, Pladsen's life was turned upside down.

Pladsen and her husband had lined up support in preparation for parenthood: a lactation consultant to help with breastfeeding, a physical therapist to aid in postpartum recovery, and visits from family and friends. To ease the stress of new motherhood, Pladsen also planned to attend a support group for new moms."

In a research study "Do Antenatal Religious and Spiritual Factors Impact the Risk of Postpartum Depressive Symptoms? " Six constructs of religiosity/ spirituality were evaluated: organizational religious activities, non-organizational religious activities, intrinsic religiosity, daily spiritual experiences, self-rated spirituality, and self-rated religiosity [4].

(O'Hara and Swain's, 1996) meta-analyses included 14 studies of approximately 3000 subjects that examined the mother's previous psychiatric history and postpartum depression. Beck's (2001) meta-analyses included 11 studies that examined about 1000 subjects [5]. "Both meta-analyses found that a previous history of depression was a moderate to strong predictor of subsequent postpartum depression. Subsequent studies consistently report that women with a prior history of postpartum depression are at increased risk of developing postpartum depression (Howell, E.A., Bodnar-Deren, S., Balbierz, A. et al , 2014)" [6].

GAP ANALYSIS

The research gap is a problem that has not been addressed so far in a particular field. It leads to the progression of a field of research. It can be visualized as an opportunity for new researchers. It is that knowledge gap that is yet to be researched. Few areas are unexplored in previous studies as well as insufficiency is also found in such areas. It can be justified as a missing link in the existing body of knowledge for which new parameters are proposed.

- These insufficiencies and uncharted facts in postpartum depression motivate the researcher to study them and propose a new model to bridge that gap. In this proposed study, the researchers are trying to fill the gap with the help of some new phenomena like Spiritual Factors, Ergonomics at the Workplace, taking as explanatory variables with Cultural Factors, Environmental Factors and Psychological Factors considered in earlier studies. The researcher will also try to find the effect of selected demographic factors on the productivity of female employees carrying postpartum depression. The proposed research will also attempt to find the Marital Relationship between postpartum depression and productivity.

- Kornfeind K, Sipsma H mentioned in their research paper "Exploring the link between maternity leave and postpartum depression" that currently there is little evidence on the relationship between maternity leave and maternal mental health even though the workforce includes now more working women than in the past. They also mentioned that there is a lack of awareness about the emergence of postpartum depression amongst both employees and employers
- An important limitation is being rightly discussed in the research paper titled "Employment, income, and education and risk of postpartum depression: The Osaka Maternal and Child Health Study" by Miyake Y, Tanaka K, Sasaki S and Hirota Y which describes that it is extremely difficult to ascertain the level and extent of postpartum depression as EDPS is a self-reporting rating scale which is widely used to analyze its prevalence especially in the area of social science
- Another limitation is being raised in the context of a highly acknowledged model on this field of study i.e demand-control –support model that it didn't elucidate much of the disparity in the context of women's postpartum depression scores, especially when it comes to the comparison with perceptions of control over work and family. The research paper titled "The psychosocial work environment and maternal postpartum depression" by Dagher, Rada K., Dagher, Rada K. Alexander, Bruce H, Dowd, Bryan E, Dowd, Bryan E and McCaffrey, David J lays down the foundation for future researchers to evaluate the impact of work environment and home environment in the respect of postpartum depression
- One major limitation is observed in the perspective of lack of literature using the term employee assistance program in addition to postpartum depression due to which multifaceted issues are being faced by women during postpartum depression left unresolved. Ledesma Ortega, Cyntianna C and Reio, Thomas G state in their research paper titled "Interventions for Women With Postpartum Depression Symptoms: An Integrative Literature Review for Human Resource Development" that EAP will help women to address such issues and will help women to deal with transitional issues while returning to the workplace.
- A study conducted by Bai, Yeon K., Wunderlich, Shahla M. and Weinstock, Marni named "Employers' readiness for the mother-friendly workplace: An elicitation study" discusses that homogenous samples are considered as a limitation in this area of work therefore they suggested the future researchers work ethnically and geographically diverse employers thus arising the need to study cultural factors in depth

RESEARCH OBJECTIVES

Based on the extensive literature review and the gap found by the researcher, the following objectives are framed to carry out the proposed research:

PRIMARY

- To analyze the impact of postpartum depression on productivity of working women

SECONDARY OBJECTIVES

- To check the difference between the age of working women and productivity during postpartum depression
- To check the difference between the income of working women and productivity during postpartum depression
- To check the difference between the education of working women and productivity during postpartum depression
- To check the difference between a family of working women and productivity during postpartum depression
- To check the difference between the type of employer of working women and productivity during postpartum depression
- To check the difference between the location of residence and productivity during postpartum depression

RESEARCH METHODOLOGY

The data was collected through primary sources. A standard questionnaire was modified for this purpose. 100 respondents participated in this research work from across the country belonging to various age , income and family groups. Working women were considered as a sample for this study.

CONCEPTUAL DEVELOPMENT

Although a collection of huge factors frames postpartum depression, these factors can be categorized as:

Emotional Factors: These factors affect the self-esteem of a woman. "A new mother usually requires a high level of support, and postpartum depression occurs due to a lack of social support". A new mother is generally vulnerable to increased anxiety and stress. Especially in the cases of cesarean delivery, a new mother requires more attention and love. The amount of time a mother is in the hospital affects her emotional wellbeing. The new mother is not used to all these changes, thus affecting the emotional wellbeing of a new mother. Emotions play a vital role in forming the psychological health of a working woman. Emotional intelligence is essential for an employee's performance as it represents a combination of interconnected and interdependent skills and capabilities that an individual; posses following the emotions to augment the thought process of an individual. According to (Devonish, D., 2016), the affective events theory (AET) also provides a strong base for the relationship between emotional intelligence (EI) and the behavior of an employee on the job; it can have both direct and indirect impacts on the employee's work behavior [7]

- Physical Factors: The biological factors may include physical pain from the delivery of sleep deprivation. Sometimes a new mother is also conscious about the physical attractiveness after the delivery.

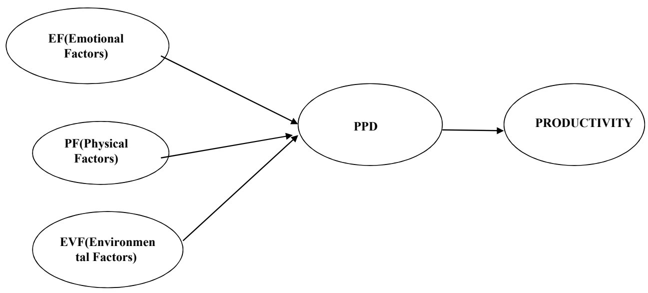
- Environmental Factors: Environmental factors may include the surroundings of a mother and the various aspects that can be related to the same. A prominent theory in this field of study called behaviorist theory puts forward the way for an unexpected and profound change (like how a woman experiences during the prenatal period) in a person's surrounding environment causes a decline in the affirmative and rewarding activities. Most women experiencing postpartum depression frequently experience increased levels of apprehension. Likewise, they cannot relax or go back to sleep after waking up to take care of the infant in the night. Authors examined the importance of an employer in this context and said that although employers perceive a decline in productivity by providing a mother-friendly environment, on the contrary, a mother-friendly climate enhances the satisfaction of employees, boosts the savings of company from health care costs and also reduces the rate of absenteeism in the company
- A study conducted by (Beck, C. T, 2002) included Suyes suggests mothers who are working may face various issues at the Workplace related to difficulties to carry on breastfeeding, and organizations should strive hard to provide a mother-friendly environment so that these difficulties can be reduced [8]

POST-PARTUM DEPRESSION (PPD) AND PRODUCTIVITY

Each woman brings with her a complicated history of relationships filled with challenges, misunderstandings, misguided views, and perhaps unintentional mistakes. The tale of how her kid or children came to be is unique for each mother. On the other hand (Belinda Hewitt, Lyndall Strazdins, Bill Martin, 2017) in the present era, many women are resuming their work after having children to take care of, which happens to be a natural phenomenon following motherhood [9]. As a result of this experience, her thoughts turn to whether she is ready to take on this new duty or whether she can handle this new chapter of her life, which is known as Post Partum Depression. In addition to being a phenomenon or medical condition, it can also be a substantial source of psychological and emotional distress for women's productivity

In layman's terms, productivity is a measure of efficiency. Productivity can be measured by the number of units produced, the number of hours spent on the job, or by client feedback, but the main goal of any organization is to improve overall productivity. Eventually, they are either confronted with a choice between the two or give up one out of these. The prior studies in this field explain that depression is a leading factor for productivity-related issues at Workplace. Studies by (Glass DC McKnight JD, 1996) show that it can spoil an employee's capability to concentrate, be effective, and stay healthy enough to hold down a job [10]

Proposed Model



A framework of the research problem

FINDINGS

The study highlighted three main factors affecting postpartum depression: physical, emotional, and environmental factors. For the respondents analyzed, it was found that there is a high probability of such elements in creating a medical condition called Postpartum depression. The study further emphasized that Postpartum depression usually results in a lack of concentration and lower productivity. Postpartum Depression contributes to various other issues like higher attrition rates and higher absenteeism.

RESULTS

REGRESSION TEST:

H_0: There is no significant impact of efact,pfact,enfact on productivity

Model Summary[b]

Model	R	R Square	Adjusted R Square	Durbin-Watson
1	0.41	0.489	0.468	1.048376

a. Predictors: (Constant), efact,pfact,enfact

b. Dependent Variable: productivity

This table provides the R and R^2 value. The R Value is 0.41 a positive correlation between both variables. The R^2 indicate how much of the dependent variable, "productivity", is explained by the independent variable, "efact, pfact and enfact.", is 46.8%

ANOVA[a]

Model	Sum Of Squares	Df	Mean Square	F	Sig.
1Regression Residual Total	16.946 41.443 58.389	1 99 100	16.946 3.188	22.81356	0.00000

a. Dependent Variable: productivity

b. Predictors: (Constant), Predictors: (Constant), efact,pfact,enfact

This table indicates that the regression model predicts that the outcome variable is significantly well. Here $P < 0.000$ and indicates that, overall, the model applied is statistically significantly predicted the outcome variable. The P-Value of F statistics (.000) < Standard value 0.05, hence H_0 is rejected.

Coefficients[a]

VARIABLE	COEFFICIENT	STD.ERROR	T STATISTIC	PROB.
C	-21.09630	8.287490	-2.545560	0.0125
Efact	0.446913	0.063982	6.984926	0.0000
Pfact	-1.045136	0.518538	-2.015545	0.0467
Enfact	0.770967	0.389529	1.979230	0.0493

a. Dependent Variable: productivity

The outcome of the regression model has shown that the Prob. value of t-statistic of independent variables; efact (0.0000), pfact (0.0467) and enfact (0.0493) respectively is less than 0.05 so, there is a significant effect of efact, pfact, and enfact on productivity.

IMPLICATIONS

Conceptual Implication: Apart from the factors listed above it was found that some other factors may also contribute to Postpartum depression and such factors may also be analyzed in future researches, these factors may include heredity, lack of communication with the partner, intake of any chemical substances, lack of family support and a history of medical health issues.

Managerial Implication: The adverse impact of Postpartum depression can affect the overall productivity of an organization, it may also affect the key issues in the organization as well as major managerial decisions because many females are handling a key role in the organization thus creating a major concern for the organizations. Postpartum depression also affects the environment of the organization because a female may become hostile in this medical condition which may hamper the relationships between the employees. It also affects the attrition rate as well as absenteeism in the organization thus creating a major threat for an organization.

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A Study of Awareness About Sex Education in the Adolescent Female Students

*** Dr. Pawan Kumar**

ABSTRACT

Education in its general sense is a form of learning in which the knowledge, skills, values, beliefs and habits of a group of people are transferred from one generation to the next through story-telling, discussion, teaching, training and research education may also include informal transmission of such information from one human being to another. Education frequently takes places under the guidance of others but learners may also educate themselves. Objectives of the study are to study and compare the attitude of rural and urban female senior secondary school students towards sex education. The present study conducted on a sample of 50 students selected from senior secondary schools of Block Gohana of District Sonipat in which 25 students of urban area and 25 students from rural area are selected.

Keywords: -Awareness, Sex Education, Adolescent and Students

INTRODUCTION

Man among the living beings, have the highest capacities to adapt to new situations. Man as a social animal not only adapts to physical demands but he also adjusts to social pressures in the society. Biologists used the terms adaptation strictly for physical demands of the environment but psychologists use the term adjustment for varying conditions of social or interpersonal relations in the society. Thus, we see that adjustment means reaction to the demands & pressures of social environment imposed upon the individual. The demand may be external or internal to whom the individual has to react. Observe the life of a child. He is asked to do certain things & avoid doing others.

Emotions can be aroused by certain objects, things or happening outside the individual himself or within himself when his body, pride self-esteem is likely to be damaged or is damaged fear or anxiety, jealousy, anger, injury or an insult to one's self-respect are the cases of negative emotions. One's become frightened, enraged or upset. These causes, rapid increase in tension level or excitation of the body whenever the various bodily parts are over stimulated, the emotions are unpleasant. On the other hand, affection, hope, joy, courage, trust, meeting a person whom one loves or a beautiful sight or some success leads to positive emotions. A person emotional reaction to an incidence depends both upon the nature of the happening itself and upon his own inner sate. One incidence may create joy in one and grief in another, because it all depends on the inner state of the individual.

Rousseau, "Education is the child's development from with in." When Students grow up, they need to learn and adapt to the physiological and psychological changes in different stages of development. The learning objectives of sex Education vary with the age students and the environment. They need appropriate and continuous counseling and guidance. Parents are the core people who accompany their students as they grow up, so parents are also the most appropriate person to give their students Sex-Education is given at home, the earlier the students are able to establish correct concepts on sex, and the easier the parents can handle the situation.

Young people are exposed to numerous, influences upon their sexual attitudes and behaviors every day the media, their peers, their parents, and other adults. Sex Education / family life Education is valuable in its ability to truthfully educate young people about sex and its risks.

The failure of some persons to regulate sexual feelings, to limit their fondness for material things, to place morality above momentary pleasure or to desensitize themselves to aggravating stimuli and stimuli situations reveal poor emotional control. Personal adjustment requires an effective and continuing dominion over feelings and emotions and this should be one of the primary goals of training, education and mental hygiene programmers. The idea of emotional control should not be confused with emotional rigidity, which is a much opposed to emotional adjustment and health as lack of maturity or control. Modern psychology prefers the word "Stability" of curse intense emotions we experienced by all but it is expected of an educated person that he should express his emotions in socially accepted ways. Without causing distress to others and without making a ridiculous play of him. Emotional maturity does not mean that emotions and feelings should be banished from life, but they shall be experienced in their full range and complexity. These are the species life and make it worth living. Maturity means that young people should act, behave and feel as people of their age do. They should live and act accordingly to their age.

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Slightly more than half of adolescents who reported having a health care visit reported that they had an opportunity to talk alone (without a parent or other adult present) with their physician, and fear of disclosure was a major reason for adolescents having missed care they believed that they needed.

SEX EDUCATION

Sex education is instruction on issues relating to human sexuality, including human sensual anatomy, sexual reproduction, sexual activity, reproductive health, emotional relations, reproductive rights and responsibilities, sexual abstinence, and birth control. Common avenues for sex education are parents or caregivers, formal school programs, and public health campaigns.

Sex education aims to reduce the risks of potentially negative out comes from sexual behavior, such as unwanted to unplaced pregnancies and infection with sexually transmitted diseases including HIV. It also aims to contribute to young positive experience of their sexuality, by enhancing the quality of their relationships and their ability to make informed decisions over their life time. Sex education snowed be more than just puberty and reproductive biology; It should help young people to be safe and enjoy their sensuality. If sex is going to be effective, it needs to include opportunities for young people develop skills as it can be hard for them to information.

Sex education that works also helps equip young people with the skills to be able to differentiate between accurate and inaccurate information, and to discuss a range of moral and social issues and perspectives on sex and sexuality, including different cultural attitudes and sensitive issues like sexuality, abortion and contraception.

Young people can be exposed to a wide range of attitudes and beliefs in relation to sex and sexuality for example, some health massage and emphasize the risks and dangers associated with sexual activity and some media converge promotes the idea that being sexually active makes a person attractive and mature. because sex and sexuality are sensitive subjects, young people and sex educators can have strong views on what attitudes people should hold, and what moral framework should govern people's behaviors young people can be very interested in the moral and cultural frameworks that bind sex and sexuality. They often welcome opportunities to talk about issues where people have strong views, like abortion, sex before marriage, lesbian, gay it is important to remember that talking in a balanced way about differences in opinion does not promote one set of views over another or mean that one agrees with a particular view. Finding out that you agree to disagree.

People providing sex education have attitudes and beliefs of their own about sex and sexuality and it is important not to let these influence negatively the sex education that they provide sex education should start early, before young people reach puberty, and before they have developed established patterns of behavior.

Many schools that have a strong religious influence are opposed to comprehensive sex education. This can severely limit a pupil's education, with information only being provided in their biology, class under the heading of 'reproduction'. These classes can be about, literally, the 'birds and the bees'.

NEED AND IMPORTANCE OF PRESENT STUDY

1. Understanding the differences and similarities between two genders in terms, of body and mind will set up a foundation for the future development.
2. Sex Education is a kind of holistic Education. It teaches on individual about self-acceptance and the attitude and skills of interpersonal relationship.
3. The objective of sex Education is to help students understand the body structure of men and women and acquire the knowledge about the birth.
4. Teach students to establish and accept the role and responsibility of their own gender by the knowledge of sex.

OPERATIONAL DEFINATION OF KEY TERMS

Awareness - Awareness is the ability to perceive to feel, or to be conscious of events, objects thoughts, emotions or sensory patterns. In this level of consciousness, sense data can be confirmed by an observer without necessarily implying understanding.

Sex education - Sex Education is instruction on issued relating to human sexuality, including human sexual on anatomy, sexual reproduction, sexual activity, reproductive health emotional relations, reproductive right and responsibilities sexual abstinence, and birth control, common, avenues for sex Education are parents for caregivers, formal school programs and public and public health campaigns.

Adolescents - Adolescence is a transitional stage of physical and psychological human development that generally occurs during the period from property to legal adult. The period of adolescence is most closely associated with 16 - 18 years near about.

Students - A student is a learner or someone who attends an educational institution. At the present study the student mean who are studying in senior secondary school level.

OBJECTIVES OF THE STUDY

- To study the attitude of senior secondary school female students towards sex education.
- To study the attitude of rural senior secondary school female students towards sex education.
- To study the attitude of urban senior secondary school female students towards sex education.
- To compare the attitude of rural and urban senior secondary female students towards sex education.

HYPOTHESES OF THE STUDY

- There is no significant difference between the attitude of rural and urban female senior secondary students towards sex education.

DELIMITATIONS OF THE STUDY

- Present study restricted only for Gohana block.
- This study delimited to the senior secondary school female students only.

METHOD USED IN PRESENT STUDY

In the present problem or study was an attempt to A comparative study of awareness about Sex Education in the adolescent students of Gohana Block. To achieve objectives of study, the researcher has used the descriptive survey method to facilitate the study easier.

POPULATION OF THE STUDY

In the present study all students of senior secondary schools of Block Gohana of District Sonipat has been selected for population.

SAMPLE OF THE STUDY

The present study conducted on a sample of 50 students selected from senior secondary schools of Block Gohana of District Sonipat in which 25 female students of urban area and 25 female students from rural area are selected.

TOOL USED IN PRESENT STUDY

In the present study investigator has used a self-made questionnaire for measuring of awareness about sex education in the adolescent students of Gohana Block.

STATISTICAL TECHNIQUES USED

Completion of any scientific analysis is possible only with the use of some statistical processing. The acceptance or rejection of hypothesis ultimately determines the contribution of the investigation in the scientific development of a particular area. This is especially true for statistical techniques in the analysis for interpretation of the data, with the use of some statistical processing. In this research, t-test was applied to achieve this mean, standard deviation. Therefore, test was considered to be the most suitable measure to find the significance of difference among those two groups. For the calculation of ‘t’ ratio the following step were adopted: -

Mean **–** The mean of a distribution is commonly understood as the arithmetic average. It is perhaps the most familiar, most frequently used well understood average.

The mean of a set of observations or scores is obtained by dividing the sum of all the values by the total number of values.

$$M = \frac{\sum X}{N}$$

M = mean,
$\sum$ = sum of
X = scores in distribution
N = Total number of scores

Standard Deviation **-**This is the most accurate measure of variability. It not only represents the speed of distribution but the degree which the score is around the mean.

The measure is known as the standard division of the distribution. It is referred as S.D. The following formula used for collecting **S.D.**

S.D. $\sigma = \Sigma (d)^2$
N (for large sample >25)
S.D. $\sigma = \Sigma$ (d)2
N-1 (for small sample = or <25)
σ = SD of samples
d = Mean difference
N = Number of samples
$\sqrt{\sum d^2}$ = Square of positive difference

T-Test -Applying T-Test =
‘t’ value = $M_1 - M_2$
$\sigma_1^2\ \sigma_2^2$
$N_1\ N_2$
M_1 = Mean of first Group
M_2 = Mean of second Group
σ_1 = S.D. of first group
σ_2 = S.D. of second group
N_1 = Number of data of first group
N_2 = Number of data of second group

Percentage **-**Percent means “for every 100” or “out of 100.” The (%) symbol as a quick way to write a fraction with a denominator of 100. As an example, instead of saying “it rained 14 days out of every 100”, we say “it rained 14% of the time.” Percentages can be written as decimals by moving the decimal point two places to the left:

$$\text{Percentage formula} = \frac{\text{Number of agree answer given by student x 100}}{\text{Total number of students}}$$

In the present study data was conducted on a sample of 100 students of adolescent stage of Block Gohana of District Sonepat in which 50 students of rural area and 50 students from urban area are selected.

The self-made questionnaire was used collection of data. The scores obtained from students were used in making a master chart for various groups under study. The statistical analyses were computed for each objective separately. Mean S.D., and ‘T’ ratios were worked out to find the significance of difference between means.

Analysis And Interpretation Of Data In Percentage

Showing the Attitude of Senior Secondary School Female Students Towards Sex Education

Sr.	Question	Gender	Rural area's students				Urban area's students			
1-	Moral education can be provided through sex education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	23	92	2	8	24	96	1	4
2-	Students can discuss frankly with their parents by sex education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	17	68	8	32	19	76	6	24
3-	Sex education can develop self confidence in students.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	24	96	1	4	23	92	2	8
4-	Teacher plays a big role in providing sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	12	48	13	42	12	48	13	42
5-	Sex education can make the student mentally strong.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	20	80	5	20	16	64	9	36
6-	Sex pho bia can be removed through Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	20	80	5	20	21	84	4	16
7-	The relationships strengthen between teacher and student by Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	11	44	14	56	12	48	13	42
8-	Student will be intellectually strong by Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	13	52	12	48	21	84	4	16
9-	Sex – education help student to understand sexual problems.	Yes	Yes%	No	No%	Yes	Yes%	No	No%	
		Female	24	96	1	4	24	96	1	4
10-	Scientific knowledge about sex can be provided through Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	13	52	12	48	18	72	7	28
11-	There is no need of special training for Sex – education.	Yes	Yes%	No	No%	Yes	Yes%	No	No%	
		Female	14	56	11	44	19	76	6	24
12-	Sex – education can arise emotional problems.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	20	80	5	20	22	88	3	12
13-	Sex – education is a big problems in development of co – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	14	56	11	44	19	76	6	24
14-	Uncontrolled population growth can be restricted through Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	21	84	4	16	21	84	4	16
15-	Youth can save from sexual harassment by Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	19	76	6	24	19	76	6	24
16-	Sex – education should be included in curriculum in spite of discreet subject.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	21	84	4	16	18	72	7	28
17-	First lesson of Sex – education should be given by parents.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	21	84	4	16	20	80	5	20
18-	Sex – education should not be the important part of every stage formal education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	16	64	9	36	17	68	8	32
19-	Sex – education will help to reduce sexual crime.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	19	76	6	24	20	80	5	20
20-	There is no – need of pre-marriage Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	19	76	6	24	18	72	7	28
21-	Sex – education will decrease the interest of students in study.	Yes	Yes%	No	No%	Yes	Yes%	No	No%	
		Female	11	44	14	56	12	48	13	52
22-	Sex – education is hostile to Indian culture.	Yes	Yes%	No	No%	Yes	Yes%	No	No%	
		Female	19	76	6	24	18	72	7	28
23-	Sex – education will play an important role to maintain a better social – system.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	22	88	3	12	21	84	4	16

Sr.	Question	Gender	Rural area's students				Urban area's students			
24-	Inclusion of Sex – education in today education system is the need of country.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	21	84	4	16	19	76	6	24
25-	Implication of Sex – education in curriculum will make unnecessary burden of learning process.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	13	52	12	48	14	56	11	44
26-	Sexual offence may increase through sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	13	52	12	48	15	60	10	40
27-	To establish Sex – education with formal education is a challenging work for country.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	16	64	9	36	20	80	5	20
28-	Sex – education is not related with family planning.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	18	72	7	28	19	76	6	24
29-	Through Sex – education we can overcome on prejudices, complications and misconception.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	18	72	7	28	15	60	10	40
30-	Inclusion of Sex – education at elementary stage is beneficial for country.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	18	72	7	28	17	68	8	32
31-	Education of life skills is more important than sex education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	19	76	6	24	21	84	4	16
32-	Sex awareness can be developed in student through the interaction with classmates.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	19	76	6	24	21	84	4	16
33-	Sex – education will increase sexual harassment.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	15	60	10	40	14	56	11	44
34-	Sex – education is an essential educational programme.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	21	84	4	16	22	88	3	12
35-	It is possible to build responsible citizen through Sex – education?		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	23	92	2	8	19	76	6	24
36-	Sex – education should be establish as a independent subject in secondary and higher level curriculum.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	17	68	8	32	19	76	6	24
37-	We cannot include life values in students and teaching through Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	15	60	10	40	13	52	12	48
38-	Population control is not possible through Sex – education.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	13	52	12	48	16	64	9	36
39-	Sex – education is necessary to dissipate social evils.		Yes	Yes%	No	No%	Yes	Yes%	No	No%
		Female	18	72	7	28	24	96	1	4
40-	Sexual deceases can be prevent at through Sex – education.	Yes	Yes%	No	No%	Yes	Yes%	No	No%	
		Female	20	80	5	20	17	68	8	32

TESTING OF HYPOTHESIS

Hypothesis 1- There is no significant difference between the attitude of rural and urban female senior secondary school students towards sex education.

Table -1.
Showing the Attitude of Rural and Urban Female Senior Secondary School Students Towards Sex Education

Name of Group	Number of Students	Mean	S.D.	t-values	Level of significance
Rural area's female students of senior secondary level	25	28.0	5.87	0.81	Hypothesis is accepted at 0.01 & 0.05 level
Urban area's female students of senior secondary level	25	29.2	4.53		

df = (N1 + N2 – 2) = (25+25 - 2)= 48
T-value for df 48 are
2.682 at 0.01 level.
2.011at 0.05 level.

Figure -1.1 Showing Mean Differentials For The Attitude of Rural and Urban Male Senior Secondary School Students Towards Sex Education

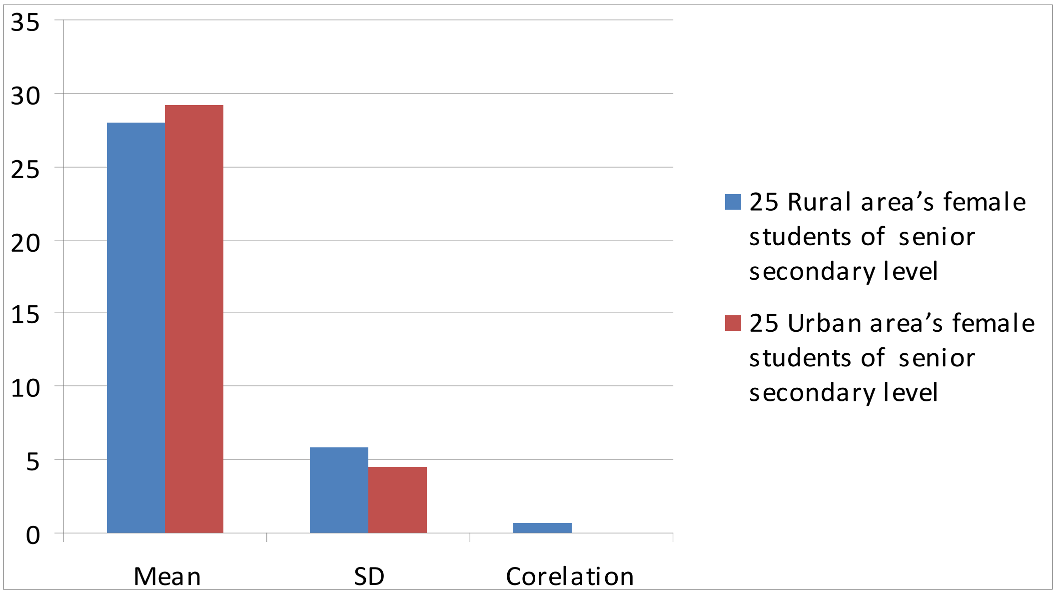

Table -1 and Figure -1.1 shows that the mean scores of the attitude of rural and urban female senior secondary school students toward sex education is 28.0 and 29.2 respectively whereas the standard deviation values are 5.87 and 4.53 respectively. The't' value obtained is 0.81. Comparing t-value with that from the table, it may be concluded that since the obtained t-value 0.81 is less than the table value 2.011 at 0.05 level of significance and 2.682 at 0.01 levels. Thus found null hypothesis accepted on 0.05 levels and 0.01 levels.

Therefore, it may be concluded that there is no significant difference between the attitude of rural and urban female senior secondary school students towards sex education.

CONCLUSIONS

One of the major purposes of carrying out investigation is to draw conclusions. The conclusions are the essentials of study, which tells about its outcomes. They are derived from the analysis of collected data and its interpretations. On the basis of analysis and interpretations of data, the following conclusions have been drawn: -

- In the present study after the analysis of data it was concluded that there is no significant difference between the attitude of rural and urban female senior secondary school students towards sex education. It concluded that the attitude of rural and urban female senior secondary school students towards sex education is of same level.

EDUCATIONAL IMPLICATIONS

Following are the educational implications of the present study: -

- Sex education should be according to the need, interest, and ability of the students so that she aware about sex education.
- Teacher should of high capable, affectionate co-operate and resourceful. So that they can able to increase awareness of sex education of her student.
- The situation and the environment, in which the learning is to make by the learner influences the learning process.
- A well-equipped, healthy class room environment proves awareness of sex education.
- A student who has developed a healthy attitude towards sex education they will make confidence in himself and make himself mantle strong. So it is the duty of the teacher to develop a favorable attitude in the students to motivate them.
- An aware student about sex education even through average student will be able to concentrate on his study. On the other hand, an unaware student disturbed even through intelligent, may find it difficult to achieve desired education goal.
- The findings may help the teachers adopting better strategies and provide extra educational treatment like guidance and counseling for the betterment of pupils.

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India-Asean Economic Engagement in Post Cold War Era

Dr. Poonam Devi

ABSTRACT

This paper aimed at giving a comprehensive view about India's economic engagement with regional grouping of South East Asian countries i.e. ASEAN. This paper has given a description of India-ASEAN merchandise trade, trade in services, their mutual investment and visit of tourists between these countries. This paper also gives an accounted factor responsible for economic convergence between two sides. It also gives a brief account of various problems and prospects available to both sides.

INTRODUCTION

In post-cold war era, geo-economic consideration has taken precedence over geo-political consideration. The end of cold war signifies 'End of Ideology' (as argued by Daniel Bell) or End of History (as defined by Francis Fukuyama). According to these theories now ideological battle has lost ground, and liberalism is the only real idea in international political arena. Another idea i.e. 'Globalization' has gained prominence in post-cold war era in economic sphere. The end of cold war brought many changes to India's engagement with countries of world. End of cold war established supremacy of liberal ideas in economic sphere. To improve her economic condition, Government of India adopted Structural Adjustment Program under the ages of IMF (International Monetary Fund) and has adopted LPG (Liberalization, Privatization and Globalization) model of her economic growth.

In the context of end of cold-war and adoption of economic reforms by India, there begun the process of rapprochement between India and South East Asian countries which are geographically proximate but were at distance due to cold war politics. At this juncture, Indian Government launched her 'Look East' policy. This policy set the notion which ultimately led India's integration in regional organizations of South East Asian countries.

India's 'Look East Policy' as argued by analysts was more guided by economic imperatives and less by political rhetoric. This policy was a tool for New Delhi to search new trade entryway. On the other hand, the partial withdrawal of mixed economy system by India and introduction of New Economic Policy (NEP) attracted many Southeast Asian countries to forge closer economic and strategic linkages with India. This shift in India's approach resulted in India becoming sectoral dialogue partner of ASEAN (A regional organization of Southeast Asian countries) in January 1992. India's stature was further elevated to the level of full dialogue partner in December 1995.

Since then a number of institutional mechanism have been established to promote economic exchanges. These mechanism includes Joint Business Commission (Earlier known as Joint Trade Committee), the India-ASEAN Business Council and ASEAN-India Joint Management Committee. Apart from multilateral engagement, India and individual country of South East Asia have various mechanism of promoting their economic partnership.

FACTORS RESPONSIBLE FOR ECONOMIC CONVERGENCE

Factors which necessitated convergence between India and Southeast Asian countries on the Economic front. These factors were as:

The first and foremost reason was the adoption of LPG model by India in 1990s, which made India to search for economic space in outer world. Thus India started exploring her relations with her extended neighborhood i.e. with countries of Southeast Asia. This region has comparative advantages over other regions because of their liberal economies and geographical proximity with India.

Another reason for India was underdevelopment of her Northeast region and resultant violent insurgencies. Consequently, India needed to develop the region and make it economically developed which could avoid future insurgencies and unrest. The Indian establishment thus planned to forge closer economic relations with Southeast Asian countries so that her Northeastern states can be benefitted from trade and other economic engagements with Southeast Asian countries.

Worldwide it has been witnessed that adoption of globalization and liberalization would result in expansion of economic activities. But India could not enhance her footprints in the western front because of presence of Pakistan and instability and turmoil in West Asia. So the

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cooperate India has necessitated that Government should enhance her relations with countries of Southeast Asia which could provide space to them for selling their manufactured goods and to invest in these countries.

Further the economic success of Southeast Asian countries, has attracted India towards this region. In 1990s, Southeast Asia (except east Asia) was the most developed region in Asia. So the Indian establishment had realized that it would be an historical mistake, if it does not increase her engagement with countries of this region.

Another reason was increasing economic engagement of China with South Asian countries. China's presence in India's neighborhood was a source of nuisance and threat to India's territorial and maritime security. But India does not have might or means to push China out of the region. But by developing closer relations with Southeast Asian countries, India will return the same to China in the same coin. Because Southeast Asian region is a traditional stronghold of China and increase in India's presence in this region may throw challenge to China in the long run.

On the other hand, Southeast Asian countries also attracted towards India because of her large market and soft power. Democratic Indian polity offered opportunities to Southeast Asian countries for investment in India. Moreover, the ancient cultural and trade relations provide further support to having closer economic ties between the two.

ECONOMIC INTERACTION

India-ASEAN trade was US$ 2.9 billion in 1993 but it has grown to US$ 6.5 billion in 1996 to US$ 92 billion in 2018. This increase in India-ASEAN relations is largely attributed to launch of economic reform and 'Look East Policy' by India. Since then a large numbers of institutional mechanisms has been evolved to promote their economic interactions. There exists a Joint Trade Committee with ASEAN countries, it is now upgraded to Joint Business Commissions. Two new institutions India-ASEAN Business Council and ASEAN-India Joint Management Committee are established. Two sides have established India-ASEAN fund to promote trade investment, tourism and other economic activities.

India's accommodation in ASEAN as a sectoral dialogue partner opened the doors of mutual cooperation in areas of trade, investment and tourism. India's status was further elevated to full dialogue partner in 1995. The Economic interactions between India and ASEAN countries will be assessed on the basis of trade, investment, joint venture and flow of tourists between two sides.

MERCHANDISE TRADE

India-ASEAN merchandise trade has grown steadily from 1990s onward. India's trade with ASEAN has increased from US$ 1960 million in 1991 to US$ 75,845 million in 2014 i.e. registering an annual growth rate of 15.37 percent in the last decade. Trade volume between them has registered a compound annual growth rate of 17.23 percent during that period. Trade relation between India and ASEAN gained more maturity between 2001-2020. India's total trade with ASEAN in value terms is about forty times more than the trade volume in 1991. Trade statistics suggests that India's import from ASEAN has been growing faster than her export to ASEAN. In last three decades India has a net trade deficit with ASEAN.

In recent times ASEAN has become one of the largest trading partner of India as their inter-regional trade has increased from US$ 8.99 billion in 2000 to US$ 91.20 billion in 2019. India's total trade with ASEAN countries is shown in a table below as:

Table 1
India's Export to and Import from ASEAN (value in US$ billion)

Country	Export (US$ billion)			Import (US$ billion)		
	2010	2019	Annual Growth Rate (%)	2010	2019	Annual Growth Rate (%)
Brunei	0.02	0.05	10.8	0.21	0.54	11.2
Cambodia	0.06	0.20	14.2	0.01	0.04	21.6
Indonesia	4.57	4.62	0.1	9.72	14.89	4.9
Lao PDR	0.01	0.03	14.6	0.02	0.00	-20.0
Malaysia	3.55	6.41	6.8	6.00	10.32	6.2
Myanmar	0.27	0.95	14.8	1.12	0.54	-7.8
Philippines	0.80	1.62	8.1	0.40	0.55	3.7
Singapore	9.09	10.86	2.0	7.27	14.83	8.2
Thailand	2.14	4.30	8.0	3.95	7.04	6.6
Vietnam	2.49	5.61	9.5	1.00	7.53	25.2
ASEAN	23.02	34.66	4.7	29.68	56.28	7.4

**Source: Extracted from ASEAN-India development and cooperation report 2021 released by RIS. Available at http://www.aic.ris.org.in/sites/files/pdf./?*

Data of table 1, suggests that growth rate of India's export to ASEAN between 2010-19 is about 5 percent per annum. During this period most of India's export went to Singapore, Malaysia, Indonesia, Thailand and Vietnam. Table shows that India's import from ASEAN has been growing slightly faster than her export to ASEAN as shown in the above table. India's export to and imports from ASEAN declined between 2018 and 2019 due to trade tension and declining economic growth. In the Covid-19 period, India's export to ASEAN countries registered a positive growth rate, but her import registered negative growth rate form most of the ASEAN countries.

Table 2
India's Trade with ASEAN from 2019 to 2020 (value in US$ billion)

Country	Export (US$ billion)					Import (US$ billion)				
	2019	Growth Rate % (2018-19)	June 2019	June 2020	Growth Rate % (June 2019 to June 2020)	2019	Growth Rate % (2018-19)	June 2019	June 2020	Growth Rate % (June 2019 to June 2020)
Brunei	0.057	-15.2	0.002	0.003	36.6	0.58	34.4	0.05	0.03	-38.8
Cambodia	0.20	14.3	0.017	0.011	-34.6	0.05	-3.9	0.00	0.004	0.0
Indonesia	4.52	-5.6	0.286	0.286	0.0	15.54	-3.0	1.11	0.73	-34.3
Lao PDR	0.03	-21.8	0.002	0.005	164.9	0.00	-84.9	0.00	0.00	-27.3
Malaysia	6.26	-3.9	0.337	0.589	75.0	10.41	0.0	0.88	0.33	-62.9
Myanmar	0.96	-22.2	0.081	0.073	-10.3	0.51	13.2	0.02	0.02	-12.0
Philippines	1.63	-6.6	0.118	0.146	23.8	0.56	-9.7	0.04	0.03	-39.7
Singapore	10.79	3.5	0.694	0.919	32.5	14.90	4.0	1.31	0.65	-50.3
Thailand	4.33	-0.9	0.325	0.296	-8.9	7.04	-8.2	0.65	0.28	-56.1
Vietnam	5.51	-17.9	0.335	0.478	42.7	7.45	3.3	0.72	0.44	-39.3

**Source: Extracted from ASEAN-India Development and Cooperation Report-2021 released by RIC. Available at http://www.aic.ris.org.in/sites/files.*

Table 2, shows India's export to all ASEAN countries except Cambodia and Thailand has increased from June 2019 to June 2020. Whereas her import from all ASEAN countries except Cambodia has declined in same period. Growth rate of India's import in that period is negative for all ASEAN countries except Cambodia.

INDIA-ASEAN TRADE LIBERALIZATION

India had inked bilateral free trade agreement with some of Southeast Asian countries like Singapore and Thailand etc. In August 2009, ASEAN-India free trade agreement was signed. At that time both sides had a total population of 1.8 billion and a combined GDP of US$ 2.75 trillion (ASEAN Secretarial 2009). In 2010, ASEAN become 4th largest trading partner of India and India emerged as 6th largest trading partner of ASEAN. Man features of ASEAN-India FTA were:

- Each signatory country of the AIFTA can have at most 489 class in its negative list. But these products do not exceed more than 5 percent of the total bilateral imports.
- India has included 302 agricultural items, 52 items from machinery and auto, 81 items from textiles and clothing, 32 from chemical and plastic and 22 from other sectors.
- FTA required a phased reduction of import duties by India and ASEAN countries on agricultural and non-agricultural goods from their 2007 applied most favored nation tariff levels.
- The FTA have provision for safeguard mechanism to address sudden increase in import on account of tariff concessions. Such safeguard mechanisms can be imposition of safeguard duties. These safeguard duties can be levied to prevent or remedy serious injury or to save domestic industry. These duties can be imposed anytime during transition period i.e. from the date of entry into the force of agreement and ends five years from the date of completion of tariff reduction or elimination.

AIFTA has affected composition of India-ASEAN trade. Table 5.32 below show the India's top export items to ASEAN (pre and post-FTA).

Table 3
India's Top Export Commodities to ASEAN (in Pre and Post FTA period)

Top Commodity Exports in Pre-FTA (2009)	Top Commodity Export in Post-FTA (2019)
Mineral fuels, mineral oils and products of their distillations; etc. (17.6%)	Mineral fuels, mineral oils and products of their distillation; etc. (26.2%)
Ships, boats & floating structures (13%)	Meat and Edible Meat Products (7.4%)
Electrical machinery and Equipment and parts thereof, sounds recorders, etc. TVs (8.3%)	Machinery, mechanical appliances, nuclear reactors, boilers, thereof (7.0%)
Natural or cultured pearls, precious or semi-precious stones, precious metals (6.46)	Organic chemicals (5.9%)
Machinery, mechanical appliances, nuclear reactors, boilers, thereof (5.2%)	Fish and other aquaculture products (4.4%)
Organic chemicals (4.4%)	Motor vehicles other than railway tramway goods (4.2%)
Food processing products (4.3%)	Natural or cultured, precious or semi-precious stones, precious metal (3.9%)
Iron and Steel (3.3%)	Iron and Steel (3.9)
Meat and Edible meat products (2.8%)	Electrical Machinery and Equipment & parts thereof, Sound Recorders, TVs (3.0%)
Motor vehicles other than railway or tramway goods (1.8)	Aluminum and articles thereof (2.9%)
Pharmaceutical products (1.8%)	Cotton (2.8%)

**Source: Extracted from AIDCR Report 2021, released by AIC at RIS.*
Notes: Product items based on HS-2-digit level.

Table 3 shows that components of India's export to ASEAN has varied figures in pre and post FTA phase share of some items like minerals fuels, mineral oils and product of their distillations, meat and edible meat products, machinery, mechanical appliances, nuclear reactors, boilers etc. has significantly increased in post FTA phase. Whereas share of some products like natural or cultured pearls, precious or semi-precious stones, precious metal, electrical machinery and equipment and parts thereof has declined in post FTA phase. Some new items like fish and other aquaculture products, aluminum and articles thereof etc. find place in the list of major item of export to ASEAN in post FTA phase.

Impact of FTA on India's import from ASEAN pre and post FTA phase is shown in table below:

Table 4
India's Top Import Items from ASEAN in Pre and Post FTA Period

Top Commodity Imports in Pre FTA (2009)	Top Commodity Imports in Post FTA (2019)
Minerals fuels, mineral oils and products of their distillations etc. (24.9%)	Mineral fuels, mineral oils and products of their distillation etc. (20.7%)
Animal or vegetable fats, prepared edible fats etc. (15.4%)	Electrical machinery and equipment & parts thereof, sound recorders, TVs (15.0%)
Electrical machinery and equipment and parts thereof, sound recorders, TVs (11.5%)	Animal or vegetable fats, prepared edible fats etc. (10%)
Machinery, mechanical appliances, nuclear reactors, boilers, thereof (10%)	Machinery, mechanical appliances, nuclear reactors, boilers thereof (9.0%)
Ores, slag and ash (3.5%)	Organic chemicals (5.8%)
Wood and articles of wood, wood charcoal (3.3%)	Plastic and articles thereof (4.4%)
Plastic and articles thereof (2.8%)	Iron and steel (2.9%)
Ships, boats and floating structures (2.4%)	Copper and articles thereof (2.9%)
Natural or cultured pearls, precious or semi-precious stones, precious metal (1.7%)	Rubber and articles thereof (2.6)
Optical photographic medical and surgical etc. (1.5%)	Ships, boats and floating structures (2.5%)
Rubber and articles thereof (1.5%)	Chemical products (2.3%)

**Source: Extracted from AIDCR Report 2021, released by AIC at RIS.*
Notes - Product items based on HS-2-digit level.

Table 4 shows that although mineral fuel, mineral oils and products of their distillation etc. has remained top item of India's import from that region but its percentage has declined in post FTA phase. Shares of some products like electrical machinery and equipment and parts thereof, plastic and articles thereof etc. has increased in post FTA phase. Some products like organic chemicals, iron and steel, copper and articles, chemical products which were not part of major products now have become major items of India's import from ASEAN.

Under the ASEAN-India free trade Area, the India and ASEAN have agreed to progressively eliminate tariffs on eighty percent of the tariff lines which account for 75% of the trade. Under AIFTA, India has agreed to exclude 489 tariff lines (HS-06-digit level) from list of tariff concessions. She also agreed to exclude 590 tariff lines from the list of tariff elimination to take care of special concerns of some sensitive sectors like agriculture, auto, chemical, textiles, petrochemicals, crude and refined palm oil etc.

IMPLICATION OF AIFTA TO INDIAN ECONOMY

- It will extend preferential tariff access to Indian products in all ASEAN member countries.
- It will increase higher market competition.
- India's export complementary are higher with the ASEAN countries compared to other regions.
- The export and investment sectors will generate higher potential in the long term.

The AIFTA has wide ranging effects on India-ASEAN merchandise trade. In 2009. India ASEAN trade stood at US$ 42 billion but in 2019 it rose to US$ 97 billion i.e. more than double.

TRADE IN SERVICES

As per the data released by Government of India in 2019, India is among the world's top 10 exporters and importers of commercial services. Hence India has interest in promoting trade in services across the globe. In this direction trade in services agreement was signed in 2014. It became effective in 2015 for seven ASEAN countries namely Brunei, Lao PDR, Malaysia, Myanmar, Singapore, Thailand and Vietnam. Earlier India has signed Comprehensive Economic Cooperation Agreement with Singapore and Malaysia in 2005 and 2011 respectively.

India's total trade in services with ASEAN countries in 2015 was US$ 30 billion. Singapore, Malaysia, Indonesia and Thailand are main service trading partner of India. Their trade mainly concentrated in IT and information services, business, finance and insurance and transport services. Table 5 below show the India's services exports to ASEAN countries in 2015 as:

Table 5*
India's Services Exports to ASEAN Countries (US $ billion)

Sector Country	Total Services	Transport	IT and Information	Finance and Insurance	Other Business	Arts, Entertainment recreation & others	Telecom	Education
Brunei	38.4	7.2	20.3	0.5	4.0	0.2	0.6	0.1
Cambodia	117.8	37.8	55.6	2.5	2.8	0.7	3.6	0.5
Indonesia	2189.5	446.5	866	876	345.1	10.2	66.8	7.7
Malaysia	2189.6	419.4	1148.5	32.4	148.7	15.4	63.2	6.3
The Philippines	888.8	135.7	256.8	34.4	93.1	19.3	20.7	11.8
Singapore	8878.4	1480.2	2432.1	1723	1903.8	43.9	155.5	26.5
Thailand	1805.7	881.0	46.8	87.1	331.9	14.5	22.7	7.7
Vietnam	880.5	308.3	102.5	141.9	235	8.5	6.6	6.6

**Source: OECD TIVA Database.*

Table 5 shows that India's export of services to Brunei, Malaysia and Singapore are highest in IT and Information. Among ASEAN countries Singapore was the largest destination of India's services in ASEAN country.

Table 6 below shows the India's service import from ASEAN countries in 2015 as:

Table 6*
India's Services Import from ASEAN Countries (US $ billion)

Sector Country	Total Services	Transport	IT and Information	Finance and Insurance	Other Business	Arts, Entertainment recreation & others	Telecom	Education
Brunei	36.4	15.3	1.2	0.7	7.3	0.4	0.4	0.1
Cambodia	8.3	4.8	0	0.1	0.9	0.1	0.2	0.1
Indonesia	27.59.9	492.1	20.4	42.5	333.3	11.2	34.6	3.0
Malaysia	1457.8	290.7	70.1	48.3	222.2	16.1	24.3	4.4
The Philippines	548.1	122.3	20.5	146.9	157.7	6.0	6.5	0.7
Singapore	6461.0	1764.1	273.6	1324.2	751.1	32.4	25.3	8.9
Thailand	1658.6	310.4	1.5	62.2	240.9	38.6	30.7	0
Vietnam	260.5	78.9	7.0	51.2	10.8	1.8	3.8	0.8

**Source: OECD TIVA Database.*

Table 6 data suggests that all AITSA countries of ASEAN except the Philippines are the major exporter of transport services to India. Among these countries highest value of finance and insurance, educational and IT and information services are provided by Singapore to India.

ASEAN-INDIA TRADE IN SERVICES AGREEMENT (AITSA)

The ASEAN countries and India signed ASEAN-India Trade in Services and Investment agreement in 2014. It became operational in 2015. This agreement aimed at strengthening the business and commercial relations between ASEAN and India. This agreement contains articles on transparency, domestic regulations, market access, national treatment, joint committee on services, dispute settlement etc. This agreement also has annexure or movement of natural persons which was the main area of India's interest. The agreement also defines natural persons like business visitors, intro corporate transferees (managers, executives, and specialists) and contractual services suppliers.

Under ASEAN-India trade in services agreement, the ASEAN countries and India have taken GATS (General Agreement on Trade in Services) plus commitments in various services and modes of supply. Under this agreement every ASEAN country has placed individual commitments which are applicable for all country in the agreement. Under this agreement India placed three schedules of commitments i.e. one for Philippines, one for Indonesia and one for remaining eight ASEAN countries. Services coverage in ASEAN-India's trade in services agreement is given in a table below:

Table 7*
Services Coverage in ASEAN-India Trade in Services Agreement

Service Sectors	India-Indonesia	India-The Philippines	India-Others	Brunei	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	The Philippines	Singapore	Thailand	Vietnam
Business Services	√	√	√	√	√	√	√	√	√	√	√	√	√
Communication Services	√	√	√	√	√	√	√	×	√	×	√	√	√
Construction & Related Engineering Services	√	×	√	×	√	√	√	√	√	×	√	√	√
Institution Services	×	×	×	×	√	×	×	×	×	×	√	√	√
Educational Services	×	×	×	√	√	√	√	√	√	×	√	×	√
Environmental Services	×	×	×	×	√	×	√	×	×	√	√	×	√
Financial Services	√	√	√	√	√	√	√	×	×	√	√		√
Health Related and Social Services	√	√	√	√	√	×	×	×	×	×	√	√	√
Recreational Cultural & Sporting Services	×	×	×	×	√	×	×	×	√	×	√	√	√
Transport Services	√	×	√	√	√	√	×	√	√	√	√	√	√
Other Services not included elsewhere	×	×	×	×	×	√	×	×	×	×	√	×	×

**Source: Compiled from ASEAN-India Development and Cooperation Report 2021: Avenues for Cooperation in Indo-Pacific.*
*** Telecommunication sector is excluded for Malaysia for ASEAN-India FTA as Malaysia has reclassified its communication sector on the basis of provisioning of NFP, NSP and Application service provider.*

Table 7 data shows that Singapore is the only country in ASEAN where all kinds of services is included. Vietnam and Cambodia are the two countries where all specified services are included. Business services are the only service which is agreed by all countries in this agreement.

Trade statistics suggests that over the years, India's trade in services with the world has increased from US$ 232 billion in 2010 to US$ 382 billion in 2018. As far as India's service export with ASEAN countries is concerned at stood at US$ 30 billion in 2010. It further rose to US$ 24 billion in 2016. Whereas India's import from ASEAN economies has increased from US$ 14 billion in 2010 to US$ billion in 2016. India-ASEAN service trade is expected to reach US$ 100 billion by 2015.

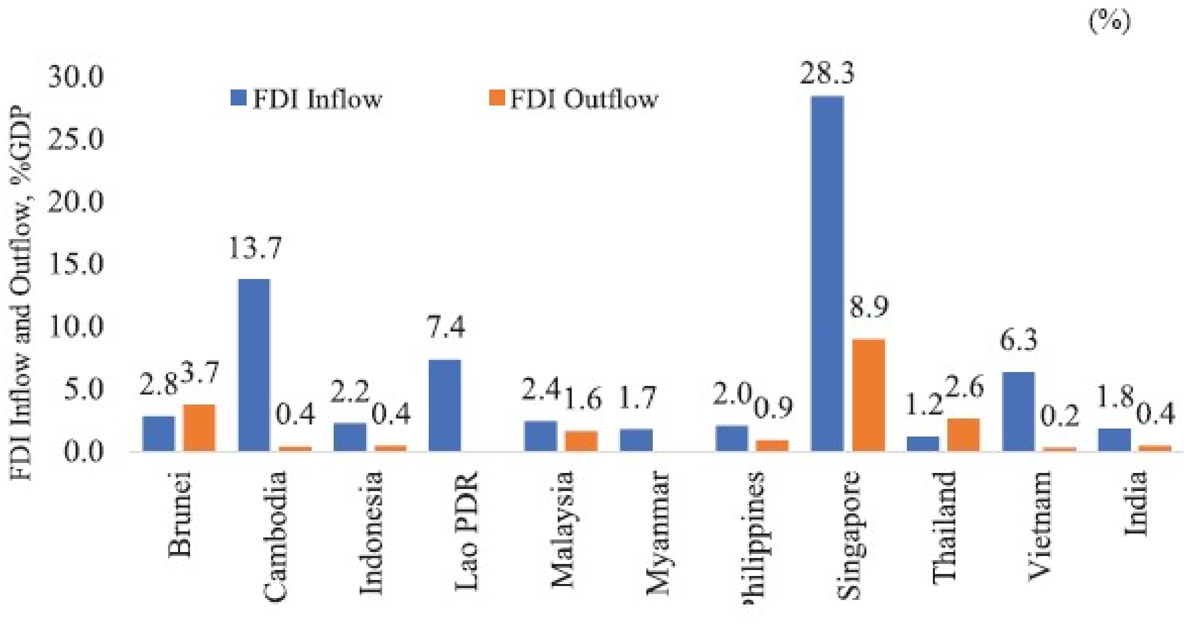
INVESTMENT

Importance of global investment is growing all over the globe in the present era of globalization. Presently investment is regarded a vital source of not only money but also of new technology and managerial skill. Today FDI (Foreign Direct Investment) flows all over the world have been rising much faster than all other indicators of economic growth. India started paying attention to attract FDI after launch of economic reforms. To make India an attractive destination for investment, Indian government made a numbers of changes like it ended licensing system, liberalized her exchange rate regime, also has extended limit of foreign investment in various sectors etc.

In recent time government of India has recognized FDI as strategic and vital segment for her economic growth and development. India-ASEAN investment relation started in 1960, when some Indian entrepreneurs ventured into some ASEAN countries to put industrial units in partnership with local entrepreneurs. But these were small steps. Major boost to India-ASEAN investment started in post liberalized era. Before 1990, there was no definite Indian policy to project India as attractive investment destination. Whereas some ASEAN countries like Singapore, Malaysia, Thailand, Indonesia and Philippines has emerged as an important source of FDI across the globe. The launch of economic reforms and Look East Asia Policy by India created mutual interest between India and ASEAN countries.

FDI inflows has increased in ASEAN countries and India between 2000 and 2019. There was FDI inflow about US$ 50.61 billion in 2019 in India which is about 2% of her GDP. Total FDI inflow and outflow to India and ASEAN countries as a percentage of their GDP as depicted in a graph below as:

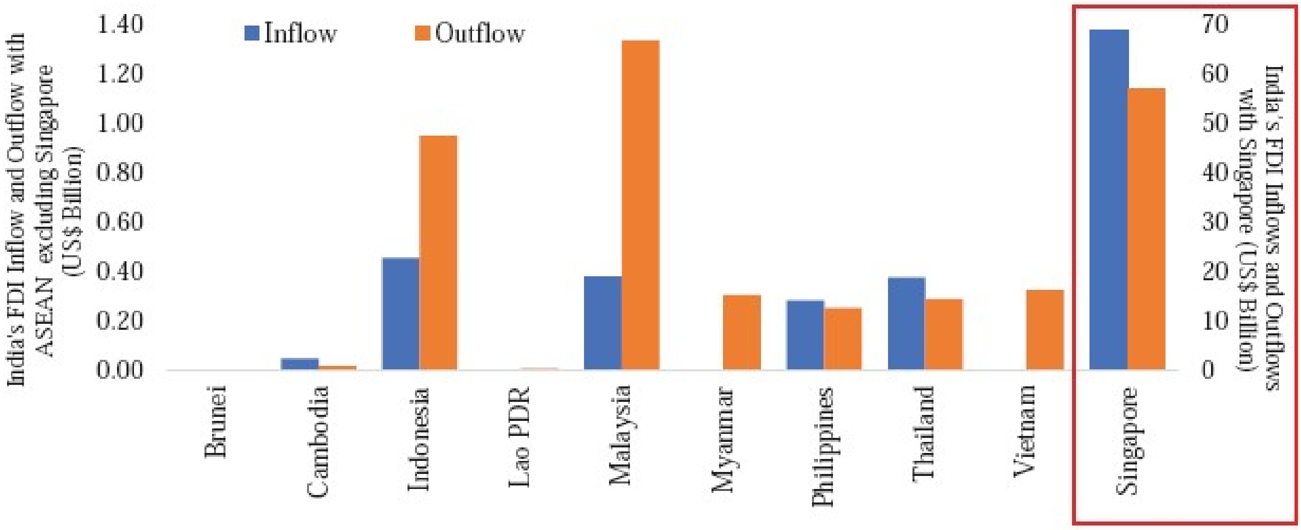
Figure-1: Share of FDI Flows in GDP, 2019



**Source: Extracted from ASEAN-India Development and Cooperation Report 2021: Avenues for Cooperation in Indo-Pacific, p. 88.*

India's FDI flow to and from ASEAN countries has been increasing steadily. It was US$ 1.53 billion in 2010 and increase to US$ 70.69 billion in 2019 thereby registering a growth rate of 47 percent. In 2019, out of India's total FDI flow from the world, about one-fourth of it came from ASEAN countries. The outflow of FDI from India to ASEAN countries has also increased from US$ 12.52 billion in 2010 to US$ 60.5 billion in 2019. India's FDI inflow and outflow with ASEAN countries from 2010 to 2019 is depicted in a graph below:

Figure-2*: India's FDI inward and outward stock with ASEAN countries



**Source: ASEAN-India Development & Cooperation Report 2021: Avenues for Cooperation in Indo-Pacific, p. 90.*

The above figure shows that out of total FDI inflow in India between 2010-19, about 98 percent came from Singapore only and rest 2 percent came from Indonesia (0.6%), Malaysia (0.5%), Thailand (0.5%), Philippines (0.4%) and Cambodia (0.1%) put together. In the same period India's total FDI outflow to ASEAN countries, 95% of it went to Singapore, and rest 5 percent is shared by Malaysia, Thailand and Cambodia put together.

India received FDI equity inflows of US$ 457.46 billion from the world between 2000 to 2019 and out of this US$ 97.19 billion i.e. about 21.25% came from ASEAN countries Maximum FDI from ASEAN countries is done in services sector (20%), trading (14%) and computer software & hardware (12%).

ASEAN's FDI flows to India is mainly in real estate sector which account for 27.9% of India's total FDI inflow from ASEAN. Real estate sector is followed by coal, oil and natural gas sector which grossly account for 18.8 percent of total. Other sectors that has attracted FDI from ASEAN countries include semi-conductors, financial services, chemicals, transportation to name a few.

TOURISM

In recent times tourism has emerged as one of the major foreign exchange earners for many countries. This is applicable to India and Southeast Asian countries as well. There exists huge potential on promotion of tourism between India and Southeast Asian countries as, they share close cultural and historical linkage apart from geographical proximity. In recent year arrivals of tourists from ASEAN countries has increased this is largely attributed to India's unilateral grant of Visa on Arrival (VoA) facility to all nationals of ASEAN countries. Tourist arrival in India from ASEAN countries has increased from 5,21,755 in 2011 to 8,87,088 in 2018 thereby growing at the rate of 7.88 percent annually. In 2018, highest numbers of tourists to India came from Malaysia followed by Singapore and Thailand respectively. Tourist arrival from Southeast Asian Nationals account for about 10 percent of total tourist arrival in India in 2018.

Large numbers of tourists from India also visited Southeast Asian countries. In 2011, a total 27,11,316 tourists visited to different Southeast Asian countries, but in 2018 their numbers increased to 46,70,574 thereby registering a growth rate of 8.08 percent. Most attractive distinction of Indian tourists in Southeast Asia is Thailand followed by Singapore and Indonesia respectively. To further promote tourism between two sides, in 2003, India extended her unilateral 'open skins' policy to some southeast Asian airlines. There specified airlines were allowed to operate daily flights to four metro cities of India and unlimited flights to 18 tourist destinations in India.

INSTITUTIONAL ARRANGEMENT

In post-cold war era, India-ASEAN relations has seen built up of some institution for promotion of their economic interaction. Some of these institutions are engaged in promotion of economic cooperation between them. A brief description of these institutions is given below:

ASEAN-India Joint Cooperation Committee – The AIJCC was establish to function as a key institutional mechanism for ASEAN-India strategic partnership. Within this mechanism ASEAN-India Working Group on Science and Technology and Trade and Investment was established. The AIJCC recognized India's advancement in the field of Science and Technology and has identified some areas like advanced material, biotechnology and information technology where India and ASEAN countries needs to cooperate. Till now eighteen ASEAN-India Joint Cooperation Committee meeting has been organized. The AIJCC meeting take stock of all aspects of ASEAN-India strategic partnership. The first AIJCC meeting was held in November 1996. The JCC has been entrusted with the responsibility of sustaining economic cooperation a taking a comprehensive view in the areas of culture, education, media and people to people contract.

ASEAN-India Business Council – The ASEAN-India Business Council provide a platform for the private sector to raise issues and concerns affecting private sector with the policy makers of both sides. First such meeting was held in 2005 next meeting of this was organized in March 2011 in New Delhi. Initially the ASEAN Business Advisory Council was established in November 2001 in Bandar Seri Begawan, Brunei Darussalam. It was formally launched in April 2003. ASEAN has discussion through Business Advisory Council with Australia, Canada, China, Japan and India. This council also identifies priority areas for cooperation between ASEAN and partner country. The recent meeting of ASEAN-India Business Advisory Committee was held in August 2020 through virtual mode.

CONCLUSION

India economic engagement with ASEAN is not devoid of problems. There are a numbers of issue and concerns which still needs to be addressed. Amidst problem there are numbers of opportunities available for them to further enhance their economic ties. A brief account of these problems and opportunities is given bellow: India has huge trade deficit with ASEAN countries. In 2019-20 it was as high as US$ 21 billion. India is facing large trade imbalance with some of Southeast Asian countries like Indonesia, Singapore, Malaysia to name a few. This trade deficit has further increased in post FTA phase. There is further apprehension that China may route her cheap products into Indian market through ASEAN countries as ASEAN-China FTA is operational.

Another problem in India-ASEAN economic engagement is presence of China factor. In 2020, ASEAN become largest trading partner of China in 2020 but it is 10th largest trading partner of India. ASEAN has a trade deficit of US$ 1,02,863.3 million with China, but with India they had a trade surplus of US$ 19,501.6 million for the period 2010 to 2019. So the ASEAN countries are more keen to increase their trade with China compare to India.

In post FTA phase, both India and ASEAN countries has used Non-Tariff Measures (NTMs) as a mechanism to restrict market access for the items which are not covered under FTA negotiations. The ASEAN-India FTA, since 2010 has resulted in the reduction of more than 80 percent tariff barriers on products at HS 6-digit level. But now trade policies of India and ASEAN countries are diverting from traditional trade policies like tariff, quota restrictions to Non-tariff measures. These measures restrict How to trade between two sides. Despite signing of AIFTA one decade ago still there are many products at HS-6-digit level which are under exclusion lists, sensitive trade or under highly sensitive list.

Overlapping FTAs poses major challenge to India-ASEAN economic integration, ASEAN has many FTAs with different countries like China-ASEAN FTA (CAFTA), ASEAN-Japan Comprehensive Economic Partnership (AJCEP), ASEAN-India FTA (AIFTA) and ASEAN-Korea FTA. India has signed comprehensive economic partnership with Singapore and Malaysia. In November 2020, ASEAN and other five (Australia, China, Japan, New Zealand and South Korea) signed RCEP agreement. The overlapping FTAs reduce the scale effect (economic) and damage the spirit of trade bloc.

Emerging trends in India-Southeast Asia relations suggests that there are large potential available in their further economic integration. According to IMF forecasts India-ASEAN trade will decline to US$ 84.1 billion in 2021 due to Covid-19 but it will soon rebound and would reach to US$ 116.1 billion by 2025. Apart from this, there are a number of opportunities available for future engagement of India-Southeast Asian countries. A brief description of these prospects is given below as:

During the pandemic period, composition of India-ASEAN is fast changing towards improving the quality of life of people. Trade is tilted in favor of pharmaceutical products, health services, digital product and services to name a few. In such a scenario review of ASEAN-India-FTA will address the underlying challenges and may convert them into opportunities. In August 2020, the 17th AEM-India consultation meeting Held. During this meeting it was decided to establish ASEAN-India Joint Committee for reviewing and upgrading ASEAN-India FTA.

India has competitive advantage in services as compared to the Southeast Asian countries. So both sides can explore new avenues for cooperation in service sector. Till now India has not benefitted with the FTA in services. So there is requirement that India should take alternative approaches such as bilateral labor agreement, cooperation in some services like movement of doctors, nurses, health professionals etc. can be mutually beneficial in the time of emergency like Covid-19.

Thus India's economic interaction with ASEAN countries has advanced a lot after end of cold war and signing of FTAs in goods and services but still there are many issues which need to be addressed by both sides to further cementing their economic ties. Endnotes

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A Managerial Perspective to New Normal

Dr. Bhoomika Saroha

ABSTRACT

Reaping the benefits under a compulsory situation of "New Normal". Highlighting what we can gain out of a bad situation of pandemic COVID-19. It is not about only survivingbut gaining & retaining it's learning for future beneficial use. It provides a better working & psychological environment to individuals, enhancing the financial capacity of corporates by reducing various cost, support of government for some areas which will be working in virtual mode. And finally the pool of benefits for the nation at large.

Keywords: New Normal, Corporates, Government, Nation.

OBJECTIVES OF STUDY

1. To study the beneficial aspect of New Normal to Individuals Corporates and Government.
2. To study and analyze the response of Individuals, Corporates & Government sector in different age brackets.

INTRODUCTION

New Normal is the situation which has come up as a result of worldwide pandemic COVID-19 .New Normal rests on 3 pillars

(1) Serial Distancing

(2) Wearing Mask

(3) Washing / Sanitizing hands

No doubt that the situation is bad and having negative psychological, social, emotional, economic& financial impact. But a ray of hope can be seen as the shining star is terms of new livingenvironmentimposed on all of us as compulsion. The art lies in exploitation of this compulsion in to situation beneficial to individuals, corporates, government and the nation at large. This forced living enviroment has provided the different strata's beneficial aspects too that can be seen as.

INDIVIDUALS

- Work from home
- Better interpersonal relation
- Simple living &high thinking
- Less physical fatigue
- Reduced cost of transport
- Decreased life style expenses like pub, hotels, movies etc.

CORPORATES

- Low cost of employees
- No need to invest in huge /expensive office spaces
- Day to day cost like electricity bill, lift operator, sanitizer, cleanershas been reduced drastically.

GOVERNMENT

- Ability to run the economy in virtual mode .
- Healthcare professional showed their skills by providingbest services.

INDIA : NATION AT LARGE

- Better living Environment (with less pollution)
- Cleaners & less congested roads
- Sense of empathy among citizens
- Saving by corporates as working on virtual mode
- More leisure time
- Availability of time for creative thinking & innovation.

In the time of distress, it is important to be positive but it is more important to gain this positivity out of the difficult situation & use it forever.

RESEARCH METHODOLOGY & ANALYSIS

For ourresearch purpose we have taken responses from 60 people 20 each from individual, corporate and government sector which further includes 20 people above the age of 50 and rest 40 are below 40 age.

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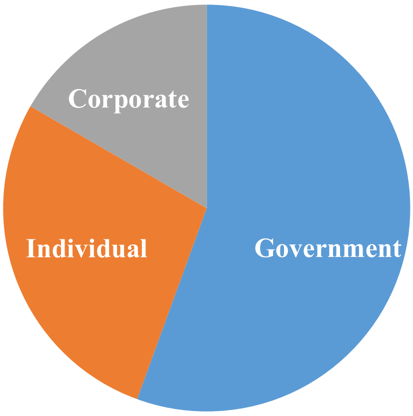

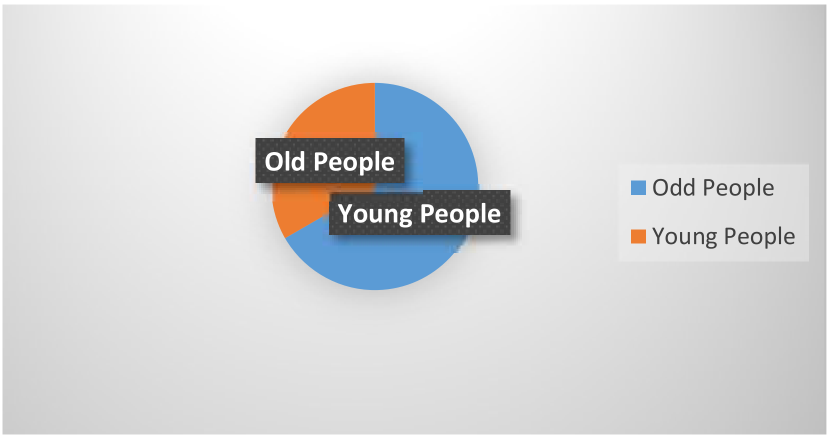

After analysing the responses of young individuals it is found that 18 out of 20 like work from home as it enhances its working capabilities,provides time for future learning courses, better personal ties with family members but they miss their life styles habits like hotels, malls, movies etc, In case of individuals it can be concluded that 90% ($18/_{20}$ x100)favour the option of work from home ever after the pandemic is over.

We look forward to Corporates, 15 out of 20 are in favour of working from home as it saves a lot of money on account of rent paid, transportation facility provided, other infrastructural expenses like electricity, food & beverages etc. They are meeting their targets in terms of working but their sales of goods & services is affected because of less buying capacity of the customer. Therefore, we can say 75% (15/20 x 100)corporates favour work from home providedtheir sales pick up as before.

Government sector is little reluctant to the concept of work from home at the lower levels, although the senior bureaucrats prefer work from home. There responses are mixed, so it can concluded that in case of Government blend of both work from home & physical presence will work depending up on the type of service being offered.

For e.g Policing requires physical presence and District Commissioners need to present physically to see the implementation of policiesbut their policy formulation part can be done in virtual mode.

If we further go in to the analysis on the basis of age factor it seenas :

⇩ ———— 60 ———— ⇩

20	40

Physical Presence virtual mode

Old people young people

>50 years of age< 40 years of age

The elder citizens express their favour for physical presence because their problems in using the tech- sarvy modes of working but approximiately 85% of the youngsters prefer virtual mode of working.

CONCLUSION

By analysing the data it can be concluded that most of the young individuals and corporates are in favour of work from home or virtual environment that is they are deriving benefits out of the situations created by pandemic. But the government employees have showedresponses to it. Further the old people are not in favour of virtual mode.

These results clearly reflects the dynamism of various drivers of the economy may it be Individual, Corporates or Government. We have learned how to not only sustain but to flourish & touch sky heights in the difficult times. The bad memories will slowly fade away as the pandemic of COVID-19 goes & time pases. But what will remain with us in the new concept of virtual mode or work from home & its benefits to be used for years to come. Thus it can be rightly said as “The ability to adapt, adopt to the new challenges for future benefits.”

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IRDA- Regulator of Insurance Sector in India

Kratika Suri[1], Kanishk K. Chauhan[2], Dr. Asha Chaudhary[3]

ABSTRACT

The Insurance Regulatory and Development Authority of India (IRDAI) is an independent, legal and professional body that regulates the insurance industry in India. It is based on the recommendations of the Malhotra Committee report of 1994. It was created by the Insurance Regulation and Development Authority Act, 1999, an Act of Parliament passed by the Government of India. In 2000 he won a parliamentary seat. The organization is headquartered in Hyderabad, Telangana, and relocated to Delhi in 2001. IRDA is 10-member body that consists of: One Chairman; Five full-time members; four part-time members. The paper highlights the structure, powers and functions, and awareness of IRDA among the people. The data for the study has been taken by means of questionaries. The paper points out that the Indian economy is growing, which in turn, creates a greater market for insurance companies. The insurance sector would bloom in the foreseeable future, and to ensure the smooth flow, IRDA as a body should work by abiding its limit without favouring any single insurance companies.

KEYWORDS: Insurance, IRDA, Regulatory body, Insurance Awareness, Regulations.

INTRODUCTION

Insurance is listed as the title of the Union in India's Seventh Constitution. The IRDA is the governing body responsible for regulating the insurance industry in India. It is based on the recommendations of the 1994 Malhotra Committee report. The report recommended that it should be an independent authority to regulate the insurance sector in India.

The IRDA Act of 1999 was passed in response to a proposal by the Malhotra Committee (1994). In April 2000, it was merged to form a legal corporation. The IRDA was revised in 2002 to address the growing demand for the Indian insurance market. As stated in the law the IRDA's policy is to "protect the interests of policyholders, to regulate, develop, and ensure the systematic growth of the insurance industry, and related or related matters." The following actions govern the policy framework of the Insurance Industry in India: Insurance Act.1938; Contract Act, 1872; Life Insurance Corporation Act, 1956; Maritime Insurance Act, 1963; General Insurance Business Act, 1972; IRDA Act, 1999; The Traffic Act, amended in 1988; Public Liability Act, 1991. The IRDA was enacted by an Act of India of India called Insurance and Regulatory Development of India following the official announcement of the Insurance Ordinance Act 2014, by the President of India Pranab Mukherjee on 26 December 2014.

The composition authority shall consist of following members:

A) Chairperson;

B) Not more than five whole-time members;

C) Not more than four part-time members.

The choice of the Central Government among the people with the ability, integrity, and knowledgeable experience or experience of life insurance, general insurance, actuary science, finance, economics, law, accounting, administration, or any other sector of the Central Government believes it may be to the advantage of the Authority. The IRDA must be responsible for ensuring the rapid and orderly growth of insurance businesses. It must manage and apply the quality of the business insurance industry and co-operation effectively. The IRDA must ensure that insurers provide accurate and precise information to insurance customers about the products they offer. The IRDA should also ensure that the claims of the real policy holders are resolved promptly and that wrongdoing in the claim process is avoided. IRDA owns the entire insurance industry. They establish a structure and boundaries that insurance companies must adhere to. The world moves away from paper records and goes to electronic records, especially financial records.

We can now monitor and access insurance policies electronically. IRDAI has issued guidelines relating to insurance reserves and the issuance of insurance policies electronically.

We can:

- Maintain, maintain and retrieve our policies and the information contained therein easily.
- Change or update our insurance policies promptly and accurately.
- Reduce the cost of issuing and maintaining insurance policies by increasing our efficiency and transparency.

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The recently launched Final Individual Policy Owners Policy is the first step of the IRDA, improving services to policyholders and increasing insurance coverage.

LITERATURE REVIEW

Dr Madhavi, N.R., in the research paper titled "Insurance Sector in India : Challenges and Opportunities" (January, 2014) highlights that insurance sector in India is one of the growing sector and the Indian insurance business has experienced remarkable expansion since the founding of IRDA and the opening up of this sector to private firms in 2000.

Dr. Kar, B.R., and Soni, S., in their research article "The impact of Regulatory and Development Authority (IRDA)" (August, 2013) write that IRDA is an autonomous and statutory body that regulates and directs the insurance market in India.

Parwat, A., Mukandam, Dr. Dev, P., in their research paper "IRDA: Regulator of insurance sector in India" (June, 2016) discuss the main goal of the IRDA which is to regulate, monitor, direct, and control various operations in the insurance business in the country.

Yadav, R.K., and Mohania, S., in their research paper "The Role of the Insurance Mediator and Complaints Management in Health Insurance Systems from an Indian perspective" (June, 2014) explained that a complaint is defined as a misconduct or misconduct that forms the basis of a complaint. The study concluded that in the handling of grievances, the role of the insurance ombudsman is very important and policymakers gain the confidence and trust of the Insurance Ombudsman's institution.

Prakash, P.J., in his article "IRDA's Role in the Indian Insurance Sector" (April-June, 2015) points out that IRDA is an independent regulatory body that regulates and develops the Indian insurance business. He writes that the authority protects the interests of policyholders, regulates the investment of insurance companies, and regulates the safety of security. He also writes that since the inception of the IRDA, the insurance industry has grown steadily and the IRDA has played a key role in the Indian insurance industry.

Goodman, J., and Delahunty in their article "Promoting Consumer Complaints in the Financial Sector", (November, 2001) write about how to encourage customers to voice their concerns by building a site and structure that encourages them to do so. Internal communication lines should be of the highest quality.

Booklet Printed by IRDA "promotes insurance while protecting the insured" (April, 2000). A brief history of IRDA is described in this brochure, as well as economic reforms since 1991. The pamphlet includes an overview of the Amphora committee.

RESEARCH OBJECTIVES

The main objectives of the present research are:

- To study the structure of IRDA.
- To create awareness of the IRDA's powers and functions.
- To understand measures undertaken by authority during the COVID-19 pandemic.
- To study the awareness among people about IRDA.

RESEARCH METHODOLOGY

The present work entitled "Role of IRDA in Indian Insurance sector" is based on primary data. The primary data has been collected with the help of Google forms. The researchers prepared and delivered the questionnaire themselves.

A total of 100 persons were studied and their data was gathered and Simple Random Sampling technique is utilized to examine the Project. Questionnaires were used to acquire primary data.

ANALYSIS AND INTERPRETATION

OBJECTIVE 1: STRUCTURE OF IRDA

The Authority of IRDA is a ten-member team consisting of:

(a) Chairman;

(b) five whole-time members;

(c) four part-time members,

(all appointed by the Government of India)

The chairman and the members of IRDA are appointed by the Government of India. Mr. Subhash Chandra Khuntia is the current Chairman of the IRDA.

ORGANIZATIONAL STRUCTURE OF IRDAI:

The IRDAI is made up of the following members, as stated in Section 4 of the IRDAI Act of 1999:

a) Chairman;

b) Five whole-time members;

c) Four part-time members,

(Appointed by the Government of India)

IRDAI'S HEAD OFFICE IS AT HYDERABAD

IRDAI's core functions include the following: ensuring financial stability for insurance brokers and monitoring the market conduct of the various regulated entities operated at Head Office.

IRDAI'S REGIONAL OFFICES ARE AT NEW DELHI & MUMBAI

The Regional Office in New Delhi is responsible for raising consumer awareness and resolving insurance complaints, as well as providing necessary support for inspections of insurance companies and other regulated businesses in the Northern Region. The licencing of surveyors and loss assessors is the responsibility of this office. Similar activities relevant to the Western Region are handled by the Regional Office in Mumbai, as they are by the Regional Office in Delhi.

SUPERVISORY ROLE:

1. The purpose of the directive as set out in the introduction to the IRDAI Act is to "protect the interests of the Insurers' policies, to regulate, promote and ensure the systematic growth of the Insurance industry", both the Insurance and Insurance business. The powers and functions of the Authority are set out in the IRDAI Act, 1999 and the Insurance Act, 1938 so that the Authority can achieve its objectives.
2. Representatives of trade, industry, transport, agriculture, consumer forums, inspectors, consultants, organizations involved in safety and loss prevention, research organizations, and insurance unions are represented under Section 25 of the IRDAI Act 1999. All applicable Industry rules, regulations, and guidelines posted on the administrator's website and is available free of charge to the public.

IRDA PORTAL

Customers and agents can access the agency's web site. On its website, the IRDA publishes its regulations, exam information, and other vital information. On the IRDA portal, there are a few things to keep in mind: No such thing as IRDA insurance exists. The agency is a regulatory entity, not a seller of insurance. The URL to view the agency's information online is www.irdaonline.org. In order to take the online exam, you must first register on the IRDA agent site.

OBJECTIVE 2: DUTIES, POWER AND FUNCTIONS OF IRDA

The functions of the IRDAI are defined in Section 14 of the IRDAI Act, 1999, and include:

- To promote the interests and rights of policy holders in matters relating to policy allocation, policy appointments, uninsured interest, payment of insurance claim, payment policy amount and other terms and conditions of insurance contracts.;
- To promote and ensure the growth of the Insurance industry;
- Ensuring the immediate termination of actual claims and the prevention of fraudulent activities;
- Bringing transparency and orderly conduct to the financial markets facing insurance;
- Protecting the interests of policyholders;
- Clarify the conduct of inspectors and inspectors of losses;
- Control and regulate premium levels and conditions of insurance covers;
- To promote and regulate professional organizations linked to insurance and the insurance business to improve efficiency in the insurance industry;
- To charge fees and other charges for the purposes of this Act;
- Provide licensing to insurance consultants as agents and dealers after specifying the required qualifications and setting the code / code of conduct;
- Controlling and controlling the prices, benefits, terms, and conditions that insurance providers may provide to a common insurance business that is not controlled and regulated by the Expenditure Advisory Committee under section 64U of the Insurance Act, 1938. (4 of 1938);
- Clarify the form and manner in which insurance companies and other intermediaries should make their financial statements;
- Controlling the maintenance of the margin of solvency insurance companies;
- To adjudicate disputes between insurers and mediators or insurance mediators;
- Overseeing the functioning of the Expenditure Advisory Committee;
- Specify the percentage of the life insurance business and general insurance business that will be insured in a rural or social area; and
- Use other powers as may be prescribed.

OBJECTIVE 3: MEASURES UNDERTAKEN BY AUTHORITY DURING THE COVID 19 PANDEMIC

COVID 19 pandemic has thrown unexpected challenges to all stakeholders of health insurance industry. Since the onset of pandemic, the Authority continuously monitored its effect on the health-care industry and had taken wide range of proactive measures giving relief to policyholders as well as insurance industry.

The following are some of the key steps initiated by IRDAI:

1. To protect policy interests, the circular dated 04 March 2020, advised all insurers to expedite the processing of COVID-19 claims and to ensure that COVID-related claims are not rejected without further investigation.
2. Regulations for renewal of health insurance policies to be renewed during the closing date of March 25, 2020 to May 03, 2020 were issued to provide insurance and benefits to continue during the grace period as long as the renewal premium is paid on or before 15th May, 2020.
3. In order to facilitate the payment of premiums by policyholders, renewable premiums in respect of all existing health products that must be renewed by 31 March 2021 are allowed to be collected in installments at the discretion of the insurance companies.
4. It is specified that all general and health insurance firms' indemnity-based health insurance policies that cover hospitalization treatment expenses pay the costs of inpatient treatment due to COVID -19.
5. All insurers have been advised to publish FAQs on COVID-19 claims in their respective websites.
6. Insurance brokers have been advised to make available comprehensive health coverage at affordable cost to various organizations / employers / institutions in accordance with procedures set by the Department of Home Affairs (MHA), GoI.
7. In order to expedite the payment of the claim, the Authority has established a two-hour conversion period (TAT) to issue both prior authorized prior authorization and final release of the cover-up patient on the April 18, 2020 circular.
8. All insurance providers are instructed to make certain efforts to deliver electronic mail to pay for their claims during the closing period to ensure that the applications are properly resolved.
9. On June 11, 2020, the Telemedicine Guidelines were published. As part of the claim process, insurers have been instructed to provide telemedicine services in accordance with the Telemedicine Practice Guidelines issued by the Medical Council of India (MCI) on March 25, 2020.
10. Until March 31, 2021, all insurance companies (Health, General, and Health) are allowed to sell COVID 19 special health insurance policies (for a minimum period of 3 to 11 months). Life insurance is permitted to provide short-term benefit-based policies.
11. Conventional COVID generic products and short term policy terms (3 12 months, 6 12 months, 9 12 months) are designed to meet the basic requirements of general public health insurance by providing financial protection to COVID 19.
12. Authorities have advised insurance companies to ensure that cashless services are available to all network providers (hospitals), and a press release was issued informing the public that if the hospital refuses to provide financial assistance, the relevant insurance company will be contacted to rectify the problem.
13. The rules for the payment of COVID claims for treatment in temporary or temporary hospitals as approved by the government are set out in the July 16, 2020 circular.

OBJECTIVE 4: AWARENESS AMONG PEOPLE ABOUT IRDA

Do you know about IRDA?

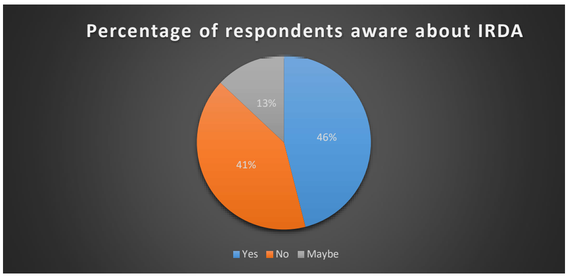


Figure: This pie chart shows that the 46% of respondents are aware about IRDA, whereas, 41% of respondents are not aware about IRDA and 13% respondents are not sure.

DO YOU KNOW ABOUT YOUR RIGHTS OF BUYING AN INSURANCE POLICY?

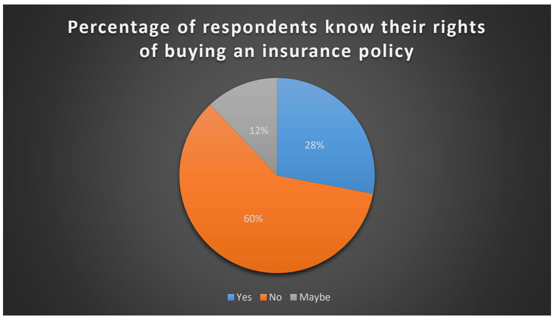


Figure: This pie chart shows that 28% of respondents are aware about their rights of buying an insurance policy, whereas, 60% of respondents are not aware about their rights of buying an insurance policy and 12% are not sure.

Which regulations of IRDA benefits customers?

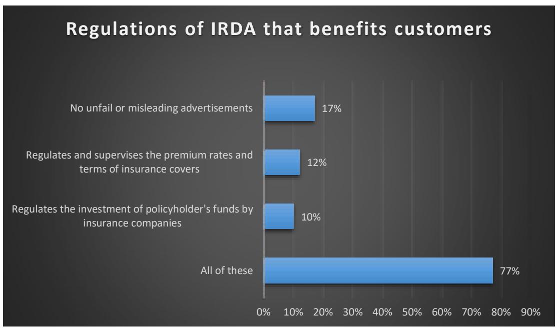
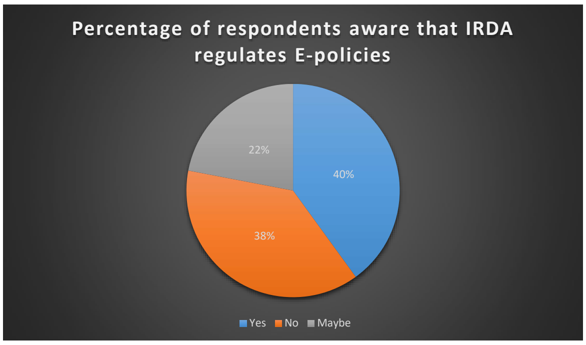


Figure: This graph shows that according to respondents which regulations of IRDA that benefits customers and only 77% of the respondents could tell it right.

Are you aware that IRDA regulates e-policies?

Figure: This pie chart shows that 40% of responders are aware that IRDA regulates e-policies, whereas, 38% of responders are not aware that IRDA regulates e-policies.



Are regulations framed by IRDA effective enough to safeguard you from fraudulent activities?

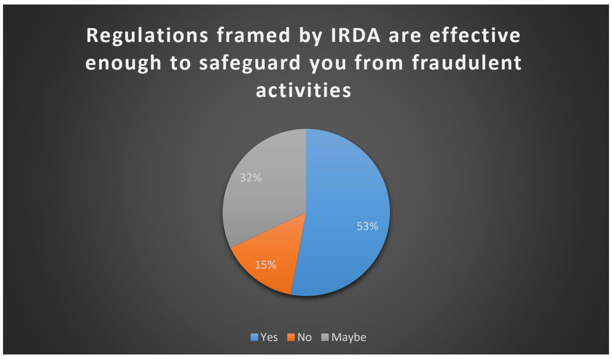


Figure: This pie chart shows that 53% respondents think that regulations framed by IRDA are effective enough to safeguard them from fraudulent activities, whereas, 15% of respondents think that regulations framed by IRDA are not effective enough to safeguard them. And 32% of respondents are unsure.

FINDINGS

- From all the research we have conducted, it was found that only 46% respondents are aware about IRDA, whereas, 41% of respondents are not aware about IRDA and 13% respondents are not sure.
- Our research work shows that only 28% of respondents know about their rights, whereas, 60% of respondents are not aware about their rights of buying an insurance policy and 12% are not sure.
- Our research work also shows that only 77% of the respondents could tell it right that which regulations of IRDA benefits customers.
- Our survey also shows that only 40% of responders are aware that IRDA regulates e-policies, whereas, 38% of responders are not aware that IRDA regulates e-policies.
- Our research work also shows that 53% respondents think that regulations framed by IRDA are effective enough to safeguard them from fraudulent activities, whereas, 15% of respondents think that regulations framed by IRDA are not effective enough to safeguard them.

CONCLUSION

All said it is quite clear that IRDAI is like the principal of the school called the insurance sector. It is in charge of ensuring that the sector runs smoothly and without hiccups. Moreover, through amendments and IRDAI regulations, IRDAI makes modifications to insurance rules on a regular basis to ensure that the insurance business can keep up with the changing needs of individuals. So, if you're scared about putting your trust in an insurance business, don't be! The insurance companies are legitimate and are governed by IRDAI standards. We can also file any complaints which we have, with our insurance with IRDAI, which will assist you in resolving your issues. India's insurance population is anticipated to touch 850 million in future. This is due to the growing interest towards insurance among Indians, innovative product designs and easy to access distribution channels. Over the next 30 years, some 600 million people are expected to move to cities, and world's population would also increase. Hence it would reshape the marketplace for insurers and other financial services businesses.

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Deepfake Technology and Its Implementation

Tarunim Sharma[1], Vinita Tomar[2], Surbhi Pandey[3], Harshit Sharma[4]

ABSTRACT:

Lately, anew technological advancement made it hard to believe about the authenticity of the media we are seeing. This new technology is none other than Deepfake, an AI technique by virtue of which people are able to create hyper-realistic media having no originality. And the pace with which improvements are being done to increase its accuracy are rising the threats that can create havoc on society. Therefore, this paper will be providing a comprehensive understanding about deepfake, how this technology got its raise, different techniques of creating deepfake, how deepfakes are different from other technologies like CGI, photoshop and cheap fakes, latest and earlier deepfake detection models and techniques created by researchers, the crucial steps taken by different country govts., tech giants and startups to curb the falsehood spread by the means of deepfake, it also highlights fields one where deepfake technology is growing prosperously and other where it is using its malevolent tricks to harm the society. The result shows that the combined effort of every section of society is required to maintain the reliability in media and facts that we see and more improved detection techniques and tools are being researched upon to achieve this goal.

Keywords: deepfake, variational auto-encoder, CGI, cheap fakes, deepfake detection techniques, video authenticator tool, neural network

INTRODUCTION

In recent years a fascinating technology has emerged which also received huge attention all over the world. This technology is known as Deepfake that is used to manipulate images and videos using deep learning algorithms. It's a hyper-realistic technology through which one person's image can be superimposed onto other person's face, or we can put any words into anyone's mouth and can create an environment of falsehood or can make a person act in any video in which he/she may not have participated, or can also make a dead person alive or an older person look younger. The terms "deep learning" and "fake" together make Deepfake, describing the technology and the resulting forged content, whose first usage was seen on the Internet in late 2017, generated by an innovative deep learning method Generative Adversarial Networks (GANs).

In the past few years, world has experienced the taste of deep fake then it maybe through the video of David Beckham delivering an anti-malaria message in different languages for a health charity in the UK.[3] However, the most striking and menacing use cases are when people misuse the technology for heinous purposes such as when Donald Trump was being called a "complete dipshit" by Barack Obama, or Mark Zuckerberg boasted about having "total control of billions of people's stolen data", or Jon Snow making an apology for the dismal ending to Game of Thrones or when an Dessa company used the talk show host Joe Rogan's voice to utter sentences he had never said.[11]

Deep fake can be used for virtuous purposes but is hardly implemented. According to Deeptrace, the proportion of online deepfake content is increasing at a rapid rate. As per reports, during the starting of 2019 there were only 7,964 online deepfake videos, just nine months afterwards, that figure bounced to 14,678 videos.[4] Hany Farid, a UC Berkeley professor also made a statement for the surge in deepfake usage, "In January 2019, deep fakes were buggy and flickery, nine months later, I have never seen anything like how fast they are going. This is the tip of the iceberg."[1] The tally, made by a startup, for deepfake videos raised from 14,678 in 2019 to 145,277 by June of upcoming year.

The deep learning algorithms used for deep fake are indomitable and are improving at an astounding pace that an average human is unable to differentiate whether a video he is seeing is authentic or deep faked. Researchers around the globe are excited about the implications of deepfake in different fields and simultaneously are concerned about its misuse. The major field of deepfake usage is revenge pornography. As per Deeptrace delineation, September 2019, 96% of online deepfake videos were found to be related to pornography. Deepfake pornography has been non-consensual and involved the artificial synthesis of explicit videos featuring celebrities or any personal contacts. Danielle Citron, a professor at Boston University, also outlined that "Deepfake technology is being weaponized against women.".[2]

Originating from the dark corners of the web, deepfake technology is been taken forward by its application in the field of art, acting, internet meme, social media, sockpuppets and politics where the potential for mayhem is even greater. It is

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easy to imagine the harm that could happen if forged videos are rendered before the entire population that they believe to be true. Its doubtless that this technology constitutes high risk to politics with regard to fake media surfacing as real, but the more tangible threat is the idea of deepfakes making the real appear fake.[9]

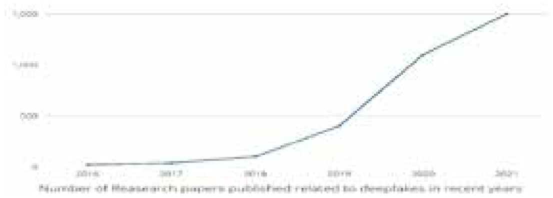

Figure 1: Image showing the rise in concern for deepfake and the significance to work for its solution.

Today we are at a state of inflection and require strong actions to protect our society from the unusual effects of deepfake. The perception of a world where seeing is no longer believing seems precarious. Therefore, a complete knowledge of such technology is required to know how it is created, what techniques are used in creation, what detections techniques are been developed to protect the society, digitally, from such hoax and what steps the government, public and giant tech companies are taking to restore the trust of people on real digital things and what is the future scope of this technology.

THE CREATION OF DEEPFAKE / HOW IT IS CREATED

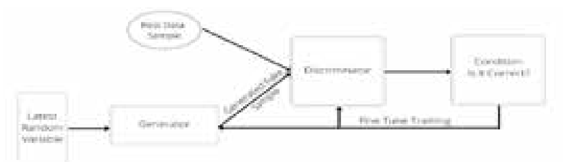

Figure 2: Image showing the GAN technique used in creating deepfake.

Deepfake technology was developed by researchers at academic institution in the beginning of 1990s.However, its usage began in the year 2017 with the rise of deep learning technique which made the creation of high precision deepfake videos simple. Nowadays, most of the deepfakes are produced using deep learning that uses general Generative Adversarial Networks (GANs) a class of neural networks which is used for unsupervised learning. GANs are mainly comprised of a system of two neural network models that contend against one other and analyze, capture and copy the variations within a dataset.

When creating deepfake these two neural networks of GAN are set to confront one another in order to produce an output that looks as real as possible. The two networks are, generally, known as generator and discriminator. The generator, generates a deepfake image using the given dataset and tries to deceive the discriminator. On the other hand, the discriminator scrutinizes the generated image to classify it as real or fake. During the whole process generator tries to mislead discriminator and repeatedly generate forge images until they are specified as authentic by the discriminator.

Another technique used for the creation of deepfake videos is Variational Auto-Encoder [VAE] which also uses deep learning networks. In this technique, VAEs are trained to encode images into low-dimensional representations and then decode those representations back into images. The images of faces used for both training sets can be sorted by applying a facial recognition algorithm to a dataset of videos to capture different poses and lighting conditions that naturally occur. Afterwards, the encoder which is trained on many different faces is combined with the decoder that is trained with the face one want in a particular video which generates the deepfake. Generating deepfakes using this technique is comparatively easier than GAN but the deepfake generated using VAEs are not as realistic as those generated using GAN.[20]

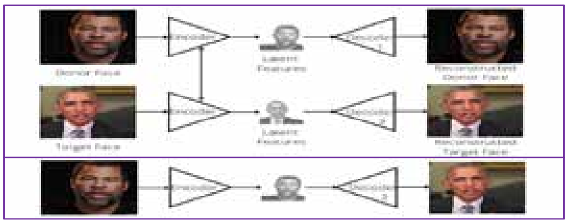

Figure 3: Image showing the VAE technique of creating deepfake.

HOW DEEPFAKE IS DIFFERENT FROM OTHER TECHNOLOGIES:

A) DEEPFAKE AND CGI

The advances in the audiovisual sector have compelled to inspect the false elements created by computer, replacement of faces or even rejuvenating actors to make them look younger, creating a dead or non-living thing alive. And nowadays, the most talked techniques in this domain are: CGI and deepfakes.

The CGI technique, also known as computer generated images are used in entertainment industry like movies, advertisements or video games, etc. It is used to recreate scenes that would rather have been expensive or say impossible to create in real life than to generate them through advanced computing techniques. At extreme levels, scenes that if it wasn't the CGI then it would have been impossible to achieve them, such as a deceased artist giving their special appearance in movies. Example includes movies like Avatar, Avengers, Titanic and many more.

Figure 4: Image showing CGI used in the movie "Pirates of the Caribbean".

Figure 5: Image showing the use of Deepfake to swap one person's face with another person.

On the other side the Deepfake technique is generated by AI computing like deep learning and facial recognition, often used in entertainment mainly to supersede faces, rejuvenate them or age them in an ultra-realistic way. It is created by computer and requires data of two real sources. It is formed such that the features of a model "A" are analyzed to replace the face with that of another model "B", whose face has been selected for substitution. Sometimes, special effects (also known as vfx) are also used to banish the excess. There are many deepfake examples, such as deepfake roundtable featuring Tom Cruise, George Lucas, Ewan McGregor and more.[7]

B) DEEPFAKE AND PHOTOSHOP

Both deepfakes and photoshopped images frame synthetic media based on a source. Though, the consequences of deepfakes are more alarming, as their production and utilization involved an element of performance.

Deepfakes are created after a thorough analysis of large hoard of data. Today's deepfake creating softwares are far from Photoshop's simplicity and accuracy. Applications like, Snapchat uses AI methods to apply filters to individuals' faces but it does not come under the category of deepfakes. Reason being that, deepfakes are those which have potentiality to trick others, and perhaps meaningfully affect their lives. They are new, but are also easy to create. The dangerous part of the technology is that, unlike older media editing techniques, it is easily comprehensible to people with no technical skill. If there are ample number of images or videos of an occasion then it would be relatively easy to produce credible manipulations effortlessly using AI.

While photoshop is used to modify pictures of real people by creating synthetic pixels to enhance a given image. A degree of similarity is there with deepfake because of its ability to change the

Figure 6: Image showing a picture being modified using photoshop

Figure 7: Image showing an actor video de-aged using deepfake technique.

expression of person's face, but the quality of these alterations is less sophisticated. Referring to slight changes such as forging a person to uphold to some beauty perfection, but significant changes with entertainment intentions are ample. To photoshop an image or video it requires softwares and tools, not any AI technology. And it is therefore, much complicated or say impossible to manipulate individual images with photoshop when thousands of original images exist.

C) DEEPFAKES AND CHEAPFAKES

Many terms are prevalent similar to deepfake like cheap fakes, shallow fakes. Cheap fakes are sometimes interchange for shallow fakes that are audiovisual (AV) artifices created with low price softwares easily available as compared to deepfakes tools. They are produced through Photoshop, lookalikes, re-contextualizing footage, speeding, or slowing videos. The videos created does not use any deep learning or machine learning methods but are confined to straightforward techniques present on video editing softwares.

Both Deepfakes and cheap fakes vary in technical sophistication and application. A highly realistic and refined deepfake, will be purge of any flaws and indistinguishable from a genuine video by an algorithm.

DEEPFAKE DETECTION TECHNIQUES

The creation of deepfake detection technique is very crucial to end the falsehood that is being spread as it does affect the belief system of society. As deepfake generation techniques are upgrading day by day analogous to them deepfake detection techniques are also being advanced to leave no stone unturned. Hence researchers are continuously working in finding an impeccable detection technique to track down even the most realistic deepfake. Keeping this in mind researches for detection techniques have been made and are still ongoing.

The following table list some of these techniques.

Table 1: Deepfake detection techniques.

Researchers	Proposed Model/ Technique	Results	Limitations	Future Scope
i. Luca Guarnera, Oliver Giudice, Sebastiano Battiato[17]	**i.** Detecting forensics trace hidden in images: a sort of fingerprint left in the image generation process. **ii.** Using Expectation Maximization (EM) algorithm, and extracting set of local features specifically addressed to model the underlying convolutional generative process.	**i.** Tests with VGG-1614 achieved the best result of 53% of accuracy in the binary classification task. **ii.** Fingerprint proven effective in discriminating between images generated by recent GANs architectures used to generate realistic people's face.	A deep learning approach is not able to extract what the proposed approach was able to.	**i.** To investigate the role of the kernel dimensions. **ii.** To adapt the method in situations on the "wild" without any a priori knowledge of the generation process.
ii. Shruti Agarwal, Hany Farid, Ohad Fried, Maneesh Agrawala[18]	**i.** Detecting the dynamics of the mouth shape visemes that are occasionally inconsistent with a spoken phoneme. **ii.** Focused on the visemes associated with words having the sound M (mama), B (baba), or P (papa) in which the mouth must be completely close to pronounce these phonemes.	**i.** Method can detect state-of-the-art, lip-sync deep fakes. **ii.** For high-stakes cases, showing that an analyst can manually verify video authenticity. **iii.** For large scale cases, showing the efficacy of two automatic approaches: one using hand-crafted features that requires no large training data, and one using a CNN.	**i.** Extension of mbp phonemes is not trivial and will require modeling the possible variance of each viseme and co-articulation. **ii.** Gathering a large labelled dataset of mouth almost closed or open, with a few pixels difference is challenging.	**i.** To develop unsupervised methods to automatically differentiate between complete and almost complete mouth closure. **ii.** To obtain better results using a trained network on a large corpus of people.
iii. Tianxiang Chen, Avrosh Kumar, Parav Nagarsheth, Ganesh Sivaraman, Elie Khoury[19]	A robust end-to-end deep learning framework for voice spoofing(audio deepfake) detection, detecting spoofed audio generated from a wide variety of unknown TTS and VC systems with high accuracy.	**i.** Increase in generalization ability by adding Freq Augment layer and large-margin cosine loss and applying data augmentation **ii.** EER of 1.26% on ASVspoof 2019 evaluation set, a remarkable improvement over the state-of-the-art.	**i.** Investigation not done for different low level audio features **ii.** Only two known techniques are present in the evaluation set.	Data augmentation is an important approach towards better generalization.
iv. Rene Amerini, Leonardo Galteri, Roberto Caldelli, Alberto Del Bimbo[21]	**i.** A sequence-based approach dedicated to investigate possible dissimilarities in the temporal structure of a video. **ii.** Extraction of optical flow fields to exploit inter-frame correlations to be used as input of CNN classifiers.	**i.** Results achieved on FaceForensics++ dataset are very promising. **ii.** This feature is able to point out some existing dishomogeneities between the two analyzed cases.	None	To evaluate the reliability of optical flow fields for deepfake video identification by testing against more datasets and with other neural networks
v. David Guera Edward J. Delp[22]	**i.** A temporal-aware pipeline to automatically detect deepfake videos. **ii.** System using a convolutional neural network (CNN) to extract frame-level features to train a recurrent neural network (RNN) that identify if video is manipulated.	Using a simple convolutional LSTM structure, and making accurate prediction whether a video is manipulated or not in less than 2 seconds.	None	To search, how to create more robust system for fabricated videos using unseen techniques during training.

vi. Yuezun Li, Siwei Lyu[23]	Detecting distinct artifacts due to the resolution inconsistency between warped face area and surrounding context artifacts by comparing the generated face areas and their surrounding regions with a dedicated Convolutional Neural Network (CNN) model.	**i.** Invideo-based evaluation metric, ResNet network still performs ~ 15% better than VGG16. **ii.** The CNN model is effective in detecting the existence of such artifacts.	Predesigned network structure is currently being for this task (e.g., resnet or VGG)	**i.** To evaluate and improve the robustness of detection method with regards to multiple video compression. **ii.** To explore dedicated network structure for the detection of DeepFake videos
vii. Ping Liu, Yuewei Lin, Yang He, Yunchao Wei, Liangli Zhen, Joey Tianyi Zhou, Rick Siow Mong Goh, Jingen Liu[24]	**i.** To apply automated machine learning to search neural architectures for deepfake detection. **ii.** Predicting the real or fake label for each given sample and also locating the potential manipulation region with few dependences on prior knowledge.	**i.** (ADD)Method outperforms previous non-deep learning methods (Steg+SVM [45] and Cozzolino [82]) by a large margin (10% ~ 20%). **ii.** Locating the potential manipulation regions in a efficient manner with few dependence on prior knowledge.	**i.** Potential manipulation region learning strategy will not work well if the fake image is entirely synthetic. **ii.** Method suffers when encountering low-quality images.	To research highly advanced search methods and spaces to improve the prediction ability of model.
viii. Xurong Li, Kun Yu, Shouling Ji, Yan Wang, Chunming Wu, Hui Xue[25]	**i.** A novel Patch&Pair Convolutional Neural Networks (PPCNN) to distinguish Deepfake videos or images from real ones. **ii.** Constructed a two-branch learning framework.	**i.** The AUC score of models are higher than previous methods except on Mesonet-data with same origin dataset. **ii.** PPCNN significantly outperforms previous detection methods on the YouTube dataset.	For Mesonet-data, only the patch-based CNN branch is used to classify the fake images.	To combine with forensic technologies, to detect complex deepfakes with different compression levels and resolutions.

Generalization of all the developed deepfake detection techniques is necessary in order to identify all ranges of deepfake whether low or high quality. However, some detection techniques seem inefficient at this point and can only detect deepfake for a particular type of dataset. Sometimes, the deepfake generation techniques becomes so advanced that the present detection techniques are no longer able to serve the purpose. That is why researchers keep developing creative techniques with innovative approaches. Some of the latest deepfake detection techniques are described below.

- Recurrent convolutional models – The recurrent convolution model is a class of deep learning that uses recurrent neural network which is used for visual object recognization. Using this technique, a lot of tools have been made by various organizations that can be used to detect deepfakes but it's not as prominent as Microsoft's video authenticator.
- Biological Signal Analysis – This technique of deepfake detection is presented by Yuezen Li. This technique detects facial movements like eye blinking etc using different deep learning models like convolutional neural network (CNN) and recursive neural network (RNN) to detect if the media is modified.
- **Steps Taken by Different Countries Government and Tools Made by Tech Giants and Startups to Regulate the Use of Deepfake**

For the present, there is no ambiguity in stating that rather using deepfake technology in a healthy way it is being proving noxious for people. Evil-doers are using it as a weapon mainly against women, political leaders, celebrities for blackmailing, demolishing one's life, defaming and satirizing them. The belief system of people, i.e., seeing is believing, is tried to be pulled down in a digital age where everyone is connected through technology and spreading hatred for other person, misinformation about an issue is a very critical problem. However, it would not be erroneous to remark that using deepfake technology in a positive manner will be beneficial for the people itself. For instance, it can be used in the field of education to teach historical figures, art to present a deceased actor or creating digital voices of people who lost their voices due to some reason, and for public awareness. This implies that deepfake cannot not be banned entirely but need to regulate its use. Hence, measures and tools are required to be framed by countries governing authorities and tech companies to save its people from deepfake disservice.[14]

- **Steps Taken by Different Countries Government**

In the United States, law has been passed making it illegal to disseminate false content about any political leader before elections with an intend to deceive voters or defame leaders. To simplify the complaint process for individuals seen in pornographic deepfake a private right of action law for individuals was introduced. Some Acts like IOGAN and NDAA are helping other institutions to work jointly in research of deepfake standards, its detection and generation techniques, and ways to find solution for them.

India has no such explicit laws for deepfake as it rarely has been affected or has seen cases related to deepfake. However, the IT Act outlines punishment for publication of sexual and explicit content involving adults and children which is also applicable to deepfake pornographic content. So, there is no direct law to regulate deepfake but there is a need to have few as once deepfake make its root in India it could have catastrophic effects at a higher rate.[5]

China is also combating this widespread technology by creating laws stating that every app providers label deepfake content and other online platforms to identify and remove any other unlabeled content immediately. Cyberspace Administration of China (CAC) is responsible for regulating all these laws and to take any action done in opposition to that as a crime. Under China's new regulation, to be abide from March 1 2022, all the social platforms are prohibited from recommending any kind of synthetic content on their platform, i.e., it is the responsibility of the companies to detect and eliminate false content.[10]

European Union is also taking initiatives by making laws to manage with this deepfake technology by protecting privacy to people's data, making copyright laws and labeling deepfake content. Apart from this there are still many countries having no specific laws to curb this technology.[6]

- **Steps Taken by Tech Giants**

In September, 2020, Microsoft launched a Video Authenticator Tool which analyses the stock-still images, videos and provides a confidence score or, say, percentage chance and identifies the media as manipulated or genuine. When analyzing video, the tool provides percentage for each frame of the video in real time. The concept behind the tool is that it detects the blending boundary of the deepfake and subtle fading or greyscale elements that might not be detectable by the human eye. The training of tool was done on the public dataset, Face Forensic++, and was tested on Deepfake Detection Challenge Dataset.

Microsoft also introduced a new technology that detect any manipulated content and also assures the public of the authenticity of the media being viewed. The technology has been divided into two components, one is built into Microsoft Azure enabling content creator to add digital hashes and certificates to content and the other checks these certificates and matches hashes and tell about its authenticity and accuracy.[15]

Ahead of U.S. 2020 elections, Twitter announced new policy regarding deepfakes, synthetic and doctored media. According to it the users will be prohibited from sharing any kind of manipulated or synthetic media or content that is likely to cause harm. Such content will be tested on a specified criteria and if meets all those criteria then it will be removed from platform. Content that fulfill fewer criteria will be labeled as altered and will provide users with more context before reposting.

Facebook also framed policy to remove deepfakes and any edited content, but not any parody or satire, aimed with spreading misinformation. It also launched, in September 2019, along with other leading partners a global Deepfake Detection Challenge to ensure the development of detection tools. They created a highly realistic deepfake dataset of a varied group of artists and was made accessible to all the participants involved in developing deepfake detection models.[8]

- **Startups Tackling Deepfake**

Apart from Tech giants' startups are also finding solutions for the rising problems of deepfake and forgery. Implying that startups too are conscious and capable of developing tools with high performance and such technical minded startups have been discussed below.[16]

OARA, a spanish startup developed a tool which is assisting governing bodies, individuals and businesses in authenticating and verifying digital identity and media. It also generates photos and videos by embedding user identity, timestamp, GPS coordinates to ensure its realiability.

Senitel, a startup from Estonia, created a detection model following Defense in Depth approach. The model consists of a large dataset of deepfake and neural network classifiers that checks for the genuineness of media and identifies which is doctored one.

The, Dutch startup, Sensity provided a visual threat intelligence platform and an application programming interface (API) for identifying and countering deepfake. It browses over hundreds of sources across dark and open web to gather visual threat intelligence and then uses it to detect harmful visual media with its associated risks. Its AI detectors are also able to identify synthetic and AI based manipulation techniques.

Swiss startup Quantum Integrity deep learning technology has customizable algorithms and detects image and video deepfake, for instance, false accident reporting, fake documents, etc. It provides companies with various advantages such as time saving, reduced forgery, fast and accurate decision making.

Indian startup, Group Cyber ID, has also taken a move to ensure authentic and secure data in organisations. It provides digital forensic based solutions for digital components. It also created a multi-layer security strategy of technologies and procedure in cyber defense and digital forensics. It authenticates digital infrastructure and finds the risks in internal and external data of organisation and also secures network, devices from attacks.

- **Implementation of Deepfake in various fields**

Since so far, we have seen that deepfake is mostly used with a malicious intent rather using it for a good cause. This can be because, we, the people has not explored the technology to its full length and has not seen the bright side where it is been utilized for a better future without harming anyone's feeling. This is the case with each and every new technology that it gets started been utilized at its early stage and without prior knowledge which further leads to rising concerns over it. Hence, we will explore all the fields where deepfake can be used and will categorize it as positive and negative based on the effects it has on public.[12]

- Education – Deepfake has positive potential to be used in education and can revolutionize the way the subjects are taught. For instance, history subject with long theory can be taught with interactivity using deepfake. It can be used for creating deepfakes of history figures which can help in visualizing the era or situations of the past. And as we know learning by visuals is stored in our memory for a longer time then reading it from book, so it will have positive impact on public and will also change the way deepfake technology is being seen leading to the generation of more innovative ideas for the usage of this technology. For example, CereProc, a company that resuscitate JFK's voice. The deepfake created made it possible to hear the late president's speech he would have delivered, if were alive.
- Terminating language barriers –Deepfake possess the power of replicating people's voices and creating a new video with them. It might be possible with deepfake to use actor's original voice in a translated version of a movie. When using deepfake for translation in different language lip syncing can be done smoothly. If, used, it might end or reduce language barriers and will help in sharing of thoughts across a large group of people. This can lead to a crucial step towards united humankind. For instance, the video of actor David Beckham who used the technology for spreading awareness about malaria in nine different languages for the campaign Malaria Must Die.
- Entertainment – A vast field for deepfake where it can be used in different innovative ideas and will also help film or video creators in saving cost and time. It might also help in recreating a memory for a deceased actor or actress if one has their visual dataset comprising of their facial expression, voice, physical behavior. It may also be used for aging and de-aging of actors.

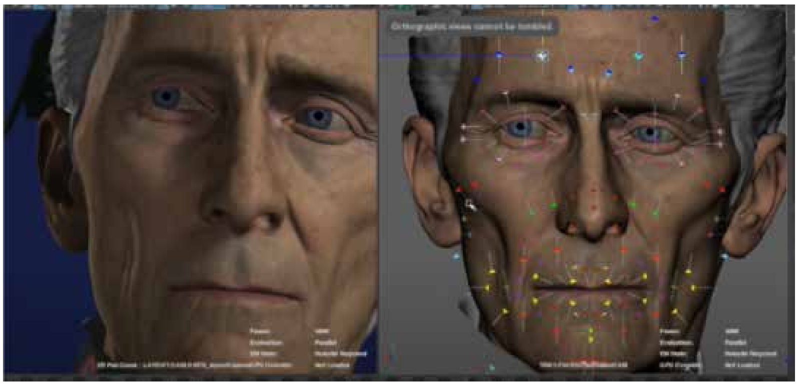

Figure 8: Image showing an actor face being recreated using deepfake.

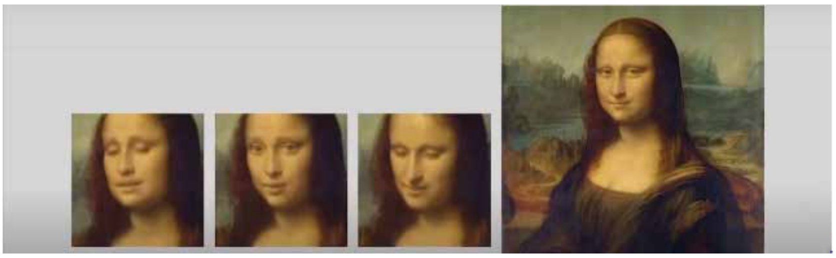

Figure 9: Image showing Mona Lisa moving her head and lips made by Samsung's AI using deepfake.

Art – Deepfakes have been seen making their place in art world also. Dalí Museum in St. Petersburg created an exhibition called Dalí lives, using deepfakes for visitors to interact and take a selfie with surrealist painter Salvador Dalí. Hence, it can be used for creating virtual museums enabling people to have access to the famous masterpieces, and realistic deepfake artwork. Samsung's AI research brought such art to life by making Mona Lisa to act with her head, mouth and eyes.

Medicine – Deepfakes might prove the most beneficial in healthcare sector. By advancing the technology, hospitals might be able create true-to-life deepfake patients for testing and experimenting saving a real patient life from risk. This creates an opportunity to test new diagnosis practices and training other AI with medical decision making.

Training – AI based models requires large datasets to train them and colleting such a huge dataset is still complex and time consuming. If used wisely we can create pure synthetic but useful datasets for training purposes and will relieve people from their data privacy concerns. It can be used in fashion designing to train models and designers by visualizing their design, customer service training by creating synthetic voices of people asking for services.

Corporate Level Fraud – Deepfake wrong utilization is leaving people concerned and stressed. A new way to do corporate level monetary fraud is by making calls to transfer money in CEO voice. Such cases are been registered and a few companies have also seen losses of millions.[13]

Extorting Money from Businesses or Individuals – AI doctored videos, images and voices are being used to blackmail people for money by threatening to send the video to press agencies or posting it on internet.

Fake News and Videos – Fake news are being used to raise violence, confusion, division and doubt among people in nations. Fake videos are also been shared to gain wide coverage over that topic. Revenge pornography is one of the crucial examples of deepfake videos. Public is been misled by sharing misinformation and people in fake news and videos are been defamed. Such forgery things do affect the lives of people and their decision making.

CONCLUSION

Deepfake technology will keep advancing and evil-doers will continue to spread misinformation in every way possible. This is our responsibility to manage these deepfakes so as not to let the trust fade away that we have on things we see. It is the responsibility of governing bodies to make their citizen aware of deepfake technology and tech companies to manage all the deepfakes that are present on their platforms and that can have harmful impacts. Lastly the public should be aware and should stop reposting malicious deepfakes. The researchers are working hard to find an appropriate deepfake detection technique and will surely succeed in their goal and we have to support them by wisely using deepfake technology.

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Exploring the Scope of NFTs

Nikita Malik[1], Prabhat Singh Negi[2]

ABSTRACT

Non-Fungible Tokens (NFTs) are digital properties and/or assets that would be something like an artwork, a collectible, an in-game purchasable object etc. They may be traded online, often in exchange for cryptocurrency, and are encoded within digital contracts on a blockchain. Masses assumed that it could revolutionize the society in some way, and this is precisely the reason why they've such high sale/resale price. However, there is not much available information about the general structure and evolution of its marketplace, like how this contemporary trend is sweeping the internet worldwide, how are they selling for such large costs, or how an easy 5-word tweet become capable of selling for about 2.9 million USD, or why a JPEG photograph is offered for 69 million USD. And if that wasn't sufficient, the National Basketball Association the (NBA) itself is promoting and selling little moments of its basketball matches for loads of thousands of dollars. Those are all kinds of digital matters, and people are shopping a version of them by paying a lot of money. Apparently, people are inquisitive about it. And all of this is plenty bigger than a $600,000 CAT gif. We analyzed the NFT marketplace and are presenting a short document on what this trend is all about. Why these NFTs are both an exceptional invention and a trouble, and the correct method to put your money into NFTs.

KEYWORDS: NFT, Token, Blockchain, Cryptocurrency, OpenSea, MetaMask

INTRODUCTION

NFT is a piece of information that is stored over a blockchain [8] which confirms that a virtual asset is unique. Therefore, it is non-interchangeable, even as offering a distinctive virtual certificate of ownership for that NFT. In general, NFT lets in to set up the provenance of the virtual item, presenting undeniable answers to questions like who is the owner of it, who owned it previously, and who minted it in the first place, in addition to which of the numerous copies is the authentic. The NFT market exploded in 2021 while it got a lot public interest, and their marketplace reported record breaking sales [1]. Several forms of digital items could may be related to the term NFT including pictures or motion pictures or audio tracks. NFTs are being utilized to **commercialize** digital items for different purposes, along with sports collectibles, gaming and mostly artwork. Initially, NFTs used to be a component of the Ethereum blockchain; however, an increasing number of blockchains have carried out their very own variations of NFTs.

WORKING

So, the order in which our economic system works is, we work and acquire money, and then that money is what we use to purchase goods. However, the more time we are spending on using digital applications like Instagram and Facebook, and all the extra time we are wasting on digital games like Fortnite, the more our purchases are moving far away from the physical items towards virtual items. But it gives rise to a problem i.e., virtual items are more difficult to monetize.

So, assume that you make a physical portrait artwork. Now you attempt to sell it to people at some market (physically). Despite the fact that someone attempts to copy your portrait or maybe click a photograph of it and gets a printout of your artwork, it will not have any effect on you too badly. Due to the fact, that an expert would be capable of telling us by looking at the brush strokes, that the portrait you have, is original. However, that would not have been the case if you were a digital art maker, who has painted the same portrait on your iPad. Because the second you release the art in public as a digital image, you'll no longer have any authority over that artwork. It could be now stolen with a right click and obviously to the naked eye, it will look same as the real one. Therefore, the art is not a scarce resource now and as a result, the cost goes down dramatically.

This might be, what we believe, NFTs could be seeking to change [3]. The phrase NFT is abbreviation for Non-Fungible Token. The word Fungible means Interchangeable like currency. Like my Rs.10 note is interchangeable with someone else's Rs.10 note. And similarly, something non-fungible means that it is not interchangeable. NFTs are using blockchain technology with a purpose to confirm who owns the real of a digital product (maybe even out of several copies). They are a distinctive token of ownership which also has its own value [8]. Hence, whilst people are shopping for NFTs, thereby also promoting them, they actually are shopping for and selling their digital possession over something.

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ADVANTAGES

Some advantages to these tokens are listed below:

1. Earning: Picture yourself a fashion designer. Now, what you've got as NFT is a new style of earning. Also, for the people who admire your artwork, they have gained a totally advanced system to help you [6]. In place of simply transferring a donation amount through PayPal, to which they may be sourced by any of your existing social media account, they now will also be getting a piece of your history.
2. Contracts: NFTs, without a doubt, are quite a break-off to lengthy-written and uninteresting contracts by means of changing it with virtual contracts- which outlines the rules in a very efficient way according to which NFTs function. As an instance, a basic rule could be set up by a designer for receiving a 20% cut whenever their artwork is sold or purchased. This is like a digital royalty settlement.
3. Collectors: NFTs are still a dream to a lot of collectors. The reality is, they do absolutely nothing. It sounds kind of foolish, that there is a part of population out there, who feels delighted to know that they own a rare piece. Simply take the instance of buying and selling trading cards. You cannot pay for anything using them. They cannot be used as cash, but still, a Charizard Pokémon card was sold and bought for $220,000, only because it's uncommon, it's rare and difficult to find. Therefore, by the means of NFT, the fact that you might be the sole owner of a token to a rare virtual piece, validated by a completely fraud proof system, we can compare how it would give the collectors a comparable thrill of owning something rare [10].
4. Investments: It's no longer just the creators, anyone, literally all of us, can money off NFTs due to the fact that they are tradable. Every NFT has its own market price. There are several instances similar to the one considered here. The CRYPTO PUNK face (*fig.1*), initially went for not more than $30 and lately was bought for $11.75 million. More importantly, this NFT marketplace is viewed as a more viable option to invest unlike the stock market, for which you need a capital to start with and also involves risk and hence might be intimidating for a variety of people, or the real estate and housing which requires a lot of money to simply get you started.

Figure 1. NFT Crypto Punk

5. Community: NFTs deliver humans a feel of belonging. A big reason why people buy it, is to identify themselves as a part of some club. There is this one stock of NFTs recognized as the Bored Ape Yacht Club (*fig.2*). 10,000 of distinctive ape pictures, from which the cheapest one is going for over $200,000. However, you will very frequently notice that people who are buying it, are using it everywhere. It's like a sign of satisfaction as well as pride for being a part of this elite group. And the cherry on top is that the sole maker of the Club organizes real life meetings (more like casual events) for owners of these NFTs (This one is special case in this scenario).

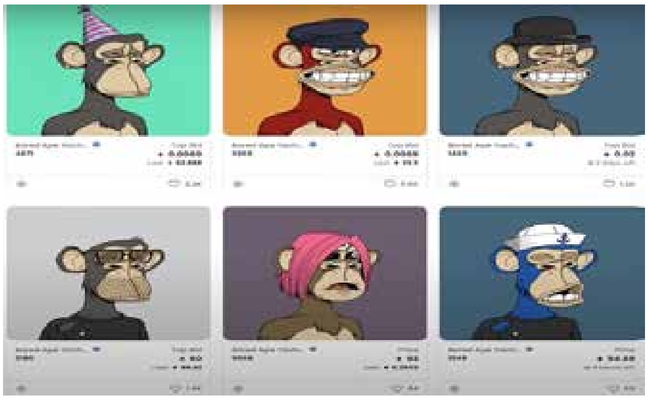

Figure 2. Bored Ape Yacht Club listings

PROBLEMS ASSOCIATED WITH NFTS

Even though we absolutely trust the core blockchain technology of NFTs and its advantages, the greater we learn about how they are being used in the real world, the greater of a concern it becomes.

1. Possession: An NFT isn't what a variety of people suppose it is. In case you have an NFT of an artwork, even as you still have the possession over it, like the actual ownership, you are not the actual proprietor. Owning the NFT of a design, doesn't give you rights of the design. It does not imply that now you can print T-Shirts with that design on them and sell those. It just means that it proves that the NFT is your property but only through one system of identifying and acknowledging, what counts as your private property [7]. Basically, just a little greater than bragging rights.
2. Greed: Despite the fact that NFTs may have started as being all about supporting the artists, right now majority of them are not being made by any artists who are going all out with their heart and soul to create an art piece. In reality, they are produced via opportunistic money minded individuals who simply view them as quick cash-ins. For instance, have a look at Lazy Lions (*fig.3*). It's another collection of 10,000 particular high-priced avatars. If you examine this series carefully, you will see that some of the expressions keep reappearing. That is due to the fact that Lazy Lions aren't the paintings of a passionate person who's honestly seeking to design individually distinctive characters. They are just computer-generated mass-produced cash grabs. A person probably realized that NFT Ape's sales are going through the roof, hence, they've simply picked some other animal, drawn a few different avatars and maybe used a coding algorithm which translates to – "*use these*

pieces and give me 10,000 distinctive looking pieces out of these using their combination”. It’s a rather smart move to make piles of cash while riding a trend wave. And this other example, one out of many absurd ideas people have been talking about lately, is this scheme of purchasing virtual land. There is a real website that you can visit, known as “Next Earth”. They’ve plotted out the whole earth on their website, and for a right amount, permits you to purchase virtual property, anywhere on the earth. For real, loads of people have flooded the website with the logic that physical property is very costly and the world is transitioning towards virtual, so the virtual land is going to be worth plenty too.

They are not considering this very simple logic that; physical land has some motive.

Figure 3. Lazy Lions NFT listings

You may want to live there or perhaps setup a manufacturing unit or a server. But digital land does not serve any such purpose and makes no sense at all. And the creators of Next Earth do not even virtually have the rights of the earth and anyone can make a website like this. In fact, the internet is already full of them. Therefore, in case you bought The Taj Mahal on Next Earth (which is by the way priced at $20,000), that does not imply you have rights over The Taj Mahal. It does not imply you have any rights over it even virtually. It just says that you own a token which proves that you are the owner, but only on this one out of many limitless varieties of systems. For most people, it’s actually well worth paying more amount than entire years’ worth of saved money, to purchase property in an online game, besides it is now not even a game.

3. Celebrities: Twitter is flooded with celebrities launching NFTs literally all the time. Providing incentives to those who buy costly ones, like getting to meet them in person. That sounds pleasant. However, you can tell that it’s coming from a concept of simply looking to cash in. Almost all of these celebrity NFTs are little more than simply repurposed snap shots from past.
4. Environment: Nearly all NFT transactions are making use of Ethereum. And Ethereum makes use of a safety mechanism called proof-of-work, which is a huge part of making those NFTs’ fraud evidence. The only problem being is, this type of security needs quite a few computers, 24*7 around them in the arena, so that this network can be powered, and that consumes a large amount of electricity.
5. Artificial Scarcity: NFTs are basically a new way to engineer artificial shortage for an item. To make an item limited which was earlier unlimited [9]. However, in majority of the instances, it’s not actually a good thing. Like UBISOFT (gaming company) who came up with an ultra-modern idea “Ubisoft Quartz” [2]. They are letting out the word to gamers that while playing games, they can now earn a special in-game item, which may also be a tradable NFT. People assume it’s great. They have given them a very tangible aim whilst playing and that’s wonderful. They can now sell that for cash, because it’s a very particular object that they will have to themselves. However, while you think about it, there are feasible effects. Either those items are actually limited and they do grow to be valuable, so much so, that you’re essentially tempting hundreds of thousands of players so that they play for a very long time, just so that they can win that piece and thereby making the games less interactive and less fun for the folks that cannot manage to invest so much time. Second scenario is like if there are so many of these NFT pieces to, so that almost everyone enjoys it and they are all very much alike but with some moderately different alternates available. The second scenario might be the more realistic outcome. However, in that case the whole NFT thing becomes meaningless. The “brag” element of owning the NFT for maybe an in-game item/skin, is always there. And if the NFT is the reason that you are the proprietor of the skin and now it implies that you can carry forward it from current version of game to upcoming one and still own it at the same time, then that maybe an honest value added. But most probably it will not do that. The more they want to pretend to make it seem that way, owning the NFT is nothing like owning an item in real life. If I have a physical clothing item, I will put on it at home or while playing with my friends or on a holiday. But, the complicated nature of different video games, the usage of distinctive applications and physical systems and codes basically implies that you cannot take an item/skin which you earned by putting in hours and hours on one specific game even to the upcoming version of that very same game. The value of the item will be only throughout the game which you’ve got it from, similar to any other game, which is not based on NFT items. The only reason it is an NFT is simply for the organization to produce extra cash via getting a percentage share, every time when the NFT is bought or sold.
6. Illegal Activity: It’s just not about unethical methods anymore. NFTs are also involved properly now, with unlawful activities. For each NFT you see made by a real artist, you could discover 10 from the person who has never picked up a pencil to draw something in their entire life. And might have essentially stolen an already copyrighted artwork and then tokenized it while maybe just pixelating it in the process of trying to promote it as old-school artwork.

INVESTING IN NFTS

For almost all of the NFTs in the market right now, most of the value comes from their primary basis of the technology, instead of what purpose they serve in reality. NFTs are being bought by people due to the fact that they're trending now and because there are very high chances that the destiny of internet i.e., the metaverse we are transferring towards, will use this for you to tell which digital item is owned by whom [10]. But we know how hard (almost impossible) transferring an in-game item, from a game to the subsequent game can be, similarly, there is very less of a possibility (if any at all) that NFT owned now, will have any use at all in those hypothetical destiny worlds (not implying that they're of any use as of now). Most likely a threshold point might come soon, after which NFTs will no longer be trending. People might lose their interest or there will probably be a next trend they transition on to. All NFTs pictures only attain high value, due to the sheer number of human beings producing them at the moment. Assuming, it is going to happen sooner or later, every bit of the cost which is coming due to the "cool factor", that hypothetical belief that the NFT must be worth only due to the fact it is a trending piece will go away and you are now left alone with your digital token to a JPEG picture. Therefore, right now, it's best that you don't invest in the NFT market. Yes, people do make money from NFTs, however their uncertain tendency makes purchasing them more similar to gambling then investing. So, what most of the experts will recommend is, only purchase any NFT if you want to support an artist financially or if you particularly like an artwork. Buy NFT if you are more than happy to have with you- if the entire market crashes tomorrow, you will be satisfied that you were part of a community and that history as a whole. However, in an era where you can pay a person 1000 rupees (or even less) to layout any artwork that you need after which that art definitely is completely yours in place of handing out $20 million just so that you can say that you've virtual possession over something, and not even be the real proprietor of a chunk of art which itself is just one among 10000 comparable bits, this NFT hype absolutely feels like a bubble which is about to pop.

If you are still going to buy NFTs, then you can check out a website called "OpenSea.io" [4]. OpenSea is a NFT market place. It's the most popular and most used website for buying and selling NFTs. So like any other e-commerce website, you just land to the home page on OpenSea, where you see the "Explore" tab. You can go there and explore tonnes of NFTs created by various artists around the world. Or you could just type the name of the collection or the account of your desired choice. That way you can find specifically what you are looking for. Once you've selected your desired piece, you can pay for it using your crypto wallet. That is because the NFTs are bought and sold using cryptocurrency. You can not buy them using physical cash or even digital form of normal currency for that matter. Crypto wallet is a digital wallet for storing your cryptocurrency. The most widely used one is "MetaMask" [5]. MetaMask gives you a series of 12 words arranged in a specific order. If someone has that, they can have the access to your account. It's called the "secret recovery phase". That, and the normal username password system. You must have required amount (or more) worth of Ethereum in your MetaMask wallet to pay. With that you will have the token of ownwership of that particular NFT.

Creating an NFT is also very easy. You just have to go to create tab under your account and select the file you want to digitalize as an NFT. It could be anything. An audio file, a JPEG image, a video or a GIF. It's literally like uploading a photo on a social media account. Then you have to select a medium to mint the NFT. Mostly it's ethereum but that charges some gas fee. You can use polygon, for no gas fee. And after filling some prompts like the date from which to which , the NFT will be online for sale, you will now have to sign a digital contract to mint the NFT. The digital signature basically means you have to click on sign button. What you have now is a NFT of your own.

SCOPE OF NFTS

Ever since the beginning of 2022, we've seen a lethal drop in Google searches, for the term NFT. So, this might be an insane opportunity to get some popular NFTs for the low, which would be great if the market comes back up, or this drop/dip in search results might be a forever dip. There are a few huge concerns to cover before we can come to the final verdict.

First of all, all the NFTs are useless. Unpopular opinion that some might disagree with and say, that all NFTs have at least one-use case and that is to express yourself by using the piece of art as profile picture. There's nothing revolutionary about that. People have been using cartoons, animal and little avatars as their profile pictures since the beginning of social media. Some people also might say that some NFTs have a lot of use cases, look at Bored Ape Yacht Club. People online are saying that you can breed them, basically use existing pieces to create new ones. But just because I have one useless thing and I can use it to create two new useless things, doesn't give this initial one any utility. But that's actually not the only use case that the Bored Ape Yacht Club boasts about. They have Bored Ape holder only events and now they are also trying to get into Hollywood with a movie and what not. These clubs can actually get you some decent networking opportunities, but you don't even need blockchain and web 3.0 for all of this. All these utilities can be replicated through a simple QR code including a website with monthly payment membership which will take you not more than 30 minutes to set up. Or you can use Patreon and do that in like 15 minutes. The only key difference could be that the membership website would be much more difficult to pitch as an investment marketplace. It's easier to say that this image will get you all of these perks, and you can also sell it in future for a profit. But what makes it even worse is that although the NFTs are based on blockchain, they are not embedded on the blockchain but rather on the link to that image. So, if something happens to that link and it's no longer active, then you lose all the access to that NFT. You can't just edit the blockchain and put the new link in. The point is that all these projects launch as a sort of little character and then grasp to prove that they have some sort of utility. And absolutely none of the utilities are utilizing the blockchain for anything revolutionary or new. None of these perks require web 3.0 or the blockchain. So whenever having this conversation, this is when the next argument comes in i.e. the Gaming NFTs. People say that gaming NFTs are the future. And on the surface, it looks like it could work, but it's not so clear when you look a little deeper. For starters, one of the biggest, if not the biggest video game distribution services, Steam, has banned games that utilize NFTs and crypto. To top that off, most actual gamers actually don't want anything to do with NFTs. They are already tired of video game companies trying to get as much as they can out of them through different in-game purchases. And also, why does that in-game item have to be an NFT. There's nothing you gain from that, other than having to pay extra gas fee. That's just one side of gaming NFT, which is implementing them into regular games. The other side is games that are specifically developed for and revolve around crypto. People actually don't enjoy playing them. They are just not fun. The only reason people play these games is because there is a chance of making real money from them and that factor also wears off quick when you realize that you cannot make much money from it. To put things in perspective, it's under minimum wage and you barely crack any profit. And if the price of the in-game currency plummets, then you are out of luck. On top of that we see SEC (Security and Exchange Commission) tracking down more and more of these crypto scams. It could be the last nail in the coffin to end this whole thing. The main issue is that a lot of NFTs are starting to share a lot of similarities with securities like stocks, that is something that needs to be heavily regulated.

Something like Crypto Punk is fine. It can be termed as an art or a collectible. But once you start staking and redistributing royalties, you are getting into securities territory. Now combining that with people promoting NFTs by promising future returns, and now you are securities territory completely.

SEC provides a framework for analyzing whether a digital asset is an investment. And it consists of three parts.

1. Money investment
2. Whether it is a common enterprise
3. Reasonable profit expectations

So, if the SEC will start regulating the space, marketplaces will have to take down a lot of listings, and a lot of legal problems will arise.

CONCLUSION

The most likely outcome of this current trend would be that NFTs will have some more hype waves in future. And surely people will buy a Crypto Punk or a Bored Ape NFT if the price absolutely plummeted, but that's just because they have attained kind of a supreme status among other NFTs due to their current hype and demand. But it is most likely that 99.9% NFT projects right now will see a dip in price and demand and will never come back up. The only new projects in the NFT and crypto space that could have a possible chance of succeeding is if they create something absolutely new with web 3.0 and blockchain technology.

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Digital Marketing- A Review

Dr. Kavita Pabreja[1] , Harsh[2]

INTRODUCTION

Marketing could be defined as the promotion of products and services to ultimately increase brand awareness and generate revenue. Digital marketing is therefore, the use of digital mediums, such as social media to conduct marketing campaigns, whereas the more traditional forms of marketing would involve fliers and billboards [1]. Digital marketing is used by companies to target potential customers over the Internet using emails, web-based advertising and paid promotions on social media platforms.

HISTORY

The term 'Digital Marketing' was coined in the 1990s, following the deployment of the digital age and the release of the Web 1.0 platform. However, since, the internet was not as widely used as it is today, digital marketing was considered a waste of company resources. Everything changed, when in 1993, a company called 'HotWired' started investing in banner advertisements on websites and observed great results. Other companies too noticed the success of HotWired's digital ad campaign and began investing in digital ads. In 1994, Yahoo entered the digital space and within a short span of a year, received a million hits. This prompted companies to optimize their web spaces to increase visibility and gain higher search engine rankings [2]. The success of Yahoo brought more competitors like Google and MSN into the search engine market. There was a steep surge in the Digital Marketing world, in 2006 when the search engine traffic went up to 6.4 billion in a month. The Web 2.0 platform, allowed users to interact with other users and businesses over the internet. This caused an increase in the flow of information over the Internet and an increase in the opportunities for Digital Marketers to target customers. In 2004, it was estimated that Online marketing and advertising brought in $2.9 Billion from the United States of America, alone [3]. With the inception of MySpace, the first Social Networking website, then Facebook, the number of active internet users increased tenfold. Many companies saw this as an opportunity to advertise their products.

One of the greatest inventions in the world of digital marketing, was the 'Web Cookie' or little trackers, all over the Internet, tracking user behavior over the Internet and using the information gathered to display targeted ads. According to the statistics collected in 2021, there were 5.2 billion daily active Internet users worldwide, with the largest Internet consumers being China, United States of America and India. As of October 2021, there were 409 million new social media users in 2021, which gives us an average of 13 new users per second. The latest data also suggests that 70% of the global population is now a part of at least one form of social media and the average time spent on social media is now 2.5 hours per day, which is around 15% of a person's productive time. Therefore, it can be insinuated that the success of social media brought up new possibilities for Digital marketers.

TYPES OF DIGITAL MARKETING

There are various types of digital marketing techniques used in India and globally [4][5].

SEARCH ENGINE OPTIMIZATION

Search engine optimization is defined as the process of increasing the quality and quantity of content as well as internet traffic from search engines to a website or web page such that they stand a better chance of appearing on common searches. SEO focuses on unpaid traffic rather than direct or purchased traffic.

CONTENT MARKETING

Content marketing is a marketing technique that uses relevant articles, videos, podcasts, and other media to attract, engage, and keep an audience. This strategy creates expertise, raises brand recognition, and keeps your company at the front of mind when it comes time to buy what you sell.

SOCIAL MEDIA MARKETING

Social media marketing (SMM) is a digital marketing strategy that uses social media platforms such as Facebook, Instagram, and TikTok to promote brands, build target audiences, drive website traffic, and increase sales.

PAY-PER-CLICK MARKETING

PPC, or pay-per-click, is a method of online marketing in which advertisers pay a charge each time one of their

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advertisements is clicked. Companies are required to pay only in the event of a customer clicking on their ad.

AFFILIATE MARKETING

Affiliate marketing is a performance-based marketing strategy where a company compensates one or more affiliates for each visitor or client brought in through the affiliate's own marketing efforts. The affiliate could be a blogger or an influencer, who has to put use their platforms to promote a product and is promised a cut for every customer they bring.

NATIVE ADVERTISING

Native advertising, often known as sponsored content, is a sort of advertising that is designed to complement the look and function of the platform on which it appears. In many circumstances, it acts similarly to an advertorial and takes the form of a video, article, or editorial.

MARKETING AUTOMATION

Marketing automation refers to the use of software to automate repetitive marketing processes. Marketers utilize this software to nurture leads, which is commonly done through interfaces with customer relationship management (CRM) and customer data platform (CDP) software.

EMAIL MARKETING

Email marketing is the act of sending a commercial message via email to a group of potential buyers. Sending emails to attract new customers or even existing customers is considered email marketing. These emails could contain advertisements, coupons or any medium through which, customers may be enticed to purchase or repurchase their product.

BENEFITS OF DIGITAL MARKETING

Digital marketing benefits businesses of all sizes by giving access to the mass market at an affordable price [6][7]. Unlike TV or print advertising, it allows truly personalized marketing.

A BROAD GEOGRAPHIC REACH

Unlike the more traditional forms of marketing, Digital Marketing campaigns are not limited by geography. A pamphlet can only be distributed in small areas but the Internet allows the company to directly advertise to billions of people and find more potential customers.

COST EFFICIENCY

Digital marketing both reaches a larger audience than conventional marketing and also costs less, in terms of company resources. Overhead expenditures for newspaper advertisements, television commercials, and other traditional marketing media might be too expensive. It also exhibits a higher conversion rate with respect to cost.

QUANTIFIABLE RESULTS

Monitoring results in digital marketing is easy. Digital marketing software and platforms automatically measure the number of conversions, whether they be email open rates, home page views, or direct transactions. This also helps companies trace which ad campaigns are more successful and which weren't so they can replicate their success in the future campaigns.

EASIER PERSONALIZATION

Cookies allow websites to track user behavior to provide a better user experience and show personalized ads. This ensures that the companies' ads are always being displayed to interested parties.

FUTURE SCOPE

The possibilities presented by the digital marketing paradigm are endless and in this sea of endless possibilities, companies are finding new ways to sell their products with the available resources. With the increasing dependency on mobile phones, a possible scope for advancement lies in mobile marketing. The world of digital marketing must evolve as well as keep up with new technologies and ever-changing demographic and include newer forms of media in their marketing approach.

CONCLUSION

With the growing number of Internet users, digital marketing should be a part of every company's entire marketing plan. It enables organizations to make better, more informed decisions while also boosting their internet presence and consumer base. It also improves the user's online experience, resulting in a win-win situation for both consumers and businesses.

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A Study on Consumer Perception Towards Affiliate Marketing for E-Commerce: Awareness and Analysis: A Case Study of Delhi

Dr. Pooja Singh[1], Dr. Seema Shokeen[2], Mr. Abhishek Chawla[3]

ABSTRACT

Marketing is the management process through which companies satisfy the needs and wants of the customers profitably. It enables consumers to exercise their choice via creating information utility. Marketing generates employment & symbolizes development. It helps companies build strong long-term customer relationships. Online marketing uses the internet and other channels to approach customers. It is used for making sales and creating brand awareness for prospective customers. In affiliate marketing, one refers another to buy the product online and receive a commission on the sale. The primary objective is to provide a deep analysis of consumer perception towards affiliate marketing for e-commerce platforms using a survey, conducted for a total of 251 individuals. In order to check the dependence of the relationship, Pearson's chi-squared test ($\chi 2$) is carried out.

Keywords: Affiliate Marketing, Consumer Perception, E-Commerce, Online Marketing, Traditional Marketing, Advertisement, Gender, Income, Marketing, Customers

INTRODUCTION

Internet marketing focuses on providing equal opportunities for all sorts of businesses. It helps in finding market opportunities and contributes in direct revenue generation. Even micro level businesses can use this platform to develop presence in the market. Moreover, it helps in increasing revenue by increasing the rate of approaching traffic converted into leads, subscribers and sales. Marketing is providing numerous career opportunities in the modern world and contributing to the economic development. [16] It widens the scope of market and accelerates the national income which further increases the living standards of the people. The creativity of the company and its culture also improves. The facilitated interaction with targeted audience builds better brand reputation. With increase in social media and search engine marketing, there is a shift in consumer buying behavior from traditional to digital marketing because of the following reasons:

DIGITAL MARKETING VS TRADITIONAL MARKETING

- Communication is bidirectional in digital marketing whereas unidirectional in traditional marketing.
- Traditional marketing is effective when the focus is on reaching local audience whereas digital marketing helps in reaching to global audience.
- Impact of digital marketing can be easily measured but it is very difficult to measure the impact of traditional marketing.
- Using digital marketing campaigns can be easily developed whereas it takes a lot more time using traditional marketing.

E-COMMERCE

Electronic commerce provides a platform to individuals and businesses for exchanging goods and services over the internet. It has fastened the buying process for customers and simultaneously reduced the operating cost for the businesses. Although there is lack of personal touch in the process, the customers are provided with high flexibility and the businesses can widen their audience base to a global level. [17] According to the recent IBEF industry report, the Indian E-commerce market is expected to grow to US$ 188 billion by 2025 from US$ 46.2 billion as of 2020 and become the third largest marketing in the world by 2030. The increase in internet penetration has triggered this growth. In India, the 5 major hub for e-commerce are Delhi, Karnataka, Maharashtra, Tamil Nadu and Andhra Pradesh. For the growth & promotion of e-commerce industry, the government of India has taken multiple initiatives like

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Digital India, Startup India etc and simultaneously, launched funds to support micro, small and medium enterprises in this sector. [19] Innovations like digital payment are supporting the growth in this sector. India's E-retail and social commerce are expected to grow at a fast rate with rise in smart phone usage.

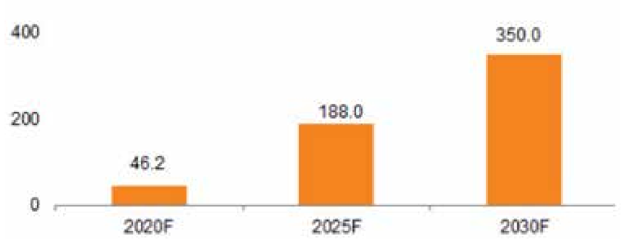

Figure1: Indian e-commerce market (USD Billion), Source (IBEF , industry report 2022)

AFFILIATE MARKETING

It is one of the oldest forms of online marketing where a person refers another to buy the product online and receive a commission on the sale. It is an associate & performance marketing where three parties are involved: advertiser, publisher & consumer. [12] According to recent, IAMAI (Internet and Mobile Association of India) study, the affiliate marketing industry will grow to more than $835 million by the end of 2025 in India. It's a mixed method approach that leads to business rewards whenever the consumer makes an action from the publisher to the advertiser website. The top six companies running the biggest affiliate network programs in India include: Amazon, Flipkart, eBay, GoDaddy, Nearbuy, Bigrock. In order to maintain the connection between the online e-commerce who sell the product and the customers, an affiliate link is created by the affiliate network which contains affiliate's ID. For improving the sales force, the focus is on creating long term relationships with the costumers. For an online business, affiliate marketing act as a brand advocate by transforming customer's visibility into revenue generation.

STEPS

1. Join an affiliate program and pick a product that you are interested in promoting.
2. Share the unique affiliate link via blogs, emails, facebook and other available channels.
3. You'd get a commission when anybody purchases your recommended product.

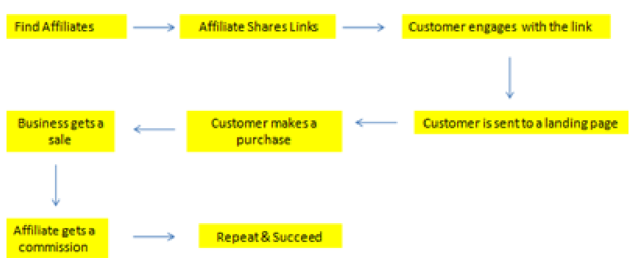

Figure 2: Steps involved in affiliated marketing

OBJECTIVES OF STUDY

1. To analyze the factors influencing consumer perception towards affiliate marketing in the e-commerce domain.
2. To study the statistical relationship between gender and utility of advertisement.

RESEARCH METHODOLOGY

The research methodology is exploratory research that helps in increasing the understanding of a particular occurrence so that one can take quantitative & qualitative decisions. For collecting primary data, the survey was conducted in various parts of the Delhi NCR region for 251 respondents using online questionnaire where the purpose is to collect information from the respondents that will provide dependable data for further analysis. For secondary data collection, government records, websites, journals, magazines were used. Pearson's chi-squared test ($\chi 2$) is carried out to check the dependence between the two defined parameters of, gender and utility of advertisement for identifying the said objectives.

FACTORS AFFECTING CONSUMER PERCEPTION TOWARDS AFFILIATE MARKETING

Affiliate Marketing is more cost effective than traditional marketing and helps in generating more revenue via delivering better conversion. It also provides high flexibility and low level of risk. In India, it contributes to 15 % -20% of the total sales via online platforms at present. It provides a platform to the companies to reach to a global audience. The following are the factors influencing the consumer perception towards affiliate marketing.

1. RELATIVE ADVANTANGE

Affiliate marketing has a relative advantage over other forms of marketing since it is more flexible, cost effective and low level of risk is involved that helps in enhancing the quality of traffic inorder to deliver better conversions. [16] It is easy to use since affiliate marketer is not responsible for handling anything related to the store. Thus, it is famously used by online companies that sell electronics, clothes, shoes etc by offering an affiliate programme.

2.PRICE COMPARISON

In the modern age, consumers are tech savvy because internet makes it easy to quickly find information. Thus, consumers do extensive research and often compare price of products available on different websites before purchasing. Thus, for an affliate marketer it is important to understand the consumer behaviour pattern that influences their comparison habits. This would help in creating strategies that in-turn will help in increasing visibility. For a business owner offering affiliate program it is important to understand that consumers will do more research regarding particular products like electronic or beauty products than for products like soap or toothpaste.

3.COMPATIBILITY

It means how well things go together and is one the most important determinant when it comes to adoption of new technology. At the organizational level, it affects management decisions because they will not adopt the technology if it is incompatible with their working values. [18] Moreover, it influences effort and performance expectancy that in turn affects the intention of firms for running affiliate programs.

4.LEVEL OF TRUST

Advertisement has always influenced people by telling them about the product and its usage. A good portion of population is still used to traditional advertising media that they come across while going through newspaper etc. They are more likely to be convinced regarding decision making by traditional advertising media channels in comparison to online ads. [22] Online advertisement channels targets tech savvy population whereas traditional advertisement reaches to every corner due to huge familiarity and exposure. Thus, online media advertisement should be used in reaching out to targeted audience since it is cost effective whereas traditional advertisement will be effective while reaching to larger audience.

5.OBSERVABILITY

Observability is where other parties can see the positive results of using the technology. If a firm, see others getting positive results by adoption of a particular technology they'd consider it as well since the management perceives the benefits of the e-commerce and have a strong belief in adopting it in their prospective business in increase profits. Thus, it affects the intent of using affiliate marketing.

INFERENCES DRAWN FROM THE DATA SET

Our mind finds it easier to understand data when presented in terms of numeric figures. So, we must quantify the status of affiliate marketing and other factors to increase the efficiency of data processing.

A survey has been conducted and Pearson's chi-squared test ($\chi 2$) is carried out for checking the dependence of the tabulated parameters. In order to figure out results via Data Analysis application using Statistical Package for the Social Sciences, a sample size of 251 individuals was considered relevant.

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender Of Respondant * advertisiment utility	251	100.0%	0	0.0%	251	100.0%

Table 1: Frequency Distribution of gender vs advertisement utility

251 respondents completed the survey out of which 100% were present in the dataset and there is 0% missing information about the respondents.

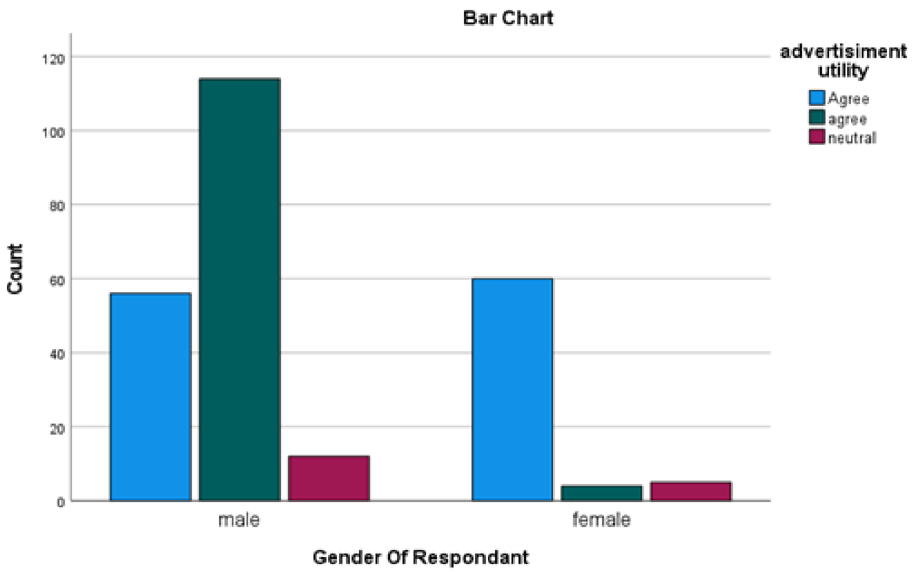

Figure 3: Gender of respondent Vs advertisement utility

Pearson's chi-squared test ($\chi 2$) is a non parametric statistical test used to find out whether there is relation between the categorical variables or data sets. Moreover, it measures whether

observed data sets fit with expected distribution if the variables are independent in the latter case. It is used for relatively large sample size where categorical variables are not paired in any way.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	68.592[a]	2	.001
Likelihood Ratio	79.005	2	.001
N of Valid Cases	251		

Table 2: Chi-Square Test Table

While reading the above table, the focus should be on the results of the "Pearson Chi-Square" row. Pearson Chi-Square = 68.592, p = .001. Since, the p-value is less than our chosen significant level (0.05), we will have to reject the null hypothesis. This shows that there is a statistically crucial association between the gender of the respondent and advertisement utility.

CONCLUSION

After analyzing the above data it is clear that there is a strong relationship between gender and advertisement utility. Majority of the male population believes that advertisement does not get their attention and thus the content of the advertisement should be improved in order to increase its influence on the consumer buying behavior. However, when it comes to female population, they are happy with the content of the advertisement and believes that it influences their buying behavior. Thus, it is safe to say that for different gender, the advertisement utility is different.

This research will have huge implications as the world is moving from a regular towards online business at a fast rate. Affiliate marketing offers low overhead cost and high revenue opportunities. The companies having affiliate programs should automate their tracking process for visitors and monitoring system for content providers to minimize the errors and increase the creditability of the rogram. This research gives affiliate marketers an overview of the factors that influence consumer buying behaviour. E-commerce and affiliate marketing gives a good scope for to do business online effectively and increase the revenue in the long run.

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HRIS- Challenges, Obstacles and Implementation

Dr. Anita Sharma

ABSTRACT

Human Resources Information System (HRIS) is an acronym for Human Resources Information System. The HRIS is a data collection and storage system for an organization's personnel. In most cases, an HRIS includes all of the essential features required for end-to-end HR management (HRM). It's a system that handles everything from hiring to performance management to learning and development. The HRIS is primarily a piece of HR software. The HRIS can be installed on a company's own IT infrastructure or, more commonly these days, on the cloud. HRIS software is another name for an HRIS. In this paper we study the IHRM Challenges, discuss the obstacles in the success of HRIS and understand the steps involved in proper implementation of HRIS.

Keywords: Human Resources Information System (HRIS), IHRM, Organization

INTRODUCTION

Human Resources Information System (HRIS) is an acronym for Human Resources Information System. The HRIS is a data collection and storage system for an organization's personnel. In most cases, an HRIS includes all of the essential features required for end-to-end HR management (HRM). It's a system that handles everything from hiring to performance management to learning and development. HRIS software is another name for an HRIS. This is a little perplexing because it indicates that various systems can run different software. This is not the case; however The HRIS is primarily a piece of HR software. The HRIS can be installed on a company's own IT infrastructure or, more commonly these days, on the cloud. This indicates that HR software is being used outside the firm, posing a security concern. HRIS system and HRMS, or Human Resources Management System, or IHRM are two other names for the same thing. All of these terms refer to the same item. These systems are referred to as Human Capital Management (HCM) systems collectively.

OBJECTIVES

The objectives of this study are as below:

- To study the IHRM Challenges
- To discuss the obstacles in the success of HRIS
- To understand the steps involved in proper implementation of HRIS

LITERATURE REVIEW

Abhishek Vohra, Ankit Shrivastava, Rohit Premi, Dr. Shine David (2015) referred For a unified application of technology, information and communication technology is coupled with internet services and computers. Information and communications technology (ICT) is a more specific term that emphasises the integration of telecommunications, computers, as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information. It's based on the results of a poll of 65 employees. According to the results of the poll, information and communication technology (ICT) boosts efficiency, while innovation cuts down on time and makes the organisation run more smoothly. It increases the employee's performance. It aids in the reduction of work time.

Sabrina Jahan (2014) studied Human Resource Information System. One of the most important modern HR tools is the HRIS. It has gained popularity in developed countries since the turn of the century. In the last five years, corporate organisations in Bangladesh have begun to use HRIS. However, its application is still limited among large corporations. Small businesses and government agencies have been slow to see the benefits of HRIS and have taken little steps to deploy it. The absence of management commitment is the most significant impediment to HRIS effectiveness. The high cost is the most significant constraint. However, the advantages of the HRIS outweigh the drawbacks. Employees and management have accepted and realised the benefits once it has been applied in any organisation. However, putting it into practise is a struggle.

Dr SEYNI Mamoudou and Dr G.P Joshi (2014) investigated the effectiveness of information technology (IT) tools in achieving business objectives. The role of information technology tools in the Human Resources (HR) field to achieve assigned HR tasks by exploiting the source of IT capabilities is constantly confirmed by trends and results of recent studies.

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Tesi di dottorato,Dott. Maria Chiara Benfatto(2011) Maria Chiara Benfatto (2011) evaluated the impact of human resource information systems (HRIS) on HR performance. There has been a lot of research done on the advantages of implementing HRIS. Instead, there has been little research into the effects of HRIS on HR performance. The current state of HRIS empirical research was investigated in this paper. According to their findings, the first model lacks a robust performance foundation, whilst the second model shows no direct link between increased HRIS development and enhanced HR performance. This implies that HRIS efficacy may be a necessary but inadequate requirement for successful implementation. The model provided a conceptual framework for determining which HRIS practises in a company delivered the best outcomes.

IHRM CHALLENGES

Introduction of IHRM in the organizations is not an easy task as there are many challenges which are to be faced before its proper implementation. The next section go over some of these issues

- **Educating consumers on how to use HRIS**

The first obstacle that a firm faces when implementing a Human Resource Information System (HRIS) is ensuring that an HRIS for a company addresses one essential issue: having people who can use the HRIS. Although the HRIS may be considered the most up-to-date technology for managing human resources, not every manager or employee understands how to use it effectively, and some even have no idea what it is or what it is for. For this reason, the corporation would be faced with the problem of implementing this HRIS to assist their human resource department in doing its duties flawlessly. As a result, the company will be unable to operate efficiently, will have limited access to information, and will be vulnerable to competition theft. As a result, the HR department must provide specific training to corporate employees in specific areas, as well as ensure that company personnel are appropriately taught to utilise the HRIS. However, teaching employees how to utilise the system is only half the battle; they must also be taught how to use the HRIS to discover answers to human resource questions. Employees must adopt a new mindset of self-service rather than turning human resources questions into responses by utilising the Human Resource Information System (HRIS) and including employees into the HRIS as part of the process.

- **HRIS Acquisition and Implementation Costs** Next, one of the most major challenges that the organisation faces in running the Human Resource Information System (HRIS) is the cost of purchasing and implementing an HRIS (HRIS). If the company wants to justify the expense of a new HRIS system or an upgrade, new HRIS software will be required. However, the corporation has a strategy of cost justifying any new technology for their products and investments, which has resulted in a capital shortage for the purchase and implementation of HRIS. Aside from that, purchasing and implementing an HRIS system is a big financial decision for businesses of all kinds, and this will become a challenge due to the shortage of capital. As a result, some businesses refuse to upgrade to a new HRIS system, and others continue to operate their human resource departments in the conventional manner. As a result of this predicament, the organisation will be unable to reap the benefits of HRIS, such as enhanced data accuracy, prompt and easy access to information, and reduced human resource expenses. As a result, having an HRIS system in place is critical, and it can provide numerous benefits to the company, such as assisting in the reengineering of the entire Human Resource (HR) function to work more effectively, allowing the HR department to take advantage of all HRIS benefits, and allowing the company to run smoothly.
- **Time to adapt the HRIS** Apart from that, the company has a problem with the amount of time it takes for employees and managers to acclimate to the Human Resource Information System (HRIS). According to the report, even if employees and managers understand how to use the system, it will not benefit the company if they do not see any benefits from doing so. Aside from that, even if they are trained employees, some employees are not computer aware and will take a long time to acclimatise to the new system
- **Now is the time to change the HRIS** Aside from that, the firm confronts a time constraint in terms of employee and manager adaptation to the Human Resource Management System. Furthermore, using the Human Resource Information System (HRIS) will help with the reengineering of the entire Human Resource (HR) function, which will take time for employees and managers to acclimate to. Employees and managers will have to spend more time adapting to the system because some of their company's HRIS systems are inflexible. Even though it will take time for employees and managers to transition to HRIS, it can assist the human resource department and help the firm run more smoothly.
- **Designing skills are lacking due to a lack of functional expertise.** The issue at hand is a lack of functional expertise in the development of a Human Resource Information System (HRIS). Although the HRIS system is the most up-to-date technology for running a human resource department, it has not yet matured into a flexible system, and the company will need to hire an expert in this HRIS system to keep it in top form. Due to the lack of flexibility in HRIS, there is a danger of data leakage and hacking, and the company's information would be easily accessible to others There is a danger of data leakage and phishing owing to the unavailability of flexibility in HRIS, and the company's information would be easily available to others. Aside from that, the HRIS is incapable of dealing with tough situations, and it is possible that the system will handle the wrong problem due to a lack of functional competence in HRIS design. However, if the organisation maintains its functional expertise in HRIS design, it will be able to overcome this difficulty and improve the efficiency of the human resource

department's operations. As a result, the organisation must maintain the HRIS system and ensure that it is constantly in good working order.

- **Illegal copy of the HRIS is provided by an improper vendor** The company's final challenge is an untrustworthy vendor that provides an illicit copy of HRIS. Because HRIS is the most recent technology for a company's human resource department to manage, and HRIS adoption is costly, many firms are willing to utilise an unlicensed copy of HRIS since it is less expensive than using a legitimate vendor. If the illegal version of HRIS has a virus that causes the system to crash, the company must request repair from the inappropriate supplier, who may continue to charge the company repair fees. Aside from that, an unauthorised supplier may be able to acquire access to the company's information through a backdoor if an illicit version of HRIS is used.

OBSTACLES TO SUCCESS OF HRIS

The following are the obstacles to HRIS success.

- In the present conditions it is not only important to only implement the IHRM but also it is important that the employees of the organization must properly understand the importance of it's implementation. Inconsistencies in the importance given to HRIS have made it difficult to to keep management on board with the project and secure the resources required to fully build the new or enhanced HRIS
- A tendency to undervalue the HRIS's intricacy and influence on the organization's behaviour and procedures.• Users of HRIS generally are reluctant in its implementation.
- User resistance to the HRIS and, as a result, an underestimating of the necessity of Management of change.

IMPLEMENTATION OF HRIS

The steps involved in developing and deploying an HRIS are as follows:

STEP 1: THE FIRST STEP IS TO COME UP WITH AN IDEA.

The conception of the idea is the initial step in HRIS implementation. The requirement for HRIS software in the organisation must be recognised and agreed upon by top management. It is an investment, and management must remember that.

STEP 2: PERFORM A FEASIBILITY ANALYSIS

The viability of HRIS must be evaluated because this is an investment. It includes the following topics:

- Software scope
- Future advantages after implementation
- Evaluation of potential software developers
- Cost estimate
- Business value addition
- ROI calculation

A thorough feasibility study will aid management in making informed decisions based on data.

STEP 3: PUTTING TOGETHER A PROJECT TEAM

HRIS implementation is a project since it necessitates a planned cost, a set timetable, and high-quality delivery. The project team's ability and effort are crucial to successful implementation. Members of the project team should come from both HR and IT. Senior management involvement is necessary to gain top management buy-in on various topics. "Experts advise that the project team's leadership be shared between HR and IT personnel. If at all possible, project team leaders should devote their entire time on conversion. "Having a dedicated team implies [the deployment] will proceed faster," says Gretchen Alarcon, vice president of human capital management product strategy for Oracle, an HRIS software company based in Redwood Shores, Calif.

STEP 4: SPECIFYING THE SPECIFICATIONS

The scope of the project must be specified at this point. It will not be a comprehensive requirement definition, but it will include the processes that will be implemented in the programme. Some organisations may wish to develop the payroll module, while others may desire the development of additional modules. It is entirely dependent on the organization's budget and strategy. However, it is a necessary step before contacting the vendor or programme developers. Otherwise, it will be more difficult to communicate and negotiate with software developers. At this point, the company's HR policies and processes must be thoroughly examined and established. If the process is ambiguous, it may be difficult to incorporate it into the software.

STEP 5: EVALUATE THE VENDORS

Another problem is finding the correct software developer. The developers' capability, track record, and good will must all be taken into account. The organization's requirements must be communicated to the developers in a clear and unambiguous manner. If necessary, existing processes can be clarified using them. They will make an offer after they have a good knowledge of the requirements, which will include a cost and a specified schedule for project completion. To avoid uncertainty in the future, the software requirement specification should be documented.

STEP 6: NEGOTIATION OF A PACKAGE CONTRACT

Following receipt of the final quote from the suppliers, the work order choice will be made based on cost and quality factors. After that, the software developers will sign a contract. Then the development process will begin. However, the corporation must periodically monitor the development work to guarantee that the project is delivered on time and in good condition.

STEP 7: INSTRUCTION

After the contract is signed, training normally begins as soon as feasible. The Human Resource Information System is first introduced to the project team members. Near the end of the implementation, the human resource representative will train managers from other departments on how to submit information to the HRIS and how to get information from it.

STEP (8): CUSTOMIZING THE SYSTEM

Following the completion of the system requirement specification, the software design process will begin. To highlight areas for improvement, the design should be shared with the company.

STEP 9: DATA COLLECTION

At this point, the necessary data for entering into the software will be gathered. To collect data for the programme, a team of HR professionals must be employed. Validation of data is also essential. This is an extremely important aspect of the project.

STEP 10: PUT THE SYSTEM TO THE TEST

Testing is essential once the system has been developed with data. It's referred to as a User Acceptance Test by some organisations. Users utilise it at this point to see if there is any discrepancy between the requirements and the software delivery. If the test passes, the company receives the final delivery.

STEP 11: GET GOING

After User Satisfaction, the software is installed on the user's computer or over the internet, depending on the system settings and needs.

STEP 12: PROCESSING IN PARALLEL

Running the current procedure, whether manual or software, in parallel with the new programme is a safe bet. In the event that the new programme fails, the procedure will not be hampered. To avoid any technological complications, at least one full cycle of the procedure must be conducted in simultaneously.

STEP 13: CARE AND MAINTENANCE

After the programme has been deployed, it must be maintained and monitored on a regular basis. An annual maintenance contract with the software development business might be negotiated for efficiency.

STEP 14: ASSESSMENT

The performance review will be carried out once the software has been operated for a set period of time. It's important to assess how much value the software has added since its inception.

HR practitioners and academics alike face the challenge of developing general evaluation frameworks and performance measurements that (1) must be sensitive to the most commonly individualized and historically grown nature of HR information systems and in many cases include this individualization as an indicator to be assessed in order to determine the system's functionality, and (2) must be sensitive to the fact that an HRIS' efficiency can only be measured with a human being.

HR has evolved from a business unit to a service centre in the previous decade, with the service centre moving online enabling employee self-service and encouraging self-reliance. HR has fast transitioned from outmoded data collection and paper pushing to a focus on knowledge sharing and strategic workforce analysis thanks to information systems.

In the future, HRIS will benefit HR in four ways. Web portals will be improved in terms of technology; they will become more complex and personalised office productivity tools for managers and employees. Second, improved decision-support technologies, such as those being explored in the United States for health insurance, will benefit both employers and employees. Third, virtual workplaces will grow in popularity and usage. Fourth, administrative restraints will be removed from the human resource function, allowing it to focus more on developing intellectual capital, social capital, and knowledge management in order to improve a company's competitive advantage. Web portals that provide information to employees will continue to evolve. Decision-support tools will become more numerous and complex, allowing managers to make better decisions and employees to be more organized. Managers will be able to get step-by-step information on human resource challenges using these technologies.

Employees will also have access to decision-making tools that provide step-by-step information on human resource issues. They'll be crucial in terms of training employees and providing them with the information they need to make complex decisions, as well as collecting preferred data for HR to use to steer planning. Digital workspaces will become more common in the future. Employees will use online meetings, project team workspaces, web conferences, and video conferencing.

HRIS is critical for every good organisation to ensure successful people management and, as a result, gain a competitive advantage in the business sector. It is gradually gaining popularity and acceptance in Bangladesh. It should be viewed as an investment rather than an expense by the enterprise/business owners. To remove the present impediments to HRIS performance, high management commitment is essential. It will assist management in making more effective and better decisions, similar to MIS. Individual and line manager communication become more efficient. Self-service HR services replaced paper-based transactions, resulting in a more efficient HR department.

CONCLUSION

In today's complicated and dynamic business climate, the use of information and communication technology has become an unavoidable part of all corporate activities around the globe. Human resource management is a critical function for every organisation, since the effectiveness of human resource planning and management has a significant impact on the overall efficiency of the organization. This study focused on the use of ICT in an organization's HRM, highlighting the issues that companies confront , obstacles in the success of HRIM and various steps of implementation in today's corporate climate.

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ML-Based Hand Sign Detection System for Deaf-Mute People

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ABSTRACT

Communication is imperative to human existence and pervasive in all aspects of our lives. It is also an important right to everyone. This paper focuses on solving the communication problem with the deaf and mute population of the world. This is done using real-time machine learning (ML) for sign language detection along with certain APIs (Application Programming Interfaces). The discussed system detects the signs in the region of interest (ROI) and then converts them into the appropriate format. Computer vision has been used for detection and API function for many other functionalities. This idea here is focused on reducing the communication gap within the deaf-mute population and bringing a sense of normal in their daily life.

KEYWORDS: Hand Signs, Computer Vision, Object Detection, Machine Learning, Transfer Learning, Cloud Bucket

INTRODUCTION

Communication is a way of exchanging information, opinions, and feelings among individuals in order to reach a common understanding. People with disabilities may require assistance due to complex communication needs, but they are still left behind in communicating their ideas to the general public to some extent because the majority of people are not educated enough to understand their first language, resulting in one-way communication. It's easy to be scared by the thought of communicating with someone who has a disability, particularly if you're not sure what to say or how to say it. As a result, we hope to use artificial intelligence and other technologies in our project to bridge these gaps and bring everyone, special or not, on the same level, resulting in a better world. For the general public also this application will be a very useful platform as it will completely demolish the different prerequisites that were required earlier to communicate to people with different special needs.

The transmitter and the receiver are the two basic components of any communication. The sender expresses a sentiment or emotion, seeks information, or transmits an idea or notion, and the recipient receives the message. To summarize, each communication entails a sender and a receiver, a message, and both sides' interpretations of the message's meaning [1]. We interact with individuals on a daily basis and it's crucial to remember to treat each person with a disability as an individual while talking with them. To communicate responsibly and respectfully with and about an individual, people-first language is utilized which emphasizes the person first, not the disability.

When it is impossible or undesirable to speak orally, sign language is any form of communication involving physical movements, mainly hand gestures. It is possible that the practice precedes speech. Sign language can be as crude as frowns, shoulder shrugs, or gesticulation or it can be a fine combination of manually coded signals complemented by face expressions or spelled out words. When voice communication is impossible, such as between speakers of mutually incomprehensible languages or when one or more potential communicators are deaf, sign language can be employed to bridge the gap. The deaf and hard-of-hearing community uses sign language as their primary mode of communication, but it can also be useful for other groups.

The BSL (British Sign Language) alphabet is fingerspelling. There is a symbol for each letter of the alphabet. On your hand, you can use these letter signs to spell out words – most common names and places – and sentences. If you don't know or can't remember some BSL signs, you can use fingerspelling to communicate.

With the help of deep learning method, computer vision, we plan to read the hand sign of the user and translate it to the appropriate format. For example, a deaf person who wants to communicate with a person with no disability can do so using our website in which we read the hand sign of the person with a disability and convert it to audio for the other person to hear.

The key features implemented in this paper are:

- Taking video inputs of sign language used by differently abled people.
- With the use of artificial intelligence, convert these video inputs of various signs used by the user, interpret them to their corresponding speech and text, making it more comprehensible for the respective auditor.

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- Personalize the application for each user as per their preference, if needed.

BACKGROUND STUDY

OBJECT DETECTION

Object detection is a method of identifying objects and locating them in images or videos using computer vision. It draws boundary boxes around the objects that are identified in the image or video so we can see their position and movement across a scene. Object detection is different from picture recognition. Image recognition is used to label a picture. In a photograph of a dog, the term "dog" is used. A photograph of two dogs still bears the label "dog." On the other hand, object detection draws a box around each dog with the word "dog" written on it. The model predicts the location of each object as well as the label that should be attached to it [2].

OPENCV

OpenCV is a free and open-source computer vision and machine learning library, developed to provide a general infrastructure for computer vision based applications. A wide-range of optimized algorithms are included that cover machine learning techniques and integration of machine perception. These can be used for detecting or identifying objects, recognizing faces or classifying actions in videos, tracking and following movements, set markers or even extract 3D models of objects and stitch images together to create a high-resolution image of an entire scene. There are several key domains involved with computer vision, including image processing, video capture and analysis, face detection, and object detection, but developing real-time applications requires a cross-platform library. This is where OpenCV, a C++ based program that was later followed by a Java-based version, comes in [3].

TENSORFLOW

TensorFlow is an open-source machine learning platform that may be utilized from start to end. It's a symbolic math toolbox for deep neural network training and inference that solves a wide range of issues using data flow and differentiable programming. It allows programmers to develop machine learning applications using several tools, libraries, and open-source resources [4]. By receiving inputs as a multidimensional array (referred to as Tensor), TensorFlow allows you to make structures that govern the flow of data through a graph. The input enters at one end, passes through the complex actions of preprocessing, creating model and its training and estimation, and exits at the other end as output. [10].

SINGLE SHOT DETECTOR (SSD)

The SSD (Single Shot Detection) technique is used for object-detection in real-time. The SSD architecture comprises a single convolutional neural network (CNN) which learns to predict and classify the bounding box positions for object detection in a single pass. Therefore, it can be trained from start to the end. MobileNet, the basic SSD network architecture used in this work consists of numerous convolution layers. It implements multi-scale features and other enhancements to improve accuracy while utilizing images of lower resolution, and thus further increasing the speed [8] [9].

TENSORFLOW DETECTION MODEL ZOO

Similar to Facebook's Detectron2 computer vision library, the TensorFlow Object Detection API model zoo includes a wide range of object detection models that you can deploy to your custom dataset and build from.

The TensorFlow Object Detection API lets you to quickly try out novel architectures in the TensorFlow ecosystem and provides deployment solutions for developers by offering model export scripts to .pb protobuf files that contain the inference graph description. These models can then be exported to venues like TF Lite or TFJS [5].

These models are evaluated on the basis of speed per step, mAP (Mean Average Precision), and even frame style.

For each class, one can calculate the

- True Positive TP(c): There was a proposal for class c, and there was a class c object.
- False Positive FP(c): Class c has been proposed, yet there is no class c object.
- Average Precision for class c, as shown through equation 1.

$$\frac{\#TP(c)}{\#TP(c)+\#FP(c)} \quad (1)$$

Then mAP is calculated as shown in equation 2 [6]:

$$mAP = \frac{1}{|classes|} \sum_{c \in classes} \frac{\#TP(c)}{\#TP(c) + \#FP(c)} \quad (2)$$

CONCEPT OF TRANSFER LEARNING

Transfer learning is a machine learning technique in which a model developed for one task is used as the foundation for another task's model. It is a common deep learning approach that employs pre-trained models. Given the massive compute and temporal resources required, as a starting point for research into computer vision and natural language processing challenges construct neural network models for these issues, and from the massive amount of data leaps in a skill that they offer in connection with a problem. A pre-trained model is a previously trained network, typically on a huge dataset, preserved on a large-scale picture classification assignment. This pre-trained model can be used as it is or transfer learning can be used to adapt it to a specific task. For image classification, transfer learning involves training the model on a general huge dataset such that it may serve as a generic model of the visual world. One is then able to use these feature maps that they have learned without having to re-learn them [7].

WORKING AND IMPLEMENTATION

SYSTEM DESIGN

In this work, we will be using the concept of transfer learning to train our model to reduce the training time. We are going to extract a model from the tensor flow model zoo for the same.

First, we will collect images to create a dataset of our own. For this, we made an automated system to capture the images. These images are then labeled using a library called *labelImg.* Labeling each image creates an XML file that contains data about the image such as its label name, height, width, dimensions on the x-y axis, etc. After this, all the images with their respective XML files are divided into two segments where ¾ images go to the training folder and the rest to the testing folder. This creates data for the model to train itself and then test itself. Then we provide the data and the training process begins, where we use SSD Mobilenet V2 FPNLite 320x320 to train our model. After a successful training session, the model is tested for efficiency and after receiving satisfactory results, the model is frozen and converted into TensorFlowJS format to be stored inside a cloud bucket to be accessible anywhere.

This bucket is then accessed in our web app which takes video inputs and then provides them to the model which then detects and provides the output in form of text. This text is accessed by a text to speech API which also provides the audio outputs simultaneously. Figure 1 represents the architecture we discussed.

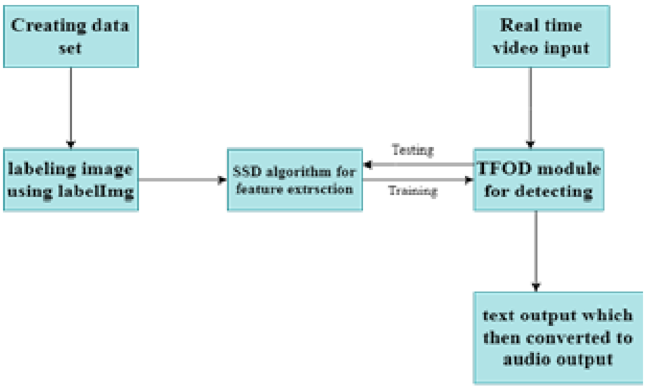

Figure 1 : System Architecture

DATASET CREATION

The LabelImg software is used to graphically label the images, which is then utilized to recognize the images. We must remember that labeling must be done correctly, i.e., the gesture must be labeled with the correct label in order for the movements to be recognized correctly later with the correct label. After the photographs have been labeled and saved, an XML file is created for each one. During the training phase, this XML file contains information on where the model should look in the image. Figure 2 shows the file structure of one such XML file.

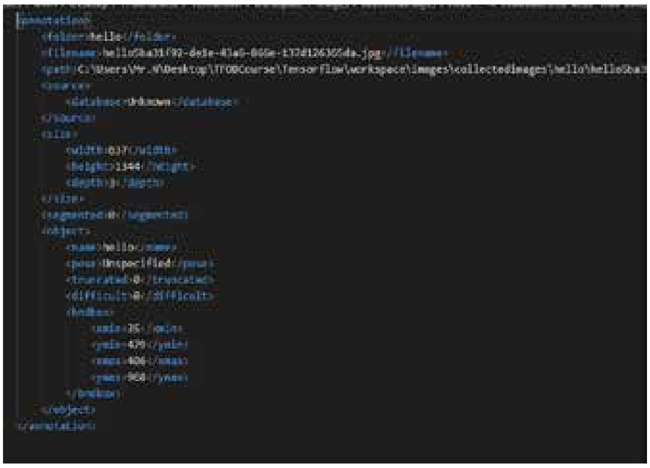

Figure 2 : Label data for "Hello"

TRAINING AND TESTING

As discussed, we used ¾ of our collected images along with their XML files to train the model and the rest to test the model.

For the training, we used the SSD Mobilenet V2 FPNLite 320x320 model. It had a speed of 19ms per step and mAP of 20.5. For testing, we used the TensorFlow object detection API.

Figure 3 shows the learning rate at 10,000 steps.

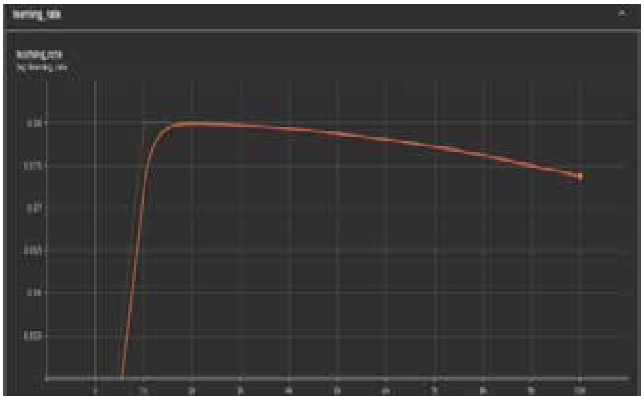

Figure 3 : Learning rate at 10,000 steps

Loss function is used to optimize the ML algorithm. The loss is estimated based on the model's performance in both training and testing, and its interpretation is based on the model's performance in both training and testing sets, i.e. the total number of errors committed in each. The value of this loss function specifies the mode's performance after every optimization iteration. Our machine learning model's loss has been lowering with each iteration, indicating that the model's detection accuracy has improved. Figure 4 shows the loss of the model.

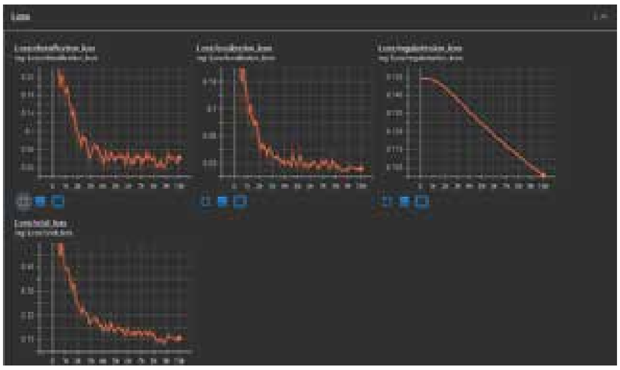

Figure 4 : Loss graph on various parameters

The mismatch between the ground truth box and the anticipated boundary box is known as the localization loss. Only forecasts with positive matches are penalized by SSD. To get closer to the ground reality, only the predictions from the good matches are required. Negative matches aren't worth paying attention to. The predicted boundary box is the box that is predicted by the model while testing the photos, while the ground truth box is the box that is constructed in the LabelImg software while making the labels. Our model has a localization loss of 0.05.

STORING THE MODEL IN CLOUD BUCKET AND WEBSITE INTEGRATION

After a successful training session, we freeze the model and store the model in a cloud bucket. We used IBM cloud storage bucket for this project. Then we extract the bucket link and integrate it with our web application. The web app is specially designed to make the user experience easy and smooth. The web app also has a text to speech API that converts the text results that we receive from the model and converts them to audio. Figure 5 shows a working example of one such gesture i.e. "hello". The output text also displays the accuracy percentage, like in Fig.3 the accuracy is 95%.

Figure 5 : Sign detection from the web app

FINDINGS

After evaluation, the precision rate of the model came out to be 69% and the recall rate came out to be 70%, which is not a great result but still it's a start. And also it was observed that the increase in the number of images and adding a more and more different variety of data from various angles also increased the stats significantly. Even after that, as seen in figure 5, the detection is being performed with a high accuracy rate.

CONCLUSION

In this age where nothing seems to be impossible, leaving a section of our society out just because of their physical disability is unfair to them. Thus our project is a small step to bridge this gap. Although we have a lot of bases to cover, still this will hopefully start a process that might go on further ahead. With the use of object detection, we have made the model very easy to recreate and expand or improve wherever required.

FUTURE SCOPE

We are still capturing still images, but in the future, we can train our model to capture more complex live hand signs that require more than one gesture. Also, we plan to add many other features such as performing certain daily life actions using hand gestures or voice commands. And also this can be also incorporated into a mobile application which would make it easier to use.

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