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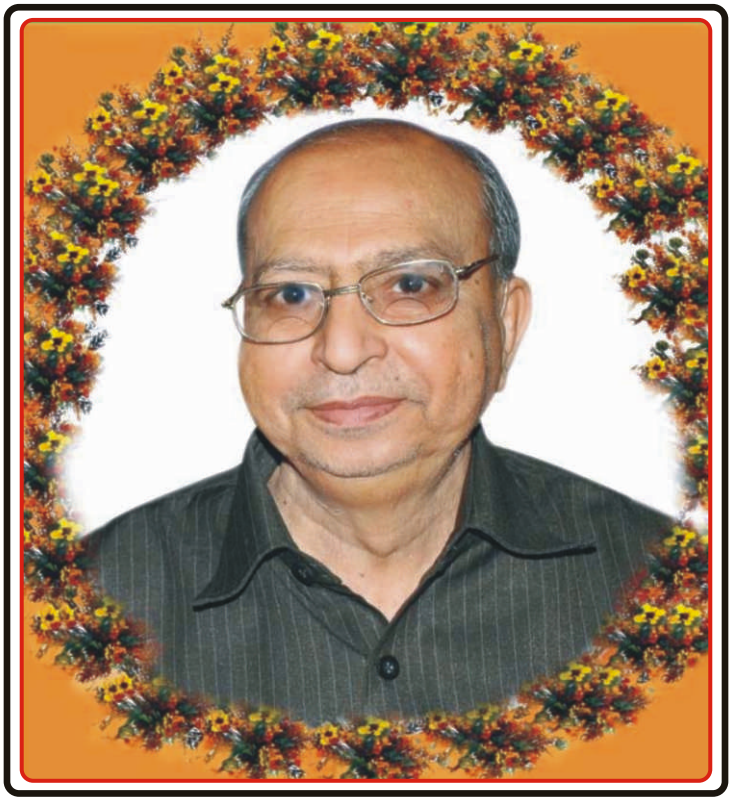
[UNDER THE AEGIS OF KAMAL EDUCATIONAL & WELFARE SOCIETY (KEWS)]



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EDITOR'S PAGE

We are happy to launch the ninth issue of "Trinity Journal of Management, IT & Media (TJMITM)". The present issue incorporates 10 research papers – 04 from management, 03 from IT & Computer Science and 03 from media. With this issue, TJMITM is completing nine years of uninterrupted publication. During all these years, we have received unstinted support from our Editorial Board without which it would not have been possible for timely publication of the journal. We also received constructive feedback from the readers and contributors for improvement in quality. I express my sincere thanks to our Editorial Team members for their dedicated and involvement in printing the 9th issue of TJMITM.

This journal is an acclaimed platform for young academicians and researchers to inspire and motivate them for disseminating their research papers, research articles, literature reviews, case studies and book review, etc. This issue of TJMITM covers a regular mix of articles and research papers from Management, IT & Computer Science and Media. All the papers open us new dimension of research in the identified areas. My thanks to the authors who have contributed the papers in this journal.

On behalf of the Editorial Team of TJMITM, I extend my sincere thanks to Dr. R.K. Tandon, Chairman, TIPS who has always been a guiding force, encouragement and prime inspiration to publish this journal. We are grateful to Ms. Reema Tandon, Vice Chairperson, TIPS for her continuous support to bring out the journal in a proper form.

I do hope that this issue of TJMITM will generate immense interest among researchers.

Prof. (Dr.) Vikas Rao Vadi
Editor-in-Chief &
Director, TIPS

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Dr. R. K. Tandon

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Role of gender in perceived time pressure among young consumers in Odisha

Dr. Pramod Kumar Nayak*
Dr. Sathya Swaroop Debashish**

ABSTRACT

Every consumer whether male or female when purchases a product or when in the decision making phase for purchasing a product passes through some process of mental decision comprising of the choice sets to reach at the correct decision. As a general practice, apart from the information gathering about the product, the decision making i.e. mental process are influenced by psychological variables also. This paper aims at finding whether the psychological factor 'Perceived Time Pressure' differing across genders. The difference of psychological factor perceived time pressure among the male and female young consumers of Odisha are examined in this study and it has been observed that 'Perceived Time Pressure' psychological factor differs between male and female consumer. This study of psychological aspect 'Perceived Time Pressure' across genders will help in understanding the consumer decision making and behaviour of male and female consumers.

Keywords: *Perceived Time pressure, Psychological factor, Gender*

1. Introduction

As the time constraint and time pressure depicts the hurry syndrome among the young consumers the perceived time pressure by the consumer is a matter of concern and the marketers need to address this issue by providing suitable solution. Increasing usage of social media and mobile phone has also affected the young consumers and they are now a days spending more time on social media and communication. To avoid the time pressure the young consumers are using on-line mode of purchasing. This study primarily tries to study whether there exists difference in perceived time pressure among male and female young consumers of Odisha. Odisha is a state of emerging opportunities and Bhubaneswar, the capital of Odisha is declared as the best smart city in making in coming years, the young consumers of Odisha will be in the focal point of the marketer intending to target the business development. So, it is pertinent to study the young consumers' psychological factor for understanding the behavior and better design of marketing strategy and products for them.

The psychological variable 'perceived time pressure' used in the study of Lysonski and Durvasula (2013) to find the impact of psychological variables on consumer decision-making styles.

The major goal/objective of the study is to examine the perceived time pressure psychological aspect associated to young consumers of Odisha using the psychological variables concerned to perceived time pressure used in different studies of consumer psychology in different parts of the world.

2. Literature Review

To conceptualize and operationalize the consumer psychological factor 'perceived time pressure' various extensive studies have been carried out by researchers across the world and also to gain insight into the potential psychological factor time pressure. Time plays a very important role in consumer decision-making. When the consumers feel that they had not enough time to accomplish the task they needed to do, they perceive time pressure as per the study of Lee (1996). Kim (1984) had opined that insufficient time to perform desired purchase and consumption is known as perceived time pressure and the study of Won and Park (1994) indicated that time pressure affects the purchase decision of consumers. Time pressure perceived by the consumer had also impact on shopping. Amount of time spent on shopping was related to hedonic aspect of shopping highlighted in the study of Babin et.al (1994). Lumpkin and Darden (1982) and Lumpkin (1985) also developed time pressure scale highlighting the hurry and time pressure. In the situation of rising in income and spare time constraint there is a need for study of perceived time pressure as psychological variable.

All the literatures reviewed have given the idea of psychological factor 'perceived time pressure' associated to consumers purchase decision. In the study of Lysonski and Durvasula (2013) the psychological variable identified is perceived time pressure, shopping opinion leadership, shopping self-confidence, consumer susceptibility to interpersonal influences and materialism and these psychological variables were used by them to find the impact of psychological variables on consumer decision-making styles.

Shopping an unpleasant activity and undesirable as being considered by male shoppers (Dholakia, 1990 cited on Bakewell & Mitchell (2006)), however in the study by (Dholakia, 1999 cited

***Assistant Professor, Trinity Institute of Professional Studies, Dwarka, New Delhi**
****Associate Professor, Dept. of Business Administration, Utkal University, Odisha**

on Bakewell & Mitchell (2006) highlights young male are more involved in shopping. Male consumer decision-making traits were different from female consumers. Male shoppers are having traits of 'Time-Energy Conserving', 'Confused Time restricted', 'Store loyal/low price seeking' & 'Store Promiscuous' where as Female shoppers are having traits of 'Bargain seeking', 'Imperfectionism' and 'Store Loyal' Bakewell & Mitchell (2006).

It is interesting to note that not many studies have been carried out on psychological factors associated with young consumers in Indian context. India being a bifurcated society and there is a sharp contrast in wealth distribution between rural and urban sectors and the purchase of product varies according to the psychology of the consumers. In the context of time pressure and time constraint situation, a study has been carried out for better understanding of psychological factor 'perceived time pressure' among male and female young consumers.

3. Objective of the Study

The objective of this study is to examine the difference in psychological aspect perceived time pressure among young male and female consumer of Odisha.

4. Research Methodology

4.1 Research Design

A descriptive approach has been adopted in the research design. This has led to get the desired result by using cross-sectional study. The cross-sectional study among the university/college students has been based upon the methodologies adopted in previous empirical studies conducted in various parts of the world. It has been helpful on fulfillment of the objective of the research.

4.2 Research method

The research method is 'Quantitative' in nature and has the survey method through a structured questionnaire to assess the shopping characteristics of male and female young consumers and the psychological factor perceived time pressure of young consumers involved in shopping.

4.3 Development of Instrument

The questionnaire has been developed by using the questions to find out the demographic characteristics and also to assess the perceived time pressure psychological aspect of consumers, by using psychological i.e. Time Pressure Scale (2 items) are adapted from the study of Lumpkin & Darden (1982)and Lumpkin (1985) in the study. All the questions related to time pressure are meant to be answered by the respondents with one choice selecting on the basis of 5 point Likert scale i.e. (1-Strongly Disagree, 2-Disagree, 3- Neutral, 4- Agree and 5- Strongly Agree). The questions for demographic details are meant to be answered by selecting one option out of the options provided.

4.4 Sample and Source of Data

The scope of the study is restricted to the university/college students and a purposive sampling has been undertaken. The university/college students have been selected as per their gender, educational qualification, course, and age group.

4.5 Sampling Design

It has been observed from the literature review that the studies across the world have taken the sample of undergraduate and post graduate students. So, the sampling design consists of a sampling frame which defines the list of students of Universities and colleges in Odisha in the age group of 17-25 years. Both boys and girls students are included in the sampling process. The questionnaire was administered to 500 students in different parts of Odisha. However, after the scrutiny of the feedback data only 432 questionnaires were found relevant.

4.6 Formats of Data

As the study is empirical in nature, the primary data has been collected from the respondents by using survey method through administering the structured questionnaire to the respondents.

4.7 Tools for Data Analysis

The data analysis has been carried out with descriptive statistics as well as techniques like independent t-test to find out the difference in perceived time pressure among male and female young consumers. Software spss-19 has been used for data analysis.

5. Data Analysis

The data has been analysed by using appropriate statistical methods and tools as applicable to meet the Objectives.

5.1 Descriptive statistics Analysis: The descriptive statistics has given an insight in to the demographic characteristics of young male and female consumers.

5.1.1 Demographic characteristics analysis: Firstly, to meet the first objective the analysis of demographic of the respondents has been done. In the demographic characteristic analysis, the demographic characteristics of the respondents such as Gender, Age, Educational qualification (Details of the course the respondents are studying) have been taken into consideration for the analysis. Response from total sample size of 432 respondents are analysed and the major outcome is that ; Out of 432 respondents, 183 respondents are Male and constitutes

42.4% of total sample and 249 respondents were Female and constitutes 57.6 % of total sample; 246 respondents are in the age group of 17-20 years and constitutes 56.9% of total sample and 186 respondents were in the age group of 21-25 years and constitutes 43.1 % of total sample; 229 respondents are studying in Universities and constitutes 53.0% of total sample and 203 respondents are studying in colleges and constitutes 47.0% of total sample. Out of 432 respondents, 278 respondents are studying in Undergraduate course and constitutes 64.4% of total sample and 154 respondents are studying in Post-Graduate course and constitutes 35.6% of total sample.

5.2 Perceived time pressure & Gender. To meet the second objective i.e. the difference in psychological aspect perceived time pressure among young male and female consumer has been examined through testing the means by t-test of independent samples through the software SPSS-19. The total sample size of 432 students is consisting of 183 Male students and constitutes 42.4% of total sample and 249 Female students and constitutes 57.6 % of total sample has been considered for the study. The hypothesis has been drawn as per the second objective is as follows:

H1: The perceived time pressure differs between the male and female consumers.

To test the hypothesis independent sample t-test has been carried out and the output of statistical test is as mentioned in Table-1 for Comparing Means (group statistics) & Table-2 (independent sample t-test)

Table -1 Comparing Means (Group statistics) of Perceived time pressure between male & female consumers

Group Statistics					
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Perceived Time Pressure	Male	183	2.9153	.92117	.06809
	Female	249	2.6827	.87283	.05531

Table -2: Independent samples t-test for equality of means

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
									95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Perceived Time Pressure	Equal variances assumed	.042	.838	2.673	430	.008	.23257	.08701	.06155	.40359
	Equal variances not assumed			2.651	380.003	.008	.23257	.08773	.06007	.40507

Interpretation: Referring to Table-1 for comparing the means of perceived time pressure between the male and female it has been observed that the mean is higher in male consumers, the result of the independent sample t-test shown in Table-2 to check the statistical significance difference in perceived time pressure among male and female consumers shows that the sig-2 tailed 'p' value is 0.008 and is less than 0.05 i.e. at 5% level of significance or 95% confident interval, where we can say that the null hypothesis is rejected at 5% level of significance and Hypothesis **H1: *The perceived time pressure differs between the male and female consumers*** is accepted. Hence there exits difference in perceived time pressure between male and female consumers.

6. Conclusion

The study emphasizes in the psychological aspect 'perceived time pressure' and has been examined among male and female young consumers involved in shopping. It has been found out that there exists a difference in perceived time pressure between male and female consumers and male consumers mean perceived time pressure is higher than the female consumers. So, the marketing strategy for male and female young consumers can be formulated by keeping in mind the difference in psychological aspect among them. This study has been carried out with a limited size of sample comprising of the young university & college students. However, a study on other sample with different demography may yield different results.

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Evaluation of Investors' Perception towards Mutual Funds Investment

Sarvendu Tiwari*
Dr Ajai Pal Sharma**

ABSTRACT

The aim of the study is to examine investors' perception towards mutual funds in India and also to identify attributes that are crucial for taking investment decisions in mutual funds. Stratified random sampling has been used for collection of responses through structured questionnaire. Factor analysis was used for data analysis using SPSS to find out factors that have impact on investors' perception. During the factor analysis, all the eighteen items were reduced to eight factors explaining 65.18% of variance. The factors were selected on the basis of eigenvalues and only eight factors having eigenvalue greater than one were retained to interpret the results. Eight factors were found having maximum (13.56%) for first factor (funds information related attributes) and lowest (5.85%) for the eighth factor (funds capital appreciations attribute). The model was tested using reproduced correlations matrix and found fit.

Keywords

Investors, Mutual funds, Attributes, Perception.

1. Introduction

The study of mutual funds' performance, its efficiency and methods to improve it, is a crucial aspect for the investors. Net Asset Value (NAV) of Mutual funds is often taken as performance measurement criteria and is measured in terms of risk and return trade-off. In addition to the above mentioned criteria, there can be other factors to measure the performance and efficiency of mutual funds, hence it is essential to know such attributes which may enhance or deteriorate the performance of the mutual funds. Indian mutual fund industry is considered very far away in comparison to developed nations in terms of growth in total assets under management. The reasons behind slow growth is investor's lack of awareness and faith in companies' policy. Therefore, in attempt to promote the growth rate of Indian mutual funds industry, it is necessary to understand the investors' investment behavior in mutual funds which is considered a crucial factor. To promote the growth in investment, it is necessary for the companies to know the factors that motivate the investors to invest in mutual funds and also to find out the weaknesses in comparison to other investment instruments. In current situation, Indian mutual fund industry is in the growing stage and have tremendous growth potential. So there is need to examine the behavior of investors towards mutual funds.

2. Literature Review

Tripathy (1996) identified that 1991 economic reforms resulted in unexpected expansion of Indian capital market. The share of household saving in total country' saving is 80 percent but only 33.33 percent is available for corporate. It is suggested that mutual fund companies should win the investors' confidence by offering diversified schemes to meet the investor needs such as; quick information, enhance operational transparency, faster consumer services and assured return by professional funds management. In 1998, Gupta and Sehgal examined the performance of mutual funds from 1992 to 1996 by evaluating 80 mutual fund schemes and found less degree of diversification and consistency in samples performance. Narasimhan and Vijayalakshmi (2001) analyzed 76 mutual fund schemes of top holdings during January 1998 to March 1999 and concluded that only 26 schemes yielded positive return out of total 76 schemes. Bansal (2003) in his study revealed that loyalty of investors is a myth and they focus only on the performance of the funds.

Ramamurthy and Reddy (2005) conducted a study on trends of mutual funds and concluded that small investors get benefits due to effective management, good return, liquidity, flexibility, SEBI regulations and low cost. Walia and Ravi (2009) critically studied the structure of mutual funds and further scope of expansion for redesigning the services offered by mutual funds and found various gaps. They advocated that these gaps can be filled by introducing Investor Service Quality Arrangements enabling to understand the behavioural aspect of investors before introducing any innovative financial instrument. Kaushik, Anita and Scott (2010) also analyzed the manager's investment style related with market timings and factors influencing the cyclical performance of sectoral funds to examine whether fund managers are applying different marketing strategies during different business cycles. The NSE benchmark index used to check the influence on two sectoral funds and result shown great influence. Sharma, Loothra and Ashish (2011) conducted a study with an aim to examine the performance of capital market safety measures in investment focusing the investors. In this study eight mutual fund schemes were included for analysis. Various tools like; Sharp Ratio, Standard Deviation, Beta, Alpha, and Coefficient of determent were used and it was concluded that Reliance Regular Saving yielded increasing return during eight

*** Research Scholar, Central University of Haryana**
****Assistant Professor, Central University of Haryana**

observation periods and Birla Sun Life Dividend Plus provided maximum return on minimum risk. Batra, Laxmi and Gupta (2012) focused on investors' expectations of liking and disliking during investment. The study focuses on factors as determinant of mutual fund investment and level of individual investor awareness of mutual fund schemes. Singh (2012) in his study found the factor affecting investor attitude related to age, sex, income, race, gender and culture on mutual fund investment. To draw the conclusion data were analyzed and tested with Chi-squire test to know the factors responsible for investment and factors are were ranked on the basis of weighted score. In another study conducted by Sasipa (2014) used optimal lagged model to know the future price movement of specific equity mutual fund on the basis of past price trends that helps in predicting the price behavior of other equity mutual funds and capital market index.

Goyal (2015) also evaluated the performance of top 10 mutual funds (as per Crisil 20 ranking in September, 2014) and compared it with the benchmark index NSC-Nifty. Various absolute and relative performance measures like Sharp measure, Treynor measure and Jensen Alpha were used to compare the performance and found that overall the schemes provided higher and better average return than the market. Islam and Vashkor (2016) analyzed 128 firms to measure the fund's performance and concluded factor; fund size, fund yield, fund payout and price to earnings ratio have positive correlation with performance of fund and fund age and NAV is negatively correlated with the performance of 27 funds.

3. Objectives and Research Methodology

The objectives and hypotheses of the study are:

(i) To investigate the factors impacting investors' behavior while selecting mutual funds.
(ii) To evaluate the perception of individual investors toward mutual funds.

Hypotheses:
H_1: There is no significant impact of factors on investor's investment behavior in funds selection.
H_2: There is no significant difference in the perception of investors with regard to selection of mutual funds.

Research Methodology

Sampling Design
The analysis is based on primary data and stratified random sampling has been used. In first stage of sampling, total population was divided into four categories; Government Sector, Private sector, Businessmen and Professionals. In the next stage these categories were divided in ten sub-categories. Thirty respondents were selected from each sub-category on random basis, thus making the sample size to 300. A structured questionnaire comprising 26 statements with five point Likert scale was used for data collection. Eighteen questions were research related and remaining were general in nature.

Collection of Data

The study is based on primary data collected through questionnaire. Before administering the questionnaire to the respondents, it was discussed with area experts and on their advice, suggestions were incorporated in the final questionnaire. The reliability and internal consistency of data was tested with the value of Cronbach Alpha. This value was found to be 0.72 indicating good enough to apply factor analysis. Sampling adequacy was also tested by Kaiser Meyer Olkin test and Sphericity by Bartlett's test and found to be 0.85, considered to be good one to use factor analysis. Therefore, the questionnaire was found to be valid and reliable enough to proceed for the study. A total of 300 questionnaires were mailed/distributed in NCR region and out of that 263 responses were received. While editing the questionnaire, 258 were found usable for analysis.

4. Data Analysis and Discussion of Results

Factor analysis is used to reduce the variables and the resulting variables after reduction are considered capable to explain the observed variance from large number of variables. Table-3 explains percentage of extracted variance of each variable represented in communalities. The principal component analysis was used for extraction. Return from investments, Investments safety, Funds/Schemes Information, Capital Appreciation, Reputation of Sponsor, Sponsor's Expertise (in managing money), Favorable Credit Rating of Scheme/Fund, Liquidity of Investment, Fringe Benefits, NAV updates, Promptness in Service, Charges (Entry Load and Exit Load), Retaliation of Investor's Grievances, Early Bird Incentives, SEBI Regulation, Peer group, Experts opinion, Advisors' convincing power, Annual income of investors and Knowledge about financial instruments are the variables included in factor analysis.

Table-2 represents KMO value which was found to be 0.853 > 0.50 and Bartlett's test for sphericity < 0.05. Both values are good and permit to proceed for factor analysis.

Table 1. Cronbach's alpha for Reliability Test

Cronbach's Alpha	N of items
0.72	18

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.853
Bartlett's Test of Sphericity Approx. Chi-Square	589.182
Df	153.000
Sig.	.000

Table 3. Communalities for PCA on Eighteen Items

	Initial	Extraction
In mutual funds investment investor focus only in return from investments	1.000	.691
Investing in mutual funds investor more concern about disclosure of funds information	1.000	.688
Investor of mutual funds never needs capital appreciation.	1.000	.737
Investing in mutual funds investor always tries to find out the reputation of sponsor	1.000	.596
Investor of mutual funds always not concern to sponsor's expertise	1.000	.618
Investor more emphasize on Favorable credit rating of scheme / fund in investing in mutual funds.	1.000	.605
Liquidity of investment is only motive of mutual fund investor.	1.000	.619
Mutual funds investor always NAV updates	1.000	.563
Investor in mutual funds needs fringe benefits from mutual funds investment.	1.000	.776
Investor in mutual funds does not require prompt service by mutual funds investment.	1.000	.690
Investor of mutual funds does not expect any charges (Brokerage) on mutual funds investment.	1.000	.654
Prime objective of investors of mutual funds is redressal of Investor's grievances.	1.000	.602
Investors of mutual funds do not consider market timing during investment.	1.000	.670
Investment in mutual funds guided by SEBI regulation investor need to go through during investment.	1.000	.700
Peer group affect the decision but in case of mutual funds investment its not applicable.	1.000	.770
Mutual funds investment is a crucial financial decision it required experts opinion.	1.000	.606
Annual income of investors do not plays important role in mutual funds investment	1.000	.495
Knowledge about financial instrument helps to investor in selection of investment in mutual funds.	1.000	.656

Extraction Method: Principal Component Analysis

Table 4. Total variance explained by all eighteen Factors

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.442	13.569	13.569	2.442	13.569	13.569	1.928	10.713	10.713
2	1.854	10.300	23.868	1.854	10.300	23.868	1.721	9.563	20.275
3	1.613	8.961	32.829	1.613	8.961	32.829	1.518	8.431	28.706
4	1.364	7.579	40.408	1.364	7.579	40.408	1.394	7.743	36.449
5	1.223	6.795	47.203	1.223	6.795	47.203	1.379	7.663	44.112
6	1.106	6.146	53.349	1.106	6.146	53.349	1.347	7.485	51.596
7	1.077	5.984	59.333	1.077	5.984	59.333	1.267	7.040	58.637
8	1.054	5.856	65.189	1.054	5.856	65.189	1.179	6.552	65.189
9	.893	4.963	70.152						
10	.817	4.537	74.689						
11	.768	4.269	78.958						
12	.711	3.950	82.908						
13	.697	3.870	86.778						
14	.617	3.426	90.204						
15	.538	2.988	93.192						
16	.457	2.540	95.732						
17	.451	2.505	98.238						
18	.317	1.762	100.000						

Extraction Method: Principal Component Analysis.

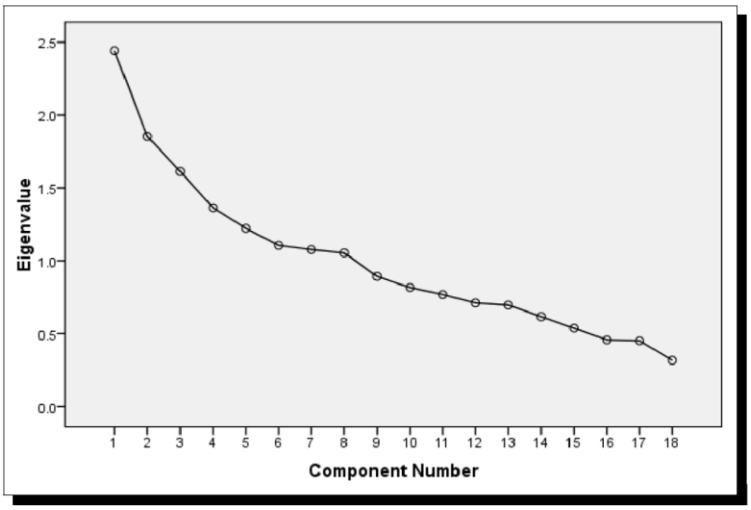

Figure 1. Scree Plot of Eigenvalues for Factors 1 Through 18

Table 5. Component Matrix on Eight Retained Factors

	Component							
	1	2	3	4	5	6	7	8
In mutual funds investment investor focus only in return from investments	.287	.087	.074	-.102	-.093	.338	-.315	-.603
Investing in mutual funds investor more concern about disclosure of funds information	.670	-.246	.140	.089	-.090	.358	.098	.068
Investor of mutual funds never needs capital appreciation.	-.396	.137	.311	.187	-.125	.492	.413	-.041
Investing in mutual funds investor always tries to find out the reputation of sponsor	.301	.146	-.124	.549	.159	-.037	.272	.259
Investor of mutual funds always not concern to sponsor's expertise	-.220	.118	.430	-.418	.313	.018	.074	.302
Investor more emphasize on favorable credit rating of Scheme / Fund in investing in mutual funds.	.624	.186	.138	.142	.232	-.057	-.267	.110
Liquidity of investment is only motive of Mutual fund investor.	-.118	.660	.038	-.278	-.222	-.076	-.187	.034
Mutual funds investor always NAV updates	.351	-.046	.252	-.465	.315	-.009	.236	.057
Investor in mutual funds needs Fringe Benefits from mutual funds investment.	.155	.272	-.221	.062	.741	-.110	.010	-.253
Investor in mutual funds does not require prompt service by mutual funds investment.	-.117	.443	.453	.136	-.346	-.368	-.030	-.025
Investor of mutual funds do not expect any charges (Brokerage) on mutual funds investment.	-.235	.309	-.538	.086	.042	.421	.060	.155
Prime objective of investors of mutual funds is redressal of investor's grievances.	.177	.511	.338	.277	.056	.287	.012	-.182
Investors of mutual funds do not consider market timing during investment.	-.411	.515	.078	-.014	.261	.192	-.266	.232
Investment in mutual funds guided by SEBI regulation investor need to go through during investment.	.665	.213	.141	-.364	-.150	.084	.175	-.007
Peer group affect the decision but in case of mutual funds investment it's not applicable.	.108	-.270	.442	.434	.063	.021	-.492	.235
Mutual funds investment is a crucial financial decision it required experts opinion.	.440	.153	-.184	-.121	-.252	.124	-.037	.510
Annual income of investors do not plays important role in mutual funds investment	-.216	-.175	.523	.136	.142	-.045	.316	-.052
Knowledge about financial instrument helps to investor in selection of investment in mutual funds.	.317	.442	-.144	.246	-.116	-.377	.328	-.128

Extraction Method: Principal Component Analysis.
a. 8 components extracted.

Table 6. Rotated components Matrix on Factors 1 to 18

	Component							
	1	2	3	4	5	6	7	8
In mutual funds investment investor focus only in return from investments	.126	.018	-.092	-.012	-.021	.027	.067	.813
Investing in mutual funds investor more concern about disclosure of funds information	.568	-.420	.130	.081	.030	.296	-.163	.225
Investor of mutual funds never needs capital appreciation.	-.097	.047	-.040	.818	.129	-.106	-.162	.010
Investing in mutual funds investor always tries to find out the reputation of sponsor	.088	-.173	.589	.123	.194	.270	.156	-.247
Investor of mutual funds always not concern to sponsor's expertise	.243	.294	-.471	.235	-.143	.000	.196	-.369
Investor more emphasize on favorable credit rating of Scheme / Fund in investing in mutual funds.	.402	.064	.223	-.220	-.021	.501	.271	.126
Liquidity of investment is only motive of mutual fund investor.	.083	.745	-.003	-.074	.149	-.145	-.038	.089
Mutual funds investor always NAV updates	.600	-.072	-.202	.020	-.242	-.111	.273	-.112
Investor in mutual funds needs fringe benefits from mutual funds investment.	-.006	-.033	.149	-.098	.071	-.029	.856	.058
Investor in mutual funds does not require prompt service by mutual funds investment.	-.080	.638	.274	.147	-.357	.100	-.206	-.018
Investor of mutual funds do not expect any charges (Brokerage) on mutual funds investment.	-.153	.035	.045	.104	.759	-.185	.075	-.029
Prime objective of investors of mutual funds is redressal of investor's grievances.	.163	.313	.253	.441	.071	.254	.192	.337
Investors of mutual funds do not consider market timing during investment.	-.180	.537	-.250	.195	.364	.165	.267	-.129
Investment in mutual funds guided by SEBI regulation investor need to go through during investment.	.780	.093	.144	-.072	-.066	-.093	-.047	.204
Peer group affect the decision but in case of mutual funds investment it's not applicable.	-.120	-.075	-.107	.013	-.185	.831	-.112	-.003
Mutual funds investment is a crucial financial decision it required experts opinion.	.504	.073	.138	-.248	.379	.143	-.280	-.152
Annual income of investors do not plays important role in mutual funds investment	-.071	-.085	-.066	.499	-.434	.061	.043	-.189
Knowledge about financial instrument helps to investor in selection of investment in mutual funds.	.122	.200	.741	-.063	-.076	-.169	.115	-.006

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 15 iterations.

Table 7. Reproduced Correlations Matrix

Reproduced Correlations																		
Residual[b]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1		-0.007	-0.004	0.002	0.044	-0.054	0.002	0.038	-0.055	0.001	0.026	-0.152	0	-0.119	0.003	0.13	0.114	0.073
2			-0.052	-0.032	0.001	-0.07	0.071	-0.072	0.046	0.002	-7.40E-05	-0.085	0.021	-0.025	-0.05	-0.101	-0.005	-0.018
3				-0.062	-0.013	0.143	0.034	0	0.044	-0.064	-0.117	-0.121	-0.024	-0.008	0.045	-0.012	-0.167	0.032
4					0.07	-0.071	0.129	0.032	-0.103	0.007	-0.082	-0.082	0.001	-0.055	-0.082	-0.068	-0.027	-0.15
5						0.002	-0.059	-0.221	-0.011	-0.028	-0.008	0.01	-0.157	-0.068	-0.028	0.032	-0.092	0.045
6							-0.02	-0.063	-0.098	-0.019	0.043	-0.1	-0.042	0.008	-0.117	-0.117	-0.009	-0.019
7								-0.007	0.050	-0.145	-0.052	-0.095	-0.101	-0.044	0.049	-0.035	0.131	-0.066
8									-0.12	0.033	0.088	-4.43E-05	0.019	-0.117	0.026	-0.048	-0.078	0.022
9										0.042	-0.03	-0.015	-0.076	0.017	0.038	0.045	0.053	-0.055
10											0.007	-0.045	0.012	-0.015	-0.067	-0.017	-0.034	-0.142
11												-0.062	-0.069	0.058	0.031	-0.07	0.009	0.025
12													-0.11	-0.04	-0.046	0.078	-0.096	-0.08
13														0.038	-0.03	-0.086	0.004	0.046

Table 7. Reproduced Correlations Matrix

14														0.044	-0.143	0.030	-0.026
15															0.003	0.005	0.008
16																0.038	0.026
17																	-0.016
18																	

Extraction Method: Principal Component Analysis.

A. Reproduced communalities

B. Residuals are computed between observed and reproduced correlations.
There are 8 residuals with absolute values greater than 0.05.

Communality for each item Based on Eight Retained Factors:

Table 3 reports the communalities of all eighteen variables at two different stages in the analysis. The entries in the first column headed (initial), tells us the variance that could be predicted from each predictor variables. In PCA, values of the communalities for the initial model was set 1.00 for all variables. The second column, headed (extraction), tells us what proportion of variance in each variable is explained after extracting eighteen factors and only eight factors were retained. (Information about the number of factors retained appears in Table-4). The communalities for each variable is obtained by squaring and summing the loading of that variable across the retained components. The component matrix is represented in Table-5. The variance explained by variables across all components in extraction column are; return on Mutual funds is 69.1%, Full discloser is 68.8%, Capital appreciation is 73.7%, Sponsor reputation is 59.6%, Sponsor's expertise is 61.8%, Credit rating is 60.5%, Liquidity is 61.9%, Regular updates is 56.3%, Fringe benefits is 77.6, Prompt service is 69.0%, Brokerage is 65.4%, Investor's grievances is 60.2%, Market timing is 67.0%, SEBI regulation is 70.0%, Peer group is 77.0%, Experts opinion is 60.6%, Annual income is 49.5% and the Knowledge about financial instrument is 65.6%.

Variance Reproduced by each of the Eight Components

Table 4 explains the extent to which variance and correlation in the set of $p = 18$, 3 variables could be reconstructed from Factor one to Factor 18. In the left hand panel under the heading initial eigenvalues, for each of the eighteen factors, there is separate eigenvalue. The factors are ranked by the size of eigenvalues. Thus Factor 1 (one) has the largest eigenvalue, factor 2 (two) has second largest eigenvalue and so forth. The sum of eigenvalues in the column under the banner heading initial eigenvalues would always be p (the number of measured variables).

In the table, the sum of the eigenvalues
(2.442+1.854+1.613+1.364+1.223+ 1.106+1.077+1.054) = 18,
as there are eighteen measured variables. Each eigenvalue is converted into percentage of explained variance by dividing with the sum of the eigenvalues and multiplying by 100. Thus in the initial set of eighteen factors, Factor 1 explains 13.56% of the variance, Factor 2 explains 10.30% of the variance and Factor 8 explains 5.85% of the variance. In the analysis, eight out of eighteen initial factors retained for interpretation. The number of retained factors can be used for conceptual model. However, in present analysis and in many other analysis, the decision was based on the size of eigenvalues and eight factors were selected

with eigenvalues >1.00. The right hand side of Table-3 shows the SSIs for Factor 1 to Factor 8 and other ten factors are dropped from the model. After limiting the model to eight factors, Factor 1 predicted for about 13.56% of the variance and Factor 8 accounts for 5.85% of variance and all eight factors predicting 65.18% of the variance.

Component Matrix

In Table-5, the component matrix is not showing a clear pattern. Each latent variable can be named by identifying a set of measured variables having high correlation and differentiate two or more latent variable or factors by noticing that they are correlated with different group or set of measured variables. Component Transformation Matrix shows the correlations among components before and after rotation. The extraction is done using principle component method and rotation is done using varimax Kaiser Normalization test. In rotation matrix, the factor axis is moved to different locations in the imaginary plane and then re-calculated the correlation of each measured variable relative to this rotated axis. In the right hand columns of Table-6, the rotated factor axis are labeled as F1 to F8. Factor can be easily interpreted if variables tend to have very large loadings or near 0, then it can be said that either the factor is highly related or not related.

The following factors were retained with their corresponding variables:

Factor One: It consists of four variables representing investors' concern about Full Disclosure of Information regarding Scheme/Fund, Mutual funds investor always needs NAV updates, Investment in Mutual funds guided by SEBI regulation investor need to go through during investment, Mutual funds investment is a crucial financial decision and requires expert opinion. This factor has been named as *Scheme/Funds information related attributes.*

Factor Two: It considers three variables; Liquidity of investment is only motive of Mutual fund investor, Investor in mutual funds does not require Prompt Service by mutual funds investment, and Investors do not consider market timing during investment. This has been named as *Funds investment Strategy.*

Factor Three: It represents three variables; While investing in mutual funds investor always tries to find out the Reputation of Sponsor, Investor of mutual funds always not concern to Sponsor's Expertise, Knowledge about financial instrument helps to investor in selection of investment in Mutual funds. It is named as *Sponsor's Attributes*.

Factor Four: It includes three variables; Investor of mutual funds never needs capital appreciation. Prime objective of investors of mutual funds is Retaliation of Investors' grievances, Annual income of investors do not play important role in mutual funds investment. It has been named as *Funds return and grievance handling attributes.*

Factor Five: It includes only one variable that is Investor of mutual funds do not expect any charges (Brokerage) on mutual funds investment. This has been re-named as *Funds load attribute.*

Factor Six: It consisted two variables; Investor emphasize more on Favorable Credit Rating of Scheme/Fund while investing in mutual funds, Peer group affects the decision but in case of Mutual funds investment it's not applicable. This is named as *Funds decision influencing attributes.*

Factor Seven: It represents only one variable that is Investor in mutual funds needs Fringe Benefits from mutual funds investment. It was named as *Funds value added services.*

Factor Eight: It also includes one variable that is in mutual funds investment, investor focus only on Return from investments. It was re-named as *Funds capital appreciations attribute.*

Reproduced Correlations Matrix (Table-7), the final step in factor analysis that involves the determination of model fit. A basic assumption underling factor analysis is that the observed correlation between variables can be attributed to common factors. Hence the correlation between variables can be deduced or reproduced from the estimated correlation between the variables and the factors. The difference between the observed correlation and the reproduced correlations is examined to determine the model fit. The difference is called residual. If there are many large residuals then the factor analysis model does not provide a good fit, the analysis have only eight residuals > 0.05, indicating an acceptable model fit.

Conclusion

Through data analysis it can be inferred that attributes related to mutual funds play an important role in helping the investors in taking investment decisions. Total eighteen factors considered for the study are; Return from investments, Safety of Investment, Full Disclosure of Information regarding Scheme/Fund, Capital Appreciation, Reputation of Sponsor, Sponsor's Expertise, Favorable Credit Rating of Scheme/Fund, Liquidity of Investment, Fringe Benefits, Regular Updates, Promptness in Service, Charges, Redressal of Investor's Grievances, Early Bird Incentives, SEBI Regulations, Peer Group, Experts Opinion, Annual Income of Investors, and Knowledge about financial instruments. All these factors were put under factor analysis

using SPSS. During principal component analysis in factor analysis only eight factors were retained representing more than 65 percent variance. These eight factors were named as; Scheme/Funds information related attributes, Funds investment strategy, Sponsor's attributes, Funds return and grievance handling mechanism, Funds load attributes, Funds decision influencing attributes, Funds value added services and Funds capital appreciations attributes. It can be said that these factors play vital role for the investors and fund managers in taking investment decisions in mutual funds investment. Subsequently the model was tested for fitness using reproduced correlations matrix. During testing, it was found that correlation between variables can be reproduced from the estimated correlation between the variables and the factors and this estimate was found more than 50 percent. Hence the model was found fit to be accepted. At the end it can be generalized and concluded on the basis of the analysis that investors of mutual funds requires liquidity, quick service and good timing related to investment. Investors of mutual funds are also concerned with sponsor reputation and expertise to take decision for investment. Investors are also concerned about return from investment in mutual fund which may be capital appreciation or dividend or both.

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A survey on the use of Artificial Intelligence in Agriculture

Rashmi Ishrawat*
Deepawali Sharma**
Lakshika**

Abstract

Agriculture is facing great problem mainly in production, transportation and knowledge about demand of particular crops. The study about this field clearly draws insight that, agriculture is lacking the system or solution which would enable it to attain solutions for the chronic problems. This paper speaks about the problems noticed and the probable solution through Artificial Intelligence. Also, highlights the architecture of knowledge based AI system.

Introduction

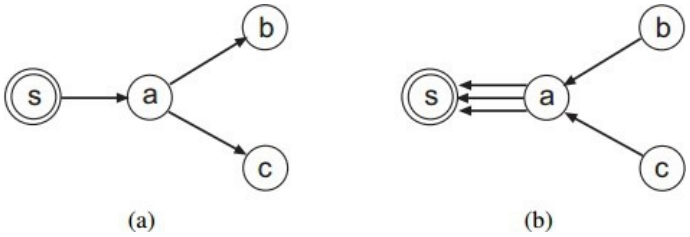
Artificial intelligence when applied to agriculture can address many issues as the field of agriculture is collection of data about crops, its yields, market share, transportation, implementation of technology etc. Few of the keys issues to address are:

1) Methodology to increase productivity.
2) Improve soil health.
3) Predict Market for crops and the location.
4) Overcome the issue of transportation.
5) Storage availability for produce.
6) Real time data about produce availability and location.

Artificial Intelligence System Model.

Real-Time data processing using data gathering algorithms is employed in the model. The data available can be harnessed using algorithms to address complex problems and also arrive at solutions. In order to get data about the current availability and demand of the produce, a system must be employed which enables us to understand the requirements and location of the availability. Data gathering algorithms can be used to collect data related to various sections of the agriculture and its diversities.

Data collection from a set of sensors to a common sink over a tree-based routing topology is a fundamental traffic pattern in wireless sensor networks (WSNs). This many-to-one communication paradigm in which data flows from many nodes to a single node is known as “converge cast”. One may view converge cast as opposite to broadcast or multicast in which data flows from a single node to a set of nodes in the network. Fig. 1 shows a simple example that illustrates the characteristics of a typical broadcast and converge cast. In a broadcast, as shown in Fig.1 (a), node



“s is the message source” and nodes a, b, and c are expected recipients. Nodes “a hear the message directly from s and forward a copy to nodes b and c. In case of a converge cast, as shown in Fig.1(b),nodes a, b and c each has a message destined to the sink node s and a serves as a relay for b and c“. Fig.1 (a) Broadcast - data flows from a single node s to a set of nodes a, b, c. (b) Converge cast– data flows from nodes a, b, and c to a single node s.

Once data is collected at the sink, it can either be recorded and stored for future analysis, or can be processed immediately to take certain actions depending on the application requirements. This technique can be used to develop an algorithm which can collect data about agriculture. Certain additional methods which have to be collaborated with the algorithm to the result are,

1) Traditional data collection techniques.
2) Frequency of requests to attend a particular need.
3) Analyzing past updates or information.
4) Probability and its tool to predict the occurrence of need.

A cloud system will enable efficient data management, processing and enables user to derive solutions locally. Cloud as a service model will be efficient in the process. Artificial Intelligence as a platform is best suited to address the problems mentioned above as it is compatible with any kind of database, user friendly, can be designed to meet user requirements.

* Assistant Professor, Trinity institute of Professional Studies
** Research Scholar, Tecnia Institute of Advanced Studies

ARCHITECTURE FOR AI SYSTEM.

The system proposed further in the paper is knowledge based system. Unlike Newell and Simon, John McCarthy felt that machines did not need to simulate human thought, but should instead try to find the essence of abstract reasoning and problem solving, regardless of whether people used the same algorithms. The architecture mainly consists of four elements.

1. Data collection & organization
2. Probabilistic methods for Uncertain Reasoning.
3. Search and Optimization.
4. Statistical Tools and Logic

1. Data Collection and organizer.

As discussed earlier, data can be collected using data gathering algorithms. To address the issues of agriculture, basically we have fields related to soil, health, transportation, demand for particular crop etc. To illustrate the scenario, consider an agro based area related to cotton plantation. Data related to it can be,

1.1 Moisture required for best field.
1.2 Transportation availability to send produce to market.
1.3 Demand for cotton in the coming season.
1.4 Location for best marketing.

When data collected, is organized accordingly in sections related to various attributes, the data interpreter and data updater can easily adapt to the operations. Data collector generally is microchips, service request tools, traditional data collection etc.

2. Probabilistic methods for uncertain reasoning.

Most tasks requiring intelligent behavior have some degree of uncertainty associated with them. The type of uncertainty that can occur in knowledge-based systems may be caused by problems with the data. For example:

a. Data might be missing or unavailable. (I.e. crop yield data, type of crop, location etc.)
b. Data might be present but unreliable or ambiguous due to measurement errors. (No standards of measurement are employed, resulting in inaccurate data.)
c. The representation of the data may be imprecise or inconsistent. (Tools used for representation are not user friendly and easily understood)
d. Data may just be user's best guess.
e. Data may be based on defaults and the defaults may have exceptions. (Constant assumption without considering constraints like weather, seed availability etc.)

We will introduce three ways of handling uncertainty:

1 Probabilistic reasoning.
2 Certainty factors
3 Dempster-Shafer Theory

3. **Classical Probability.**

The oldest and best defined technique for managing uncertainty is based on classical probability theory. Let us start to review it by introducing some terms.

Sample space: Consider an experiment whose outcome is not predictable with certainty in advance. However, although the outcome of the experiment will not be known in advance, let us suppose that the set of all possible outcomes is known. This set of all possible outcomes of an experiment is known as the *sample space* of the experiment and denoted by *S*.

1.1 For example: If the outcome of an experiment consists in the determination of the sex of a newborn child ,then S = {g, b} where the outcome *g* means that the child is a girl and *b* that it is a boy.
1.2 If the experiment consists of flipping two coins, then the sample space consists of the following four points:

S = {(H, H), (H, T), (T, H), (T, T)}

1.1 Event: any subset *E* of the sample space is known as an event.

That is, an event is a set consisting of possible outcomes of the experiment. If the outcome of the experiment is contained in E, then we say that E has occurred.

For example, if E = {(H, H), {H, T)}, then E is the event that a head appears on the first coin. For any event E we define the new event E, referred to as the complement of E, to consist of all points in the sample space S that are not in E.

1.2 Mutually exclusive events: A set of events E_1, E_2, ..., E_n in a sample space S, are called mutually exclusive events if E_i E_j = , i j, 1 i, j n.

A formal theory of probability can be made using three axioms:

1.4.1 0 P(E) 1.

1.4.2 $P(E_i) = 1$ (or $P(S) = 1$)

This axiom states that the sum of all events which do not affect each other, called mutually exclusive events, is 1. As a corollary of this axiom:

P(E_i)+P(E_i“)=1,whereE_i“is the complement of event E_i”.

1.4.3 P(E_1 E_2)=P(E_1)+P(E_2),where$E_1$and E_2 are mutually exclusive events. In general, this is also true.

1.3 Conditional Probabilities:

1.3.1 The probability of an event A, given B occurred, is called a conditional probability and indicated by P(A|B)

1.3.2 Multiplicative Law of probability for two events is then defined as,

1.3.3 P(A B) = P(A | B) P(B). Which is equivalent to the following P(A B) = P(B | A)P(A)

4. Certainty factors:

Certainty factor is another method of dealing with uncertainty. This method was originally developed for the MYCIN system. One of the difficulties with Bayesian method is that there are too many probabilities required. Most of them could be unknown. The problem gets very bad when there are many pieces of evidence. For the case of a posterior hypothesis that relies on evidence, E, P(H | E) = 1 – P(H | E).

5. Dempster-Shafer Theory:

Here we discuss another method for handling uncertainty. It is called Dempster-Shafer theory. It is evolved during the 1960s and 1970s through the efforts of Arthur Dempster and one of his students, Glenn Shafer. This theory was designed as a mathematical theory of evidence. The development of the theory has been motivated by the observation that probability theory is not able to distinguish between uncertainty and ignorance owing to incomplete information.

3.1 Mass Functions and Ignorance: In Bayesian theory, the posterior probability changes as evidence is acquired. Likewise in Dempster-Shafer theory, the belief in evidence may vary. It is customary in Dempster-Shafer theory to think about the degree of belief in evidence as analogous to the mass of a physical object. That is, the mass of evidence supports a belief. The reason for the analogy with an object of mass is to consider belief as a quantity that can move around, be split up, and combined. A fundamental difference between Dempster-Shafer theory and probability theory is the treatment of ignorance. Probability theory must distribute an equal amount of probability even in ignorance. For example, if you have no prior knowledge, then you must assume the probability P of each possibility is P = (1/N) where N is the number of possibilities. e.g., The formula P(H) + P(H) = 1 must been forced.

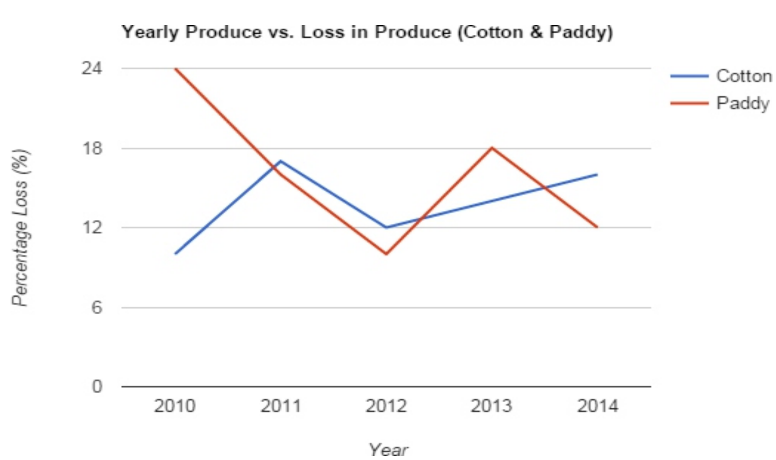
The Dempster-Shafer theory does not force belief to be assigned to ignorance or refutation of a hypothesis. The mass is assigned only to those subsets of the environment to which you wish to assign belief.

6. Search and Optimization.

Many problems in AI can be solved in theory by intelligently searching through many possible solutions. Reasoning can be reduced to performing a search. For example, logical proof can be viewed as searching for a path that leads from premises to conclusions, where each step is the application of an inference rule. Planning algorithms search through trees of goals and sub goals, attempting to find a path to a target goal, a process called means-ends analysis. Robotics algorithms for moving limbs and grasping objects use local searches in configuration space. Many learning algorithms use search algorithms based on optimization. Search speed can be improved by using in-memory database where in the data is stored in the primary memory and the retrieval is very fast. Example for in-memory database is SAP-High-Performance Analytic Appliance (HANA).

7. Statistical Tools and Logic.

Statistical tools like bar-graph, line representation can be used to represent the system behavior relating to various attributes of agriculture. Few representative images are shown below. The line graph in Fig.2 depicts the *Yearly Produce vs. Loss in Produce (Cotton& Paddy)* from 2010 to 2014. This representation can help analyze the losses faced. The data representations can indicate the measures that should be taken to reduce the losses and thus improve the productivity. Improved data representations can display the causes of the losses with the corresponding mathematical data.



The figure represents the *transportation needed in certain areas of Cotton& Paddy producing states*.

Fig.2 Yearly Produce vs. Loss in Produce (Cotton& Paddy)

This information is derived on the right time can be useful to arrange appropriate transport facility and hence meeting the deadlines of the business. The mass transport systems like train and waterways can be arranged accordingly for season crops and its easy transport. It is a win-win situation for both the agro producer and the transporter.

Fig.3 State-wise produce vs. Number of Trucks required.

The figure Fig.4 shows the *availability of resources (Cotton & Paddy) in a particular location* at a given instant of time. This information is derived by efficient search algorithms and data representation tools. Fig.4 represents instant data report generated through algorithms for resource availability.

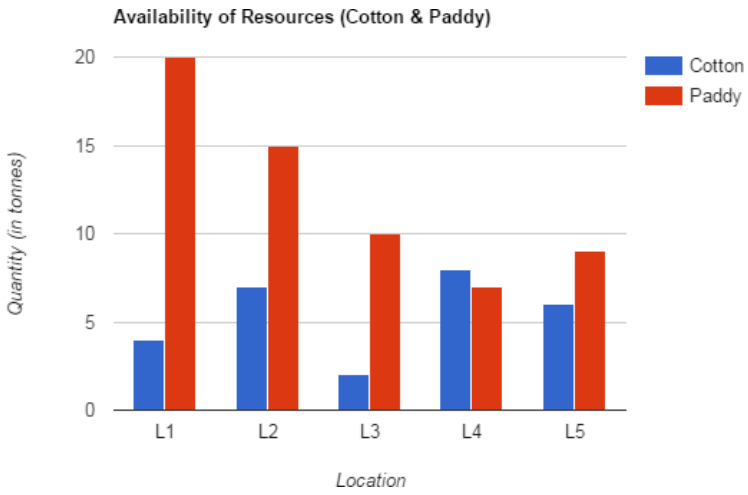


Fig.4 Availability of Resources (Cotton & Paddy) in different locations.

The availability is resources, helps to control the import of goods at a higher currency exchange and also improving the sale locally.

Advantages of AI in Agriculture

The advantages of using AI are numerous and well documented. Some of them include:

1. The ability to use sires of superior genetic merit (the best bulls of the breed).
2. Improving production by carrying out *soil health tests*.
3. The ability to sell produce at the right time.
4. Reducing the amount of fertilizer used by checking chemical composition of the soil.
5. Knowledge about the drop in crop prices will help to shift from one crop to another.
6. Control import of goods by knowing the local availability of the goods and the quantity.

Challenges for AI in Agriculture

A group of maize farmers stands huddled around an agronomist and his computer on the side of an irrigation pivot in central South Africa. The agronomist has just flown over the pivot with a hybrid UAV that takes off and lands using propellers yet maintains distance and speed for scanning vast hectares of land through the use of its fixed wings. The UAV is fitted with a four spectral band ... (1504 words)

A group of maize farmers stands huddled around an agronomist and his computer on the side of an irrigation pivot in central South Africa. The agronomist has just flown over the pivot with a hybrid UAV that takes off and lands using propellers yet maintains distance and speed for scanning vast hectares of land through the use of its fixed wings.

The UAV is fitted with a four spectral band precision sensor that conducts onboard processing immediately after the flight, allowing farmers and field staff to address, almost immediately, any crop anomalies that the sensor may have recorded, making the data collection truly real-time.

In this instance, the farmers and agronomist are looking to specialized software to give them an accurate plant population count. It's been 10 days since the maize emerged and the farmer wants to determine if there are any parts of the field that require replanting due to a lack of emergence or wind damage, which can be severe in the early stages of the summer rainy season.

At this growth stage of the plant's development, the farmer has another 10 days to conduct any replanting before the majority of his fertilizer and chemical applications need to occur. Once these have been applied, it becomes economically unviable to take corrective action, making any further collected data historical and useful only to inform future practices for the season to come.

The software completes its processing in under 15 minutes producing a plant population count map. It's difficult to grasp just how impressive this is, without understanding that just over a year ago it would have taken three to five days to process the exact same data set, illustrating the advancements that have been achieved in precision agriculture and remote sensing in recent years.

With the software having been developed in the United States on the same variety of crops in seemingly similar conditions, the agronomist feels confident that the software will produce a near accurate result. As the map appears on the screen, the agronomist's face begins to drop. Having walked through the planted rows before the flight to gain a physical understanding of the situation on the ground, he knows the instant he sees the data on his screen that the plant count is not correct, and so do the farmers, even with their limited understanding of how to read remote sensing maps.

The Potential for Artificial Intelligence in Agriculture

Hypothetically, it is possible for machines to learn to solve any problem on earth relating to the physical interaction of all things within a defined or contained environment...by using artificial intelligence and machine learning.

The principle of artificial intelligence is one where a machine can perceive its environment, and through a certain capacity of flexible rationality, take action to address a specified goal related to that environment. Machine learning is when this same machine, according to a specified set of protocols, improves in its ability to address problems and goals related to the environment as the statistical nature of the data it receives increases.

Put more plainly, as the system receives an increasing amount of similar sets of data that can be categorized into specified protocols, its ability to rationalize increases, allowing it to better "predict" on a range of outcomes.

The rise of digital agriculture and its related technologies has opened a wealth of new data opportunities. Remote sensors, satellites, and UAVs can gather information 24 hours per day over an entire field. These can monitor plant health, soil condition, temperature, humidity, etc. The amount of data these sensors can generate is overwhelming, and the significance of the numbers is hidden in the avalanche of that data.

The idea is to allow farmers to gain a better understanding of the situation on the ground through advanced technology (such as remote sensing) that can tell them more about their situation than they can see with the naked eye. And not just more accurately but also more quickly than seeing it walking or driving through the fields.

Remote sensors enable algorithms to interpret a field's environment as statistical data that can be understood and useful to farmers for decision-making. Algorithms process the data, adapting and learning based on the data received. The more inputs and statistical information collected, the better the algorithm will be at predicting a range of outcomes. And the aim is that farmers can use this artificial intelligence to achieve their goal of a better harvest through making better decisions in the field.

In 2011, IBM, through its R&D Headquarters in Haifa, Israel, launched an agricultural cloud-computing project. The project, in collaboration with a number of specialized IT and agricultural partners, had one goal in mind - to take a variety of academic and physical data sources from an agricultural environment and turn these into automatic predictive solutions for farmers that would assist them in making real-time decisions in the field.

Interviews with some of the IBM project team members at the time revealed that the team believed it was entirely possible to "algorithm" agriculture, meaning that algorithms could solve any problem in the world. Earlier that year, IBM's cognitive learning system, Watson, competed in Jeopardy against former winners Brad Rutter and Ken Jennings with astonishing results.

Several years later, Watson went on to produce ground-breaking achievements in the field of medicine, leading to IBM's agricultural projects being closed down or scaled down. Ultimately, IBM realized the task of producing cognitive machine learning solutions for agriculture was much more difficult than even they could have thought.

So why did the project have such success in medicine but not agriculture?

What Makes Agriculture Different?

Agriculture is one of the most difficult fields to contain for the purpose of statistical quantification.

Even within a single field, conditions are always changing from one section to the next. There's unpredictable weather, changes in soil quality, and the ever-present possibility that pests and disease may pay a visit. Growers may feel their prospects are good for an upcoming harvest, but until that day arrives, the outcome will always be uncertain.

By comparison, our bodies are a contained environment. Agriculture takes place in nature, among ecosystems of interacting organisms and activity, and crop production takes place within that ecosystem environment. But these ecosystems are not contained. They are subject to climatic occurrences such as weather systems, which impact upon

hemispheres as a whole, and from continent to continent. Therefore, understanding how to manage an agricultural environment means taking literally many hundreds if not thousands of factors into account.

What may occur with the same seed and fertilizer program in the United States' Midwest region is almost certainly unrelated to what may occur with the same seed and fertilizer program in Australia or South Africa. A few factors that could impact on variance would typically include the measurement of rain per unit of a crop planted, soil type, patterns of soil degradation, daylight hours, temperature and so forth.

Conclusion

The artificial intelligence (AI) methodology discussed addresses knowledge based system (i.e., the moving of functional and useful agricultural models that are developed to predict the needs of attributes based on the outputs of Algorithms and Statistical tools). In particular, it addresses one of the major difficulties within this area, namely, retrieving data such as availability of resources, location and also providing user friendly data representations as shown in the figure. The data representations can enable the user to employ quick measures to increase his productivity and reduce the losses. This knowledge based system would be a technological solution to the field of agriculture for the chronic problems mentioned above.

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Deep learning asan advanced concept of artificial intelligence

Megha Gupta*
Dr. Jitender Rai**

Abstract

Deep learning is growing in the learning community of machines, as traditional shallow learning architecture has proven incompetent for the challenging tasks of machine learning and strong artificial intelligence (AI). Increasing and widespread availability of increased computing power, along with the creation of efficient training and improvement algorithms, has made it possible to implement, until then, the principle of deep learning. These development events have led to the formation of deep architecture algorithms that look at cognitive neuroscience and point to biologically inspired solutions for learning. This chapter presents the concepts of Convolutional Neural Networks (CNNs), Neural Networks (SNNs) and Hierarchical Temporary Memory (HTM), which are related techniques to the least mature technique.

Keywords

Neuron Model, Predictive State model, Echo Model, Spike Neural Network.

1. Introduction

In-depth learning is behind the third wave of artificial intelligence research. More recent work suggests that deep learning goes beyond its initial success by recognizing models and new applications in different fields and industries. For these ideas to be explored in practice, the software needs a deep learning framework. The Neural Network Implementation (NNS) requires a set of specialized building blocks, including multidimensional fields, activation functions, and autonomous gradient balances. To avoid duplicate tools. Because it's a deep learning.

First used successfully in the field of computer vision and speech recognition, the existing deep learning frameworks are primarily designed for feed-forward networks such as convolutional neural networks (CNN).) used for the analysis of fixed-length data samples, such as images. and begins to develop neural networks (SNNs) similar to the ANN architecture consisting of one or more connected neuron layers, but differentiating by the neuron model and the type of activation functions and the hierarchical temporal memory (HTMS)), which aims to copy functions and structural properties of neocortex.

1.1 Convolutional Neural Networks (CNN)

CNN is a family of multi-layer neural networks specially designed for use on two-dimensional data, such as images and videos. CNN is affected by the recent work on neural network with delay (TDNN), which reduces the learning of computing needs by dividing load into time dimension and designed to handle speech and time series. CNN is the first truly successful approach to learning in depth, in which several layers of hierarchy have been trained successfully. And CNN is a choice of topology or architecture that uses spatial and temporal relationships to reduce the number of learning parameters and improve the overall propagation drive. CNN is proposed as a detailed learning framework motivated by the minimum requirements for converting data.

In CNN, the small parts of the image (named locally acceptable field) are treated as if they entered the lowest layer of the hierarchical structure. The information is typically propagated through different network layers, where digital layer filtering is applied to each layer to obtain the essential characteristics of the observed data. The method provides a level of invariance in displacements, scale and rotation, since the locally acceptable field allows the neuron or processing unit to access elementary properties such as edges or angles. . One of the main articles on the subject describes the application of CNN to the problem of manuscript analysis. Basically, the input image is converted with a series of N small filters whose coefficients are formed or predetermined using certain criteria. Therefore, the first (or lowest) layer of the network consists of the "feature map" resulting from the convolution process, with additive deviation and possibly compression or normalization of functions. This initial phase is accompanied by lubrication (generally a focusing operation of 2 3 2) which further reduces the dimensionality and provides great robustness in space displacements. The map of the assumed characteristics then receives weight and predictability and finally spreads through the activation function. Some variations of this existence exist with a single layer of folders or multiple map layers.

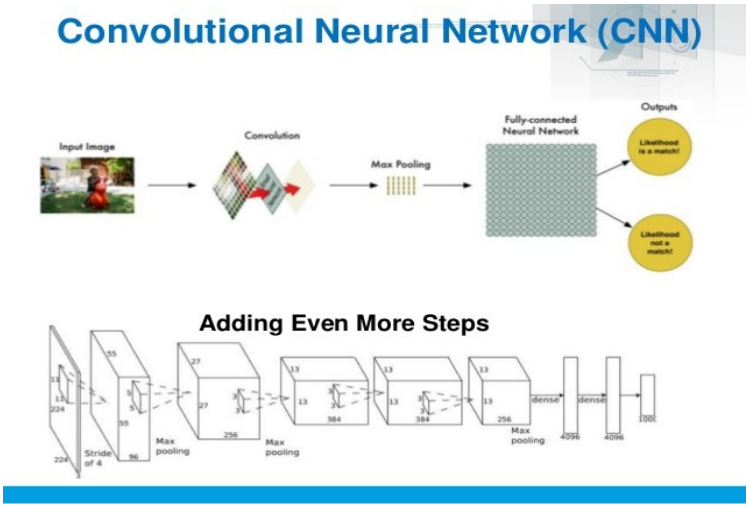
When the weight is small, the activation function is almost linear and the result is a blur of the image; other weights can cause the output of the activation to look like an AND or OR function.

* Research Scholar
** Associate Professor, Tecnia Institute of Advanced Studies

These outputs constitute a new folder of functions that is then forwarded to another set of functions of convolution, reduction, and function of the activation function, as shown in the figure. This process can be repeated an arbitrary number of times. It should be noted that the following layers can combine one or more previous layers. For example, the six initial map features are combined in the form of 16 map features in the next layer. As described, CNNs create their invariance to the translation of objects using a method called "pooling features". However, linking functions is manually created by the network organizer and not the system trained or learned. In CNN, the grouping is "customized" to the parameters in the learning process, but the basic mechanism (the combination of inputs in S-layers, for example) defines a network designer. Finally, in the last step of the process, the activation outputs are transmitted to a conventional neural network of feedback that produces the final output of the system. The intimate relationship between layers and spatial information contained in CNN makes them very suitable for processing and understanding images and generally allows the main

Fig.1 Structure of Convolutional Neural Network

image characteristics to be autonomously extracted. In some cases, Gabor filters were used as an initial step of transformation that imitates the human visual response to visual excitation. In recent papers, researchers reported CNN to various problems with machine learning, including face detection, document analysis and speech detection. CNNs have recently been formed



with the goal of time coherence to exploit the coherence of the environments found in video clips, although this goal is not necessarily specific to CNNs.

1.2 Hierarchical Temporal Memory (HTMs)

HTM aims at replicating the functional and structural properties of the neocortex. HTM incorporates a number of insights from Hawkins's book On Intelligence (2007), which postulates that the key to intelligence is the ability to predict. Its framework was designed as a biomimetic model of the neocortex that seeks to replicate the brain's structural and algorithmic properties, albeit in a simplified, functionally oriented manner. HTM is therefore organized hierarchically, as depicted generically in Figure. All levels of hierarchy and their sub-components perform a common computational algorithm.

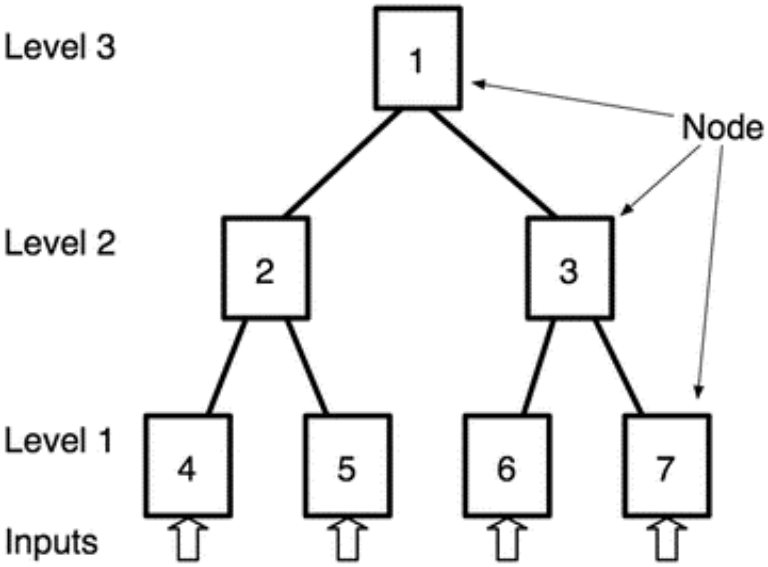


Fig.2 Structure of Hierarchical Temporal Memory

Deep architectures adopt the hierarchical structure of the human neocortex, given the evident existence of a common computational algorithm in the brain that is pervasive throughout the neocortical regions and that makes the brain deal with sensory information—visual, auditory, olfactory, and so on—in very similar ways. Different regions in the brain connect in a hierarchy, such that information flowing up coalesces, building higher and more complex abstractions and representations of the sensory stimuli at each successive level. The brain's structure, specifically the neocortex, evolved to gain the ability to model the structure of the world it senses. At its simplest abstraction the brain can be viewed as a biological data processing black box that discovers external causes in an environment that imposes massive amounts of data on its inputs (senses). The causes of this continuous stream of information are by nature hierarchical, in both space and time. These causes serve as a collection of smaller building blocks that combine to form a larger picture of the world. For instance, speech can be broken down into sentences, sentences into word utterances, word utterances into phonemes, and so on. With digital imagery, pixels combine into edges, edges into contours, contours into shapes, and, finally, shape into objects. Every sensed object in the world reveals a similar structure perceived at varying levels of granularity. It is this hierarchically organized world that the neocortex and therefore HTM, by imitation, aim at modelling. This modelling happens in HTM at every level.

In HTM the lowest-level nodes of the network are fed sensory information. This information can be raw or pre-processed, depending on the task the network is performing. The nodes learn the most basic features of the data stream by discerning repeatable patterns and the sequences in which these patterns occur and storing them either via local memory structures or via connectivity configurations. These basic patterns and sequences are then used as building blocks at higher levels to form more complex representations of sensory causes. As information travels up the hierarchy, the same learning mechanics are used as higher and higher abstractions of the input patterns are formed. Information can also flow down the hierarchy. This enables the network to act as a generative model, in which higher levels bias lower levels by communicating their internal states to fill in missing input data or resolve ambiguity, or both (Hawkins 2007).

1.3 Spiking Neural Networks (SNNs)

SNNs are biologically inspired networks and belong to the third generation of ANNs. It seems for ANNs that any improvement on the performance should be based on the neuron model. The neuron model in the second generation of ANNs is based on a simplified model of the actual neuron which ignores the actual way of encoding the information between neurons and the type of this information. SNNs are similar to the ANNs architecture which consists of one or more layers of connected neurons, but differ in the neuron's model and the type of the activation function. In contrast with the second generation of ANNs which utilize time-missing continuous activation functions, SNNs rely on the spike timing in their learning and activation phases. SNNs strive to mimic human neurons, in using spikes to transmit and learn the spatio and spectrotemporal data (SSTD) that are encoded with the location of the synapses, for the spatial data, and with the spiking-time activities, for the temporal data.

2. Deep learning as intelligent tool

Deep learning is also known as deep structured learning or hierarchical learning is part of a broader family of machine learning methods based on learning data representations, as opposed to task-specific algorithms. Learning can be supervised, semi-supervised or unsupervised.

Deep learning architectures such as deep neural networks, deep belief networks and recurrent neural networks have been applied to fields including computer vision, speech recognition, natural language processing, audio recognition, social network filtering, machine translation, bio informatics, drug design and board game programs, where they have produced results comparable to and in some cases superior to human experts.

Deep learning models are vaguely inspired by information processing and communication patterns in biological nervous systems yet have various differences from the structural and functional properties of biological brains (especially human brain), which make them incompatible with neuroscience evidences. A deep neural network (DNN) is an artificial neural network (ANN) with multiple layers between the input and output layers. The DNN finds the correct mathematical manipulation to turn the input into the output, whether it be a linear relationship or a non-linear relationship. The network moves through the layers calculating the probability of each output. For example, a DNN that is trained to recognize dog breeds will go over the given image and calculates the probability that the dog in the image is a certain breed. The user can review the results and select which probabilities the network should display (above a certain threshold, etc.) and return the proposed label. Each mathematical manipulation as such is considered a layer, and complex DNN have many layers, hence the name "deep" networks.

DNNs can model complex non-linear relationships. DNN architectures generate compositional models where the object is expressed as a layered composition of primitives the extra layers enable composition of features from lower layers, potentially modelling complex data with fewer units than a similarly performing shallow network.

Deep architectures include many variants of a few basic approaches. Each architecture has found success in specific domains. It is not always possible to compare the performance of multiple architectures, unless they have been evaluated on the same data sets.

DNNs are typically feedforward networks in which data flows from the input layer to the output layer without looping back. At first, the DNN creates a map of virtual neurons and assigns random numerical values, or "weights", to connections between them. The weights and inputs are multiplied and return an output between 0 and 1. If the network didn't accurately recognize a particular pattern, an algorithm would adjust the weights. That way the algorithm can make certain parameters more influential, until it determines the correct mathematical manipulation to fully process the data.

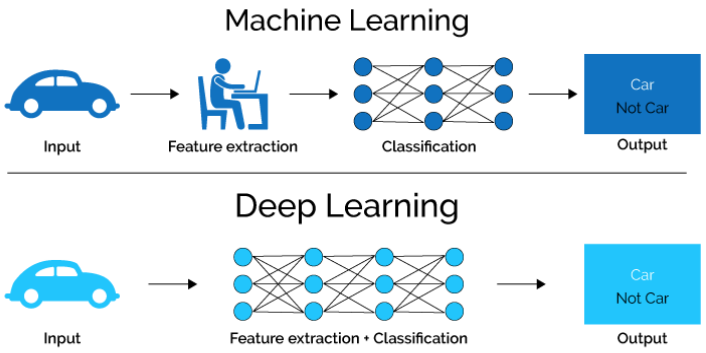


Fig. 3 Deep Learning

3. Deep Learning Framework

In typical NN frameworks, models are built in two phases, a paradigm we name Define-and-Run. In the Define phase, a computational graph is constructed; in the Run phase, the model is

trained on a training data set. The Define phase is the instantiation of a neural network object based on a model definition that specifies the inter-layer connections, initial weights, and activation functions. After the graph is

Built on memory and the forward computation is set, the corresponding backward computation for back propagation can be defined by automatic gradient functionalities. In the Run phase, given a set of training examples, the model is trained by minimizing the loss function using optimization algorithms such as stochastic gradient descent. Under the Define-and-Run paradigm, static NN models, such as CNNs, can be easily implemented. The model definition may be written in a specific mark-up language. The deep learning framework then acts as an interpreter and processes the model definition as an object of a single class, which can be regarded as an independent NN program. The NN program receives inputs (data examples), processes these inputs (forward/backward computation), changes the models internal state (updating), and outputs the results (predictions). Although the Define-and-Run paradigm works well for implementing CNN models, when it is used for implementing other types of NN models three major problems become evident. The first is inefficient memory usage. Because the computational graph is built before the model is trained, all layers of the NN must remain in memory even if some layers are needed only at the beginning or end of the training process. For example, RNN models are usually trained with back propagation through time (BPTT), which uses a heuristic to threshold the propagation for computational efficiency. However, in Define-and-Run frameworks, the entire computational graph must remain in memory regardless of whether certain layers are no longer being used in BPTT.

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Impact of GST in E – Commerce Industry: The India Prospect

Mahesh Sharma*
Satpal Arora**

Abstract:

The power of digital distribution over physical retail outlets is you have a chance to create a global audience. This is exactly what the E-Commerce Industry is trying to capitalize, and they have been extremely successful in it. Name anything, and you get it at your doorstep with one click. Also, the E-Commerce industry has been aptly utilizing the consumer behaviour pattern, for example by providing discounts to expand their horizons. Has the introduction of GST affected the empire of E-Commerce?

Keywords: GST, GSTIN

Introduction

The tremendous boost in the smart phone users and introduction of 4G technology has boosted the operations of the E-Commerce industry by heaps and bounds. The E-Commerce Industry bridges the gap between big brands and the demographic dividend of India, its youth who is mostly from semi-urban areas, where access to big brands is less. E-Commerce operators or locally known as marketplaces are a platform between different sellers and their existing or would be customers.

These marketplaces not just provide customers to the sellers, but also, they provide delivery and transport services of the products that the customer buys through their portal. The seller has to pay some amount to the marketplaces for showcasing their products. The transaction always takes place between the buyer and the seller. The seller can choose to deliver the product through the marketplaces or directly to the buyer. If the seller chooses the former way, he has to pay some incentive to the marketplace.

E-Commerce Operators under GST

Initially, the VAT/CST was to be paid by the seller to the government. After the introduction to GST, e-commerce operator collects the amount at the rate of one percent (0.5% CGST + 0.5% SGST) of the net value of taxable supplies made through it. The amount so collected is called as Tax Collection at Source (TCS).

The TCS will be applied on the one month's collection which will be paid to the government. This amount of TCS will be seen in the GSTR-2 of the registered supplier on behalf of whom the collection is done.

The e-Commerce marketplace seller needs to submit an online statement, which has the details of all the products sold through the portal and the TCS in Form GSTR-8. The details furnished by the operator in his form will be matched with that of the respective seller in his form. If both the details are not matched, then there will be a notice sent to both the operator and the supplier.

Impact of GST on e-Commerce Marketplace Sellers:

- GST will reduce the cascading effect of taxes and increase the scope of sellers.
- GST Rates are same in the entire nation. Therefore, the sellers do not have to bear different taxes of different states. E-commerce will provide a perfect platform for seller-buyer relations.
- Intra-state and inter-state sale of goods has become much simpler as the sellers do not have to keep big warehouses. This reduces their inventory and rentals paid for the building thereby reducing the prices of the products.
- Matching of the details in the form submitted by both operator and seller needs to be matched and if not, there will be notices send to both of them. Therefore, the complexity of the business increases as the details should be matched at any moment.
- The seller who sells his goods by the medium of e-commerce marketplaces is not eligible for undertaking the composition scheme.
- The marketplace and the seller have to be registered under GST. The suppliers whose turnover is less than 20 Lakhs will also have to be registered under GST which they were not supposed to if they were not sold by the e-commerce medium.

India's e-commerce market is estimated to have crossed Rs. 211,005 crore in December 2016 as per the study conducted by Internet and Mobile Association of India. The report further claim that India is expected to generate $100 billion online retail revenue by the year 2020

*** Assistant Professor, Ideal Institute of Management and Technology**
**** Assistant Professor, Ideal Institute of Management and Technology**

The uprising of Electronic Commerce in India has also resulted in conception of online marketplaces. A Marketplace is an e-commerce platform owned by the E-commerce Operator such as Flipkart, Snapdeal and Amazon. Some of the features of a marketplace model are:

- Marketplace enables third-party sellers to register and sell online on their platform.
- Marketplace charges a subscription fees/ commission on sale value from listed sellers.
- Third-party sellers under this model gain access to a larger customer base, registered with marketplace.
- Customer on the other hand gain access to multiple sellers and competitive prices for desired products.
- Items purchased on such marketplaces are either shipped by Merchant/Third-party seller directly or through the fulfillment center managed by Marketplace Operator.

Government has also allowed Foreign Direct Investments under such model to promote e-commerce marketplace business model in India.

Marketplaces has provided retailers with additional channel of sales and reach which was unimaginable for an offline seller. Major marketplaces claim to have lacs of sellers affiliated with their platform with millions of SKUs. While the number of sellers and their business have increased significantly, GST has specifically taken up marketplaces and has come out with rules & regulations specific to this segment.

Introduction of these regulations requirements has compelled the online seller community to embrace GST regime. Some of these compliance are:

No threshold for GST registration: Government has specified a threshold limit for all the businesses. A business is liable to register for Goods and Services Tax once such threshold limit is breached. However such limit is not applicable in case of E-Commerce sellers*.

*e-commerce sellers need not register if total sales is less than Rs. 20 lakh. – Notification No. 65/2017 Central Tax dated 15.11.2017

No Benefit under Composition Scheme: Most of these sellers registered with marketplace operators are small and medium businesses. Government has introduced composition scheme under GST law. This scheme is primarily aimed to reduce the burden of compliance for small and medium businesses. Under this scheme, businesses are required to file returns quarterly instead of monthly and pay taxes at nominal rates up to 2%. To know more about Composition Scheme, However GST law has explicitly excluded e-commerce businesses from this scheme.

Tax Collection at Source by Marketplace Operator: Under the new tax regime, marketplace operators are mandatorily required to deduct a percentage amount as the GST liability of seller and deposit it with government. This mechanism is being termed as "Tax Collection at Source (TCS)" under the GST law. Eventually the marketplace seller will have to file monthly return under GST to claim the credit of TCS collected by the marketplace operator. This will also impact the liquidity and cash flow of these sellers.

While all the marketplace operator have already completed the first level analysis of impact of GST on their operations, marketplace sellers are still unaware of these rules.

Need of the hour is to keep themselves aware of the changes that are going to come. Also such sellers should now start planning their transition strategy for GST regime.

Some of the key points that should be kept in mind are:

1. Get your **GST enrollment** done on time.
2. Plan your logistics and warehousing requirement carefully.
3. Adopt such platforms, technologies which will enable your business to be GST compliant.

Mandatory GST Registration for Online Sellers

One of the most important things the GST law did was reduce the taxes on very small businesses. Companies that bring in less than Rs 20 lakh, or Rs 10 lakh in northeastern states, do not need to pay GST. As an e-commerce business owner, this threshold doesn't apply to you. Under GST, all online sellers must register and pay GST. This means that even if you only bring in Rs 1 lakh, you must go online and get a GSTIN. In addition, you're required to file monthly returns and pay taxes on all qualified sales.

More Opportunities for Interstate Sales

Under India's old tax system, it was complicated to sell products across state lines. Each time you did, you had to deal with a variety of different taxes and the complicated paperwork that went with them. For small businesses that didn't have the budget to pay a tax professional, the possibility of extra sales was simply not worth the hassle. This meant your ability to grow was limited by where you lived.

The new tax system has eliminated all of the confusing interstate taxes and replaced them with a single tax. With GST, you can sell to customers in your own state and in other states, all without worrying about multiple taxes. As a result, you have the opportunity to sell products to customers across India or around the world. It also gives you the chance to compete with big corporations. Although that sounds intimidating, it's great for you and your customers. After all, as a small business, you may be able to offer more flexible quantities, more personal service, and other perks that can draw shoppers away from bigger suppliers. As a result, GST makes it easier to grow your business without taking on an extra tax burden.

Direct Sellers vs. E-commerce Marketplaces

The way you pay GST depends on the type of online business you run. There are two main types of online businesses. The first uses a direct-sales method, where you buy or make products and sell them to customers through your website. If that's how you operate, you can simply follow standard GST filing rules.

The second type of online business is an E-Commerce aggregator. An aggregator is a website like Flipkart, which connects buyers and sellers and takes a commission on each sale. Since they don't always sell the products directly to customers, these types of e-commerce businesses must handle GST differently. This happens with a tax collected at source, or TCS. When your website facilitates a sale between a buyer and a seller, GST law requires you to deduct 2% of the sale before you send payment to the seller. You must pay that amount to the government. Then, your sellers can claim that tax as a deduction on their own GST filings.

If you're an aggregator, both you and your sellers must report all sales to the government. Your reports and their reports must match exactly. If they don't, your sellers are responsible for the outstanding GST. The TCS requirement helps you spot and remove sellers who aren't reporting sales accurately.

Ineligibility for Composition Scheme

As part of the GST, the government created the composition scheme. This rule is designed to make it easier for small and medium businesses to pay GST. Instead of filing monthly returns, qualified companies can simply file quarterly and pay a flat tax rate. As an e-commerce business, you are not eligible to participate in this scheme, even if your company meets the revenue requirements. This is because the scheme only applies to sellers who operate within one state.

Better Tax Credits

When you run an e-commerce business, you can take advantage of the input tax credit to reduce your tax payments. Imagine that you pay Rs 100 in GST on raw materials. When you turn those supplies into a product and sell them online, you charge your customers Rs 150 in GST. The government expects you to pay that Rs 150 to them. However, with the ITC, you can deduct the original Rs 100 as a credit. This means you only need to pay Rs 50 to the government.

You can claim the ITC for any products and services your company buys to use in the business. But you must be able to explain exactly how you're using the things you buy. If you buy T-shirts in bulk from factories and sell them to a screen-printing company, for example, you can claim ITC. If you're buying a computer for personal use, you cannot claim ITC. When used legally, the ITC can dramatically reduce your tax burden each month.

For many e-commerce business owners, the GST system allows easier reporting and new opportunities for growth. Because the system is complicated for online companies, it's important to stay up-to-date so you can file correctly and make the most of available credits that can reduce your monthly tax bill.

Conclusion:

With the concluding remarks, this is stated that the implementation has not an inverse effect on the Indian Economy. It has put both positive and negative impacts on the Indian E – Commerce Market. With the successful implementation of GST in offline and online markets by the Indian Government, the percentage of taxpayers has been increased by more than 20% as almost everything has been covered under the GST.

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Cloud computing and security issues in the cloud

Santosh Kumar Singh*
Dr. P.K. Manjhi**
Dr. R.K. Tiwari***
Dr. V.R. Vadi****

ABSTRACT:

Cloud computing has formed the conceptual and infrastructural basis for tomorrow's computing. The global computing infrastructure is rapidly moving towards cloud based architecture. While it is important to take advantages of cloud based computing by means of deploying it in diversified sectors, the security aspects in a cloud based computing environment remains at the core of interest. Cloud based services and service providers are being evolved which has resulted in a new business trend based on cloud technology. With the introduction of numerous cloud based services and geographically dispersed cloud service providers, sensitive information of different entities are normally stored in remote servers and locations with the possibilities of being exposed to unwanted parties in situations where the cloud servers storing those information are compromised. If security is not robust and consistent, the flexibility and advantages that cloud computing has to offer will have little credibility. This paper presents a review on the cloud computing concepts as well as security issues inherent within the context of cloud computing and cloud infrastructure.

Keywords: Cloud computing, cloud service, cloud security, computer network, distributed computing, security.

1. INTRODUCTION

Recent developments in the field of cloud computing have immensely changed the way of computing as well as the concept of computing resources. In a cloud based computing infrastructure, the resources are normally in someone else's premise or network and accessed remotely by the cloud users [1]. Processing is done remotely implying the fact that the data and other elements from a person need to be transmitted to the cloud infrastructure or server for processing; and the output is returned upon completion of required processing. In some cases, it might be required or at least possible for a person to store data on remote cloud servers. These gives the following three sensitive states or scenarios that are of particular concern within the operational context of cloud computing:

- The transmission of personal sensitive data to the cloud server,
- The transmission of data from the cloud server to clients' computers and
- The storage of clients' personal data in cloud servers which are remote server not owned by the clients.

All the above three states of cloud computing are severely prone to security breach that makes the research and investigation within the security aspects of cloud computing practice an imperative one. There have been a number of different blends that are being used in cloud computing realm, but the core concept remain same – the infrastructure, or roughly speaking, the resources remain International Journal of Network Security & Its Applications (IJNSA), somewhere else with someone else's ownership and the users 'rent' it for the time they use the infrastructure [2]. In some cases, stored sensitive data at remote cloud servers are also to be counted. Security has been at the core of safe computing practices. When it is possible for any unwanted party to 'sneak' on any private computers by means of different ways of 'hacking'; the provision of widening the scope to access someone's personal data by means of cloud computing eventually raises further security concerns. Cloud computing cannot eliminate this widened scope due to its nature and approach. As a result, security has always been an issue with cloud computing practices. Robustness of security and a secured computing infrastructure is not a one-off effort, it is rather ongoing – this makes it essential to analyze and realize the state-of-the-art of the cloud computing security as a mandatory practice. Cloud is mainly categorized as private cloud, community cloud, public cloud and hybrid cloud [3] the discussion in this paper assumes only one category of cloud exists which is public cloud; as this assumption will well satisfy all the characteristics of any other type of cloud. Due to its diversified potentiality, the approach to cloud computing is being thought to be as the 5th utility to join the league of existing utilities water, electricity, gas and

* Research Scholar, Department of Computer Applications, Vinoba Bhave University, Hazaribag, India
** Assistant Professor, University Department of mathematics, Vinoba Bhave University, Hazaribag, India
*** Professor, H.O.D CSE, R.V.S College of Engg. & Tech., Jamshedpur, India
**** Director, TIPS Dwarka, New Delhi, India

and telephony [4] rather than being just another service. The study presented in this paper is organized with a view to discuss and identify the approach to cloud computing as well as the security issues and concerns that must be taken into account in the deployment towards a cloud based computing infrastructure. Discussion on the technological concepts and approaches to cloud computing including the architectural illustration has been taken into consideration within the context of discussion in this paper. Security issues inherent in cloud computing approach have been discussed afterwards. The exploration in the technological and security concerns of cloud computing has led to the concluding realization on the overall aspects of cloud computing. The approaches to counter security issues inherent in cloud computing are numerous with diversified facets and applications which has been kept out of scope. A discussion on the authentication of cloud computing has been addressed as it forms the holistic basis to embed integrity in the context of cloud computing security.

2. CLOUD COMPUTING INFRASTRUCTURE

The term cloud computing is rather a concept which is a generalized meaning evolved from distributed and grid computing. Cloud computing is described as the offspring of distributed and grid computing by some authors [5].The straightforward meaning of cloud computing refers to the features and scenarios where total computing could be done by using someone else's network where ownership of hardware and soft resources are of external parties. In general practice, the dispersive nature of the resources that are considered to be the 'cloud' to the users are essentially in the form of distributed computing; though this is not apparent or by its definition of cloud computing, do not essentially have to be apparent to the users.

In recent years, the cloud has evolved in two broad perspectives – to rent the infrastructure in cloud, or to rent any specific service in the cloud. Where the former one deals with the hardware and software usage on the cloud, the later one is confined only with the 'soft' products or services from the cloud service and infrastructure providers. The computing world has been introduced with a number of terminologies like SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Infrastructure as a Service) with the evolution of cloud computing. As discussed earlier, the term 'cloud computing' is rather a concept, so are the terminologies to define different blends of cloud computing. At its core essence, cloud computing is nothing but a specialized form of grid and distributed computing which varies in terms of infrastructure, services, deployment and geographic dispersion[6]. In a pervasive meaning within the context of computer networks, infrastructure could be thought of as the hardware as well as their alignment where platform is the operating system which acts as the platform for the software. Thus the concept of cloud based services is hierarchically built from bottom to top in the order of IaaS, PaaS and SaaS. This is merely the level of abstraction that defines the extent to which an end-user could 'borrow' the resources ranging from infrastructure to software – the core concern of security and the fashion of computing are not affected by this level of abstraction. As a result, security is to be considered within any form of cloud computing regardless of flavor, hierarchy and level of abstraction. Virtualization is an inevitable technology that is highly coupled with the concept of cloud computing– it is the virtualization technology that complements cloud services specially in the form of PaaS and SaaS where one physical infrastructure contains services or platforms to deliver a number of cloud users simultaneously. This leads to the addition of total security aspects of virtualization technology on top of the existing security concerns and issues of cloud computing.

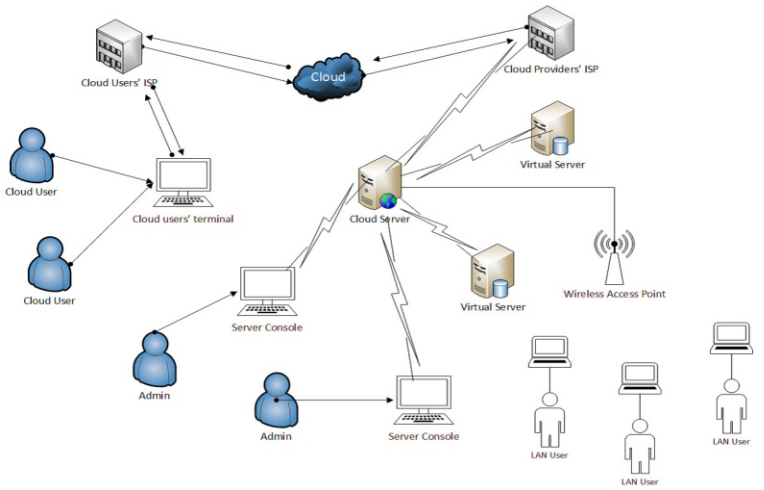

Figure 1 illustrates a typical cloud based scenario that includes the cloud service provider and the cloud users in a cloud computing architecture.

The illustration of cloud architecture in figure 1 is a simplest one where few complex characteristics of cloud computing (e.g. redundancy, server replication, and geographic dispersion of the cloud providers' network) are not shown – the purpose of the illustration is to establish the arrangement that makes the concept of cloud computing a tangible one. The network architecture is self explanatory with the identification of cloud users when considered in-line with the discussion of the cloud computing concept presented earlier. One notable part from the architecture is that, while the cloud users are clearly identified and named accordingly due to their remote location and means of remote access to the cloud servers, the admin users who are administering the cloud servers are not cloud users in any form with respect to the cloud service provider's network in the scenario. It is arguable whether the LAN users in figure 1 are cloud users or not. Such room for argument could exist due to the phrase 'cloud computing' being a concept rather than a technical terminology. If the definition of cloud computing is taken to have essential arrangements of being the servers located remotely that are accessed through

public infrastructure (or through cloud), then the LAN users in figure 1 may not be considered as the cloud users in the context. With respect to distributed and grid computing as the mother technology that define the infrastructural approach to achieve cloud computing, the LAN users in the scenario are essentially the cloud users when they use the cloud services offered by the servers; the LAN users in this perspective are essentially using resources that are 'borrowed' from the servers on an on-demand basis.

Figure 2 illustrates the hierarchical arrangement based on which a cloud is perceived in the form of IaaS, PaaS and SaaS from any cloud end-user's viewpoint.

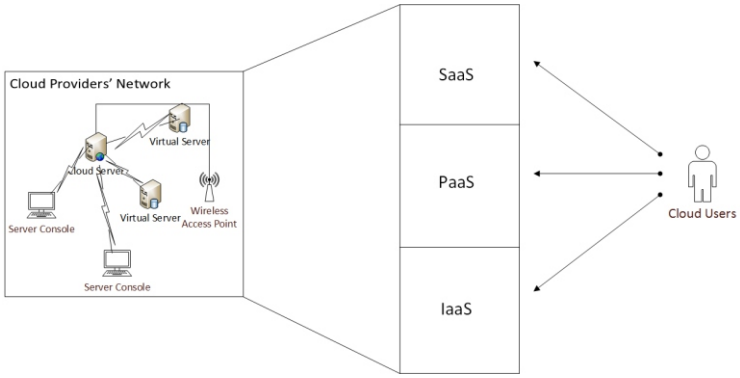

Figure 2: Cloud Service Hierarchy

As depicted in figure 2, the technical details, arrangements and management of the cloud service providers' network is transparent to the cloud user. From the end of the cloud user, the service from the provider comes in the form of SaaS, PaaS or IaaS where the cloud user has no intention or worry about what goes on in the internal arrangement of the cloud service providers' network. Any disruption of any form for whatever is the reason, deem to the cloud users either as service unavailability or quality deterioration – its affect and ways to counter this disruption is a critical part for the cloud infrastructure. Security issues might play a stimulating role as a driving factor for any aforementioned disruption.

3. AUTHENTICATION IN CLOUD

Security is the most prioritized aspect for any form of computing, making it an obvious expectation that security issues are crucial for cloud environment as well. As the cloud computing approach could be associated with having users' sensitive data stored both at clients' end as well as in cloud servers, identity management and authentication are very crucial in cloud computing Verification of eligible users' credentials and protecting such credentials are part of main security issues in the cloud - violation in these areas could lead to undetected security breach [7] at least to some extent for some period.

A possible authentication scenario for a cloud infrastructure is illustrated in figure 3.

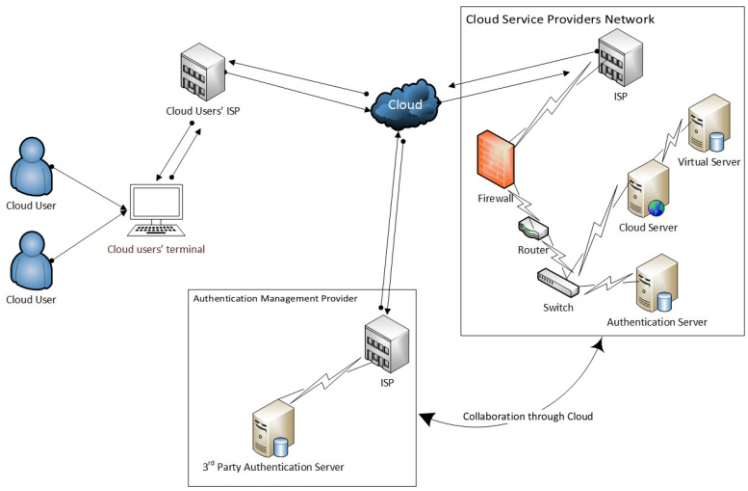

Figure 3: Authentication in the Cloud

The illustration presented in figure 3 conveys that the authentication for the cloud users can be done either by the cloud service provider or the service provider can outsource the identity management and authentication service to third party specialists. In the later case, the cloud service provider is required to have collaboration with the third party authentication specialist – the collaboration between the cloud service provider and the third party authentication specialist during the authentication process of cloud users is done essentially through cloud. This feature adds performance overheads and security issues to the cloud context as the message passing between third party authentication management authority and the cloud service provider as part of collaboration might essentially be done through cloud infrastructure. As discussed earlier, the total authentication process and how they are carried out - regardless of the involvement of third party authentication specialists – is transparent to the cloud users. The illustration on the authentication scenario presented above is a fairly simple one – if geographically dispersed servers are deployed by the cloud service providers then the total authentication process might be far more complex in terms of security, underlying algorithm as well as performance level. Whatever is the level of complexity, the introduction of third party authentication and identity management specialist into any cloud architecture should have only one goal; and the goal is to strengthen the robustness of security in the concerned area which the cloud service provider itself is not capable of to deploy or offer.

4. SECURITY ISSUES IN CLOUD

Cloud computing comes with numerous possibilities and challenges simultaneously. Of the challenges, security is

considered to be a critical barrier for cloud computing in its path to success. The security challenges for cloud computing approach are somewhat dynamic and vast. Data location is a crucial factor in cloud computing security. Location transparency is one of the prominent flexibilities for cloud computing, which is a security threat at the same time – without knowing the specific location of data storage, the provision of data protection act for some region might be severely affected and violated. Cloud users' personal data security is thus a crucial concern in a cloud computing environment [8]. In terms of customers' personal or business data security, the strategic policies of the cloud providers are of highest significance as the technical security solely is not adequate to address the problem. Trust is another problem which raises security concerns to use cloud service for the reason that it is directly related to the credibility and authenticity of the cloud service providers. Trust establishment might become the key to establish a successful cloud computing environment. The provision of trust model is essential in cloud computing as this is a common interest area for all stakeholders for any given cloud computing scenario. Trust in cloud might be dependent on a number of factors among which some are automation management, human factors, processes and policies. Trust in cloud is not a technical security issue, but it is the most influential soft factor that is driven by security issues inherent in cloud computing to a great extent. All kinds of attacks that are applicable to a computer network and the data in transit equally applies to cloud based services – some threats in this category are man-in-the-middle attack, phishing, eavesdropping, sniffing and other similar attacks. DDoS (Distributed Denial of Service) attack is one common yet major attack for cloud computing infrastructure. The well known DDoS attack can be a potential problem for cloud computing, though not with any exception of having no option to mitigate this. The security of virtual machine will define the integrity and level of security of a cloud environment to greater extent. Accounting & authentication as well as using encryption falls within the practice of safe computing - they can be well considered as part of security concerns for cloud computing. However, it is important to distinguish between risk and security concerns in this regard. For example, vendor lock-in might be considered as one of the possible risks in cloud based services which do not essentially have to be related to security aspects. On the contrary, using specific type of operating system (e.g. opensource vs. proprietary) might pose security threat and concerns which, of course, is a security risk. Other examples of business risks of cloud computing could be licensing issues, service unavailability, provider's business discontinuity that do not fall within the security concerns from a technical viewpoint. Thus, in cloud computing context, a security concern is always some type of risk but any risk cannot be blindly judged to be a security concern. Allocation of responsibilities among the parties involved in a cloud computing infrastructure might result in experiencing inconsistency which might eventually lead to a situation with security vulnerabilities. Like any other network scenario, the provision of insider-attack remains as a valid threat for cloud computing. Any security tools or other kinds of software used in a cloud environment might have security loop holes which in turn would pose security risks to the cloud infrastructure itself. The problem with third party APIs as well as spammers are threats to the cloud environment.

As cloud computing normally means using public networks and subsequently putting the transmitting data exposed to the world, cyber attacks in any form are anticipated for cloud computing. The existing contemporary cloud based services have been found to suffer from vulnerability issues with the existence of possible security loopholes that could be exploited by an attacker. Security and privacy both are concerns in cloud computing due to the nature of such computing approach. The approach by which cloud computing is done has made it prone to both information security and network security issues. Third party relationship might emerge as a risk for cloud environment along with other security threats inherent in infrastructural and virtual machine aspects. Factors like software bugs, social engineering, human errors make the security for cloud a dynamically challenging one. Intrusion detection is the most important role in seamless network monitoring to reduce security risks. If the contemporary IDSs (Intrusion detection Systems) are inefficient, the resultant consequence might be undetected security breach for cloud environment.

The facets from which the security threat might be introduced into a cloud environment are numerous ranging from database, virtual servers, and network to operating systems, load balancing, memory management and concurrency control. Data segregation and session hijacking are two potential and unavoidable security threats for cloud users. One of the challenges for cloud computing is in its level of abstraction as well as dynamism in scalability which results in poorly defined security or infrastructural boundary. Privacy and its underlying concept might significantly vary in different regions and thus it may lead to security breach for cloud services in specific contexts and scenarios. Data loss and various botnets can come into action to breach security of cloud servers. Besides, multi-tenancy model is also an aspect that needs to be given attention when it comes to security.

Security in the data-centres of cloud providers are also within the interests of security issues, as a single physical server would hold many clients' data making it a common shared platform in terms of physical server or operating system. The storage security at the cloud service providers data centres are also directly linked with the security of the cloud services. All the traditional security risks are thus applicable with added degree of potency in a cloud infrastructure which makes the ongoing success of cloud computing a quite challenging one. Confidentiality, availability and integrity are the generalized categories into which the security concerns of a cloud environment falls. Threats for a cloud infrastructure are applicable both to data and infrastructure.

Different modes of data transfer and communication means (e.g. satellite communication) might need to take into account. Huge amount of data transfer is a common anticipation in a cloud environment, the communication technology used along with the security concerns of the adapted communication technology also becomes a security concern for the cloud computing approach. The broadcast nature of some communication technology is a core concern in this regard. Cloud environment is associated with both physical and virtual resources and they pose different level of security issues – having no sophisticated authentication mechanism to fully address the security threats is an existing problem for cloud computing. It has mainly resulted in the situations where grid computing has been taken as an embedded part of cloud computing. As the virtualized resources are highly coupled with a cloud infrastructure, intrusion related security concerns are of utmost priority as part of security issues. Arbitrary intermittent intrusion needs to be monitored in the operational context of a cloud computing infrastructure where the severity of possibility for a virtual machine to be compromised is to be taken into account. Some authors have argued that using Internet technologies is not a must for cloud computing - but the cost efficiency and globalization trends will enforce and motivate almost all the businesses to admit Internet and associated technologies to be the ultimate means towards cloud computing approach. As a result, total Internet related security concerns are anticipated to be automatically added on top of the cloud-specific security issues. Bringing portability is one of the means to make cloud services flexible. The portability of cloud services would also be associated with security concerns. Cloud portability enables the cloud users to switch among different cloud service providers without being affected with the necessity to change the ways to accomplish tasks in different ways. It is a clear provision on bargaining power for the cloud users; but at the same time, the security issues with cloud portability are to be counted. Cloud portability might bring severe degree of API based security threats.

The wide transition to mobile computing practices in recent years has made it imperative to include mobile computing and its associated technologies as an essential part of cloud computing. Resource scarcity as well as other constraints of mobile computing is barriers to cloud computing. The demand of huge data processing is a problem for mobile end-user devices which has been further complemented by the security concerns of mobile cloud computing. For mobile cloud computing, the device level limitations has inspired researchers to suggest the inclusion of another level of cloud termed as 'mobile cloud' to aid the processing of the specific computing and processing for mobile computing devices. The earlier explained broadcast nature of satellite communication and related security issues are equally applicable to the mobile cloud computing due to its being wireless communication. Besides, the addition of mobile cloud into the perspective would add another cloud with all its security issues for a service provider having both mobile cloud and conventional cloud. The addition of mobile cloud in the scenario would boost performance, but it would also add another layer of security issue not only to the mobile cloud users, but also to the total infrastructure of the cloud service provider. The hierarchical arrangement of cloud computing facilitates different level of extensibility for the cloud users with varying degree of associated security issues. Security issues for cloud computing are described by some authors as an obvious one due to its nature. In a business model, the risks for the consumers are related to and dependent on the relevant approaches and policies of the cloud service providers the consumers are dealing with. Using cloud products or services may lead to security concerns for the consumers if they are not well aware with the type and particulars of the products or services they are to procure or to use in a cloud environment; this is also related to the cloud providers' identity and reliability. One of the inherent problems in this context is that, the consumers might normally not be able to identify or foresee all the risks involved in the specific cloud transaction they are dealing with or involved in [9].

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Netflix Streaming in Indian Digital World

Poorva Mathur*

ABSTRACT

Binge watching culture can be much defined with the growing up craze of streaming services such as Netflix and Amazon Prime. As per a study, streaming services have now more subscribers than traditional pay Television services.

“Netflix and Chill”; propaganda have more viewers cast nowadays. Netflix is the biggest player of binge watching in the market for streaming shows online. In early days when Netflix just started back in 1997, only licensed content was used to stream but with the due course of time; Netflix came up with its Originals to heat up the binge. Undoubtedly, Netflix is the game changer and biggest king of the industry. Even the biggest competitors of Netflix like Amazon Prime doesn't even comes approximal in the overall race.
What strikes up the mind over here is 'whether Netflix subscription by its viewers is because of its licensed content or Originals'?

To our great astonishment, 7Park Data analytics platform showcases that only 20% of viewing is going around in Originals but a colossal of 80% share of viewers are in licensed content area. Out of which 18% Originals dominant range lies in U.S. With the time encompassment; most in vogue Originals were Stranger Things Season 1, 13 Reasons Why, Orange is the New Black Season 5, etc; In collation to the most popular licensed titles like Friends, How I Met Your Mother, Supernatural, etc.
According to a recent study by The Economics Times, India; ever since the launch of Reliance Jio in 2016; top three mobile applications out of 10 downloaded were of video streaming which offers capacious assortment of content upon movies, TV shows and web series. Additionally, main top two apps as of now are Netflix and Tinder due to extended obsession of pop culture of TV Shows, Movies and Online Dating.

Index Terms- Streaming, Netflix, Amazon Prime, Hotstar, India

1. INTRODUCTION

Netflix is considered as a prominent global streaming service. It has been rising and up-surging its local dominance in Indian state.

As Netflix is moving towards new countries and new users for their expansion and markets for streaming they find India as hot and big market due to its excessive population and increased numbers of Internet users across the country.

In recent years there have been astounding potential in India as it have became the second largest internet market in the world. As we compare Indian economy to its past; it used to be a poorly developed country in terms of technology with low income people.
As it has been seen from its trending streaming services; it is just expanding its regional programming in India selectively. Netflix doesn't seem to have keen tendency of expanding its regional base at a speedy pace as followed by its top competitors such as Amazon Prime Video.

Unlike most of the other digital streaming services apps which prefer to tailor the content as per the country and demographic demand, Netflix's programming is based on “taste communities”. Even Netflix's first India-original Sacred Games, which is set to debut in year 2018, is a show CEO Reed Hastings expects to “expand globally.”

Netflix's is totally devoted towards the global perspective for its Indian audiences which is in contrast to Amazon prime videos which is digitally offering content in Hindi and other local languages on its platform in India.

There have been tremendous home grown streaming apps like Hotstar, Alt Balaji , Voot, Jio Cinema, etc which are focusing on home produced content and regional taste preferences which ultimately is gaining popularity for them among the Indian users of streaming apps.

*** Assistant Professor, Trinity Institute of Professional Studies**

Only a few cases have been outgrown in Netflix such as “Lust Stories,” a combined package of four short films by high profile Indian directors that breaks the taboo around women's sexuality in the country. Additionally, “Sacred Games,” have been streamed, it is based on a novel by Indian author Vikram Chandra, which gained praise among Indian viewers for its local touch and language usage.

2. REVIEW OF LITERATURE

A. Netflix, Amazon, Hotstar long way from making profits in India

India may be hoping to double its 250 million online video audiences by 2020 but the closes to 30 video streaming platforms in the country have a long way to go before any of them makes any real profit. “There are many challenges, but we are in investment mode in India. And for a long time we will be spending more on local content productions than we are getting back. But that is part of having the long-term view," said Netflix founder and chief executive officer Reed Hastings on the sidelines of a slate event for the Asia Pacific region earlier this month.

Netflix India reported a marginal profit of 20.2 lakh for 2017-18, according to its filing with the Registrar of Companies last month.

Like Netflix, the road ahead is long for every other video streaming platform in India that is looking at cashing in on the country's rapidly growing online video audience and is investing aggressively in original content.

“Just like a film can be shot for 5 crore or 100 crore, the investment for content that is put behind paywalls in India can range from 7 lakh to 1 crore per episode," said Neeraj Roy, managing director and CEO, Hungama Digital Media. The scale of the show including talent, location and logistics of production like technical equipment were the deciding factors, he added.

The higher the budget, the tougher it would be for projects to become commercially viable, Roy said.

Budgets need to be controlled because OTT (over-the-top) platforms have not exactly cracked the magic formula in India. The two revenue models --- advertising and subscription -- both face challenges. Subscription issues start with the platform's price point. For example, Netflix, the most high-end, niche OTT model in India, prices its base subscription plan at 500 per month compared to competitors' Amazon Prime Video's 999 for a year and Hotstar's 199 a month or 999 for a year. That explains why industry experts estimate the viewership of Sacred Games, Netflix's first India original, to be a fraction of the 250 million large online video audience bases in the country. This is a function of the limitations of the India market.

Second, the nature of the online video audience is India is said to be male-dominated with an affinity towards local languages. “Roughly 70% of our audience is male, which mirrors the current online video audience in India to a great extent," Roy said. Uday Sodhi, executive vice-president and head, digital business, Sony Pictures Network India, confirmed that two-thirds of the user base on streaming service SonyLIV was male and the big audience target group was between 18 and 34 years in the metros and second-level towns.

That, consequently, leads to dark, gritty thrillers and gangster dramas like Sacred Games or Amazon's new show Mirzapur, which have limited appeal for female audiences.

Third is piracy. As with linear models like movies and television, OTT shows, including Scared Games, have found themselves available on torrent websites within hours of launch. Hungama's first original web series, Damaged, has had over 169,000 downloads across different torrent websites since its premiere in early June.

The challenges are just as grave for advertising video-on-demand platforms where the market has not grown to the same extent as the overall online video space. Digital advertising is projected to grow by 27% in 2018, according to a forecast by media agency Magna.

“The advent of Reliance Jio hit the supply side of the OTT market, increasing the inventory but the advertising market did not grow to the extent to be able to balance the rates," said Ali Hussein, chief operating officer, Eros Now, referring to the cheap data packs made available by players like Jio that have allowed a lot more online content to be created and consumed. “Plus, demonetization and the imposition of the GST hit the economy quite badly. The overall online advertising revenue is 1,500-2,000 crore while television ad revenue is more than 50,000 crore. There is obviously significant headroom for growth. But the business has not currently caught up with the consumer demand. So irrespective of whether you're AVoD or SVoD, you're trying to find your sweet spot," he added.

Hussein and other OTT heads say as a business model, this is not that bad. But if you look at isolated cases, cost of content and marketing, recovery is some time away.

“Right now, we're in the investment phase and it is too early to start worrying about profits. We're only scratching the surface and there is a huge amount of excitement in the market about how consumers are adopting," Sodhi said.

A. Netflix needs lower prices to woo Indian subscribers

Netflix's Indian operation drew attention in a surge of international subscribers in the third quarter, but it faces fierce competition and a difficult cultural conundrum to make inroads with the country's more than one billion TV viewers.

In a few short months, the world leader in video streaming has launched a blockbuster Mumbai-based crime thriller, been sued over comments about a former Indian Prime Minister and seen the future of two of its hit shows threatened by the #MeToo movement in India.

Helped by a roster that includes top-grossing movie franchise "Baahubali", it has won fans among a young, tech savvy middle class and Chief Executive Officer Reed Hastings has said India could deliver the service's next 100 million subscribers.

Local industry players, however, say Netflix's strategy of pricing close to rates it charges in developed markets will see it struggle against domestic competitors like 21st Century Fox-backed Hotstar and one of the country's top satellite TV providers, Tata Sky - a joint venture between the Tata Group and Fox.

Amazon, with a trove of original Indian content like crime drama "Breathe", also offers movies and shows free to members of its Prime service.

"With the existing model that we have, the prices that we're at, we've got a long runway still ahead of us," Netflix chief product officer, Greg Peters, said in a video interview after Tuesday's third-quarter results.

“Now we'll experiment with other pricing models, not only for India, but around the world that will allow us to broaden access by providing a pricing tier that sits below our current lowest tier. We'll see how that does in terms of being able to accelerate our growth.”

The streaming giant launched in India two years ago. It has a library of local content comparable to rivals and scored a big hit in July with the release of "Sacred Games", a hard-boiled thriller built around Bollywood star Saif Ali Khan. Like other U.S. entertainment companies, it has identified the need to create local content as important in winning viewers in the big emerging markets likely to dominate growth over the next decade.

It has run into trouble, however, with the Bollywood studio that produced "Sacred Games" disbanding earlier this month in a cloud of sexual harassment allegations against one of its partners, Vikas Bahl, and the show's lead writer Varun Grover.

Both men have denied the claims but Netflix said last week it was evaluating its options on the show - having earlier said it would be renewed.

At a time when India's average per capita income is one tenth of the United States', the service's monthly fees are almost identical - Rs 500 ($6.80) for a basic plan, Rs 650 ($8.85) for a standard plan and Rs 800 ($11) for premium.

Hotstar in comparison offers its premium streaming service, including "Game of Thrones" and English Premier League soccer, at Rs 999 for the whole year.

None of the companies mentioned in this report provide detailed paying subscriber numbers for the Indian market, but media executives say Netflix's figures are probably still less than a million.

"The current price point is prohibitively expensive for India," said one senior Indian media executive, asking not to be named because of potential business dealings with Netflix.

"As long as they remain at that price point they will remain within this 2-3 million, 4 million kind of zone. If they indeed aspire to get to 50 and 100 million that is not going to happen at Rs 600-Rs 700 rupees

One analyst asked Hastings on Tuesday how much Netflix will have to tweak the model to achieve success.

"We'll go from expanding from English to Hindi to many more languages to more pricing options, more bundling, all of those things are possible," he said

"There are over 300 million households and almost twice that in mobile phone subs. We'll take it a million at a time and figure out how to expand the market as we grow.”

3. FINDINGS

According to IHS-Markit's research in 2017, market for Indian streaming grew around 116%. Still Netflix is being found in

Even though Netflix's popularity stays restricted to the premium end of the subscriber and user spectrum; it does not seem to have a nearby competitive strategy to combat and grab the market share from Amazon Prime Video.

It have been noted from the study that, as a mass player in its largest market USA, Netflix is unlikely to move away from being a premium service in India even after a small share of users and viewership in regional terms.

Even after the rank 5 in the Indian streaming market by viewership; behind Hotstar, Alt Balaji, Eros Now, and Amazon Prime Video; Netflix still grabs the most revenue.
In the end of 2017, Amazon Prime Video had 6,10,000 users as compared to Netflix which only had about 5,20,000 subscribers.

4. CONCLUSION

Potential has been seen by the streaming apps and all are beset to setup their dominance to get along the large number of users. Simultaneously, Netflix has been doing their best job in giving overall and globally accessible content by imposing their westernization perspective.

Enormous earning state for Netflix as Indians are getting more inclined towards the western models and they are developing a great taste for the American culture.

May be the core essence of Netflix way of streaming might fetch them great profits in future as they are creating contents which can be accepted almost globally.

But there is a strong need for a realization for Netflix that for most of the population in India, its cost too high or unaffordable due to low purchasing power parity.

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Effect of CSR initiatives on a company's bottom line

Aarushi Singh*

Abstract

Corporate social responsibility is one of the needful and prominent business practices of today's scenario. Companies Practising CSR has an enhanced overall reputation and their corporate identity promotes positive culture among society. The execution of a CSR process is an important component of a company's assets and its strategy is a competitive component in market itself which is led by company itself. This means integrating 3P's which acts a tool of society like people, planet and profit which collaborates with(Internal and External Public) stakeholders. Overall aim is to make a positive and strong impact on society as a whole. The company's bottom line refers to a company's net earnings, net profit or net income. The term “bottom" explains the net income figure on a company's income statement. Bottom line also refers to any activity that may increase/decrease net earnings. A company that has more net earnings or reducing costs cutting is said have “improving its bottom line". Most companies aim to improve their bottom lines through two simultaneous methods: growing profits through revenues and increasing efficiency through cutting costs. This paper focuses on how CSR initiative has affected the company bottom line or overall growth. It will throw light on the scenario and impact of CSR strategies followed by companies. The purpose is well defined to know the 5w's and 1H of CSR initiatives. With various case studies we will try to answer who does CSR and how. What is the company all about, where is it located, whom it is run by, Since when it is running and how the company has implemented CSR strategy and what was the result, This paper has opted for descriptive research design. It is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. Various research methods are implemented by researches. Various case studies will be studied regarding the implementation of CSR strategy by various companies and how that has resulted and had an impact on society. As we can see that this paper has used Descriptive research design, or qualitative, various methods, include the, case study, naturalistic observation, surveys, archival research, longitudinal research, and cross-sectional research. The Scope of the research is to know the benefits of CSR schemes in India and to know whether these CSR and philanthropy activities are useful in today's scenario for people as well as company .

Key words -: Corporate Social responsibility, company's bottom line, people, profit, planet, Developed nation.

This word corporate Social Responsibility has a proposed definition which is defined as a management concept whereby companies expand socially and develop environmental concerns in their business operations and interactions with their stakeholders (External and Internal Public). CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives which is also called as Triple-Bottom-Line- Approach

Let's put some light on the important CSR issues which are : environmental management, eco-efficiency, responsible sourcing, stakeholder engagement, labour standards and working conditions, employee and community relations, social equity, gender balance, human rights, good governance, and anti-corruption measures.

A properly managed CSR concept can bring along a variety of competitive advantages for company and people such as enhanced access to capital and markets, increased sales and profits, operational cost savings, improved productivity and quality, efficient human resource base, improved brand image and reputation, enhanced customer loyalty, better decision making and risk management processes.

The bottom line of a company is defined as a company's net earnings, or net income which is calculated at the end. The reference to "bottom" describes the relative location of the net income figure on a company's income statement.

Types of CSR which companies generally prefer to do:

* Assistant Professor, Trinity Institute of Professional Studies

- Environmental CSR: It generally focuses on eco-issues such as climate change.
- Community based CSR: It focuses' on businesses work with other organizations to improve the quality of life of the people in the local community.
- HR based CSR: Itprojects that improve the wellbeing of the staff.
- Philanthropy: Voluntary Involvement of a person to donate money to a good cause, usually through a charity partner.

Benefits of Corporate Social Responsibility

1. Motivated employees.
Employees feel proud of the organization they work for. An employee with a positive attitude towards the company, is less likely to look for a job elsewhere. More choice means a better workforce. Because of the high positive impact of CSR on employee well being and motivation, the role of HR in managing CSR projects is significant.

2. Satisfied customers
Companies CSR strategy improves customers' attitude towards the company. If a customer likes the company, he or she will buy more products or services and will be less willing to change to another brand.

3. Positive PR
CSR creates the opportunity to share positive stories online as well as traditional media. Companies no longer have to waste money on expensive advertising campaigns. Instead they generate free publicity and benefit from worth of mouth marketing.
4. Costs reductions
- More efficient staff hire and retention
- Implementing energy savings programs
- Managing potential risks and liabilities more effectively
- Less investment in traditional advertising

5. Global business opportunities

A CSR program requires an well planned open, outside oriented approach. The business must be in a dialogue with customers, suppliers and other parties that affect the organization.
6. Long term business

CSR is not something for the short term. It's all about the art of achieving long term goals and results in business continuity.

Research Question

This paper focuses on how CSR initiative has affected the company bottom line or overall growth. It will throw light on the scenario and impact of CSR strategies followed by companies. The purpose is well defined to know the 5w's and 1H of CSR initiatives. With various case studies we will try to answer who does CSR and how.

Review of Literature

One of the research studies regarding the impact of CSR and financial performance which has been done before has pointed the benefits of CSR and why should business make a friendly hand with these initiatives. Let's look at the abstract mentioned below.

The Business Case for Corporate Social Responsibility: A Review of Concepts, Research and Practice
Archie B.carroll

Kareem M . Shabana.

Abstract

In this review, the primary subject is the 'business case' for corporate social responsibility (CSR). The business case refers to the underlying arguments or rationales supporting or documenting why the business community should accept and advance the CSR 'cause'. The business case is concerned with the primary question: What do the business community and organizations get out of CSR? That is, how do they benefit tangibly from engaging in CSR policies, activities and practices? The business case refers to the bottom-line financial and other reasons for businesses pursuing CSR strategies and policies. In developing this business case, the paper first provides some historical background and perspective. In addition, it provides a brief discussion of the evolving understandings of CSR and some of the long-established, traditional arguments that have been made both for and against the idea of business assuming any responsibility to society beyond profit-seeking and maximizing its own financial well-being. Finally, the paper addresses the business case in more detail. The goal is to describe and summarize what the business case means and to review some of the concepts, research and practice that have come to characterize this developing idea.

Research Design

For this study, various case studies of different companies have been referred and their impact on company's bottom line have been brought into consideration.

Case Studies

Let's have a look at some companies who have successfully implemented CSR practices.

1. Coca-Cola

Coca-Cola continues to make strides toward aiding in the alleviation of environmental issues. After realizing that its fleet of delivery trucks accounted for 3.7 million metric tons of greenhouse gases (GHGs) in 2014, Coca-Cola made significant changes to its supply chain like investing in trucks that are powered by alternative fuels. Those changes should support the company's goal of reducing its carbon footprint by 25 percent by 2020.

2. Ford Motor Company

Ford is another corporation attempting to improve their environmental performance. In an effort to reduce its GHG emissions, an EcoBoost engine was developed to increase fuel efficiency and the company hopes to offer 13 new electric vehicle models by 2020. In addition, American Ford dealerships now use wind sail and solar PV systems as their primary power source.

3. Microsoft

Microsoft implements CSR through their work to gain customer trust, empower people and use the planet responsibly. Their U.S employees have given over 2 million hours of their time through volunteer efforts since Microsoft's volunteer match program began.

This program has opened opportunities for over 300 million youth to date, and Microsoft aims to continue its growth by investing in today's youth.

3. Reynolds

Reynolds' corporate culture revolves around their Commitment to community and Social responsibility. Since 1997, Reynolds' employees have strengthened through contributions over $1 million. A more recent community contribution, the Hummel Street Project, outlines a project committed to building five new town homes to provide homes for homeless women and children in the Harrisburg, PA community.

4. Google

With a high public perception of a great work atmosphere, Google gains recognition for treating their employees above the standard norm. This alone ranks them as a top CSR organization, but they've also implemented community practices through their Google green program.

Google Green is the company's commitment to use environmental resources responsibly. Their efforts range from the fully-repurposed desks in their California office to remaining carbon neutral for the past ten years.

Why Should companies prefer Corporate Social Responsibility?

Corporate Social Responsibility matters because companies have great resources to bring about positive change. It makes the better place to live. It helps in building a great reputation. Theutmost important benefit of a CSR program is trust.

Conclusion

If a company understands the need of doing right things environmentally and socially, consumers feel they can trust them to do the right thing in all situations. Consumers feel motivated and have a pride to be associated with the brand .Reputation Institute has found that a higher corporate responsibility ranking leads to more supportive consumer behaviours.

CSR statistics to look for:

- 92 percent of consumers have a more positive image of companies that support social issues and environmental efforts
- 63 percent of the public would give socially responsible businesses the benefit of the doubt during a crisis .
- 87 percent will purchase a product because a company advocated for an issue they cared about
- 66 percent of consumers are willing to pay extra to patronize companies that are committed to CSR
- 3.2x increase in trust when a company's reputation score goes from “average” to “excellent”

Corporate Responsibility shields during Crisis.

The bigger your company, more likely it is part of crisis.

Companies with a healthy CSR program will also protect their overall reputation. Research from the University of Dayton and Virginia Tech indicates that strong social responsibility offers a shield against scandals.

Attracts Top Talent

Good CSR initiatives attracts top talent which is beneficial for company's bottom line. Think about your human resources department. Many employees are proud to work for a company with a good reputation. Giving back is great for making an impact and improving reputation and trust.

Strong corporate citizens often find that they are able to attract top talent, raise productivity, and maintain high employee engagement.Most corporations establish CSR programs to genuinely give back, and they use considerable resources to make a positive impact on the world. Moreover, there are some that cultivate the image of a socially responsible organization simply for the marketing benefits.

This form of "giving back" is called as green washing, and it creates an example of bad corporate social responsibility.If an organization's CSR is just an indulgence of the CEO then it produces a negative effect on performance. When managers are driven by self-serving motives, they tend to spend an large amount of resources on initiatives without a clear strategy or visible results. Corporate social responsibility (CSR) is reshaping the way businesses do business.

CSR goes beyond philanthropy, however, as it has real effects on a company's bottom line—data shows that consumers favour companies that prioritize social and environmental responsibility. And not just consumers are paying attention. Potential investors and employees also factor in a company's CSR model and tend to work with businesses that share their values.Research explains the role of CSR by detailing that statingthat 42% of consumers depends on organization practices to form a perception.

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Influence of Social Media on the Scholastic Development of Students

Bhawna Solanki*

Abstract

Every other person is now using the Social Media; no matter what their age or gender is. So, it becomes extremely important to understand how it influence the scholastic development and performance of the students. The young generation is the one that is caught in the rapid technological advancements and developments.

This study is focussed to find out whether Social Media like Facebook affects the performance of students academically.

The findings shows that there is no relationship between social media and scholastic performance as it is clearly projected in their overall grade average which doesn't change with the number of hours spent on social media. Neither does it affect the amount of time they invest in studying.

Keywords: Social Media, Students, Scholastic performance, Technological advancements

1. INTRODUCTION

Today's world is like a Global Village. Everyone is connected to one another with the help of Internet. As said by Marshall McLuhan, a philosopher of communications theory, "The new electronic independence re-creates the world in the image of a global village." This electronic independence is inherently dependent upon the net. It illuminates the lives of Thousands of individuals by spreading information internationally, thereby making us global citizens.

In the past, the human action and free sharing of thoughts among folks were restricted by long distance, position and/or faith. But now, even these barriers cannot stop the flow of information and knowledge. Social Media Platforms are the platforms that give individuals the opportunity to interact, using two way communication. It means that anyone who has got an online account can share their opinions with other social media users.

In the early stages, the use of social networking was limited to corporates and businesses for connecting with the customers, clients with twitter handle, Facebook accounts or WhatsApp mentioned on visiting cards. Social networking has now widened and include friends, family associates and classmates as well.

Social networking also offers access to information, videos, extension of social group,etc. It also provides the ability to express, learning opportunities, seeking and maintaining friends and relatives.

Of the 7.3 billion global population worldwide, social networking has 2.3 billion active users which has seen a rise of 176 million just last year.

The increased use of social networking by youth has helped bring friends and family closer for those living in distant places, low additional costof connectivity, sharing information and updating each other on life happenings.

There are two types of social media users i.e. digital natives and digital immigrants. Digital natives are the ones who were born after 1980, they came to this world when the digital media existed. However, digital immigrants are the ones who were born before 1980 and adapted their lives to digital media (AntonSon and Christopher, 2014)

The younger generation are the individuals that will lead our world in the future. They must be well educated to be able to impact this world and make India, a better country on the road to success. Therefore, we must know about the different things they are exposed to, that may affect them negatively or positively.

* Assistant Professor, Trinity Institute of Professional Studies

2. REVIEW OF LITERATURE

According to a recent report from the Pew Research Center, 95% of teens use a smart phone, and 45% say they are online almost constantly. About 70% of teens are on Snapchat and Instagram, while 85% are on Youtube. These numbers indicate how much the student community is involved in this virtual world of social networking.

One would think that all this "socializing" would make teens feel more connected than ever before.

In 2015, the world's largest social networking company, Facebook, had 1.49 billion active users, and the number of users is increasing every year. One of the most interesting things to look at is the increasing number of *users that are students* on these social networking sites.

There are many reasons that explain why students love to spend time socializing. Firstly, these networks provide them the freedom to do whatever they want like to upload what they want and talk to whomsoever they want. They like to make new friends and comment on the lives of various people. Students can also create other/different online identities that the real world does not allow. The freedom it gives them to act just by sitting in front of a computer attracts them, and they then demand for more freedom. Never before has it been easier for people to create a digital image of their actions through such a spontaneous medium.

But this thing also has a darker side that has gained the attention of many parents, and even eminent psychologists, all over the world. One of the biggest problems is the identity crisis that the constant social networking produces. As said by Professor S. Shyam Sunder, a renowned researcher at Penn State, "The types of actions users take and the kinds of information they are adding to their profiles are a reflection of their identities."

Many psychologists are worried about the identity crisis that our present generation may face today. The lives of people, especially students, are largely influenced by what is posted by other people on their profiles. The habits that students learn are decided more by what their friends do and less by the teachings of parents or professors.

Many students have become prone to mood swings and self-control. If a student posted about his or her present relationship with someone, then other friends are pressed to do the same thing. Actions that attract more public attention hold more value. Even despite some of them are just immoral or illegal. We can even see that many students are worried about their looks. So they always try to upload nicer pictures than their friends. According to a recent survey, whenever someone uploads a profile picture, it immediately affects the moods of his/her friends. It often produces stress, anxiety or fear about their identities as people also. Constantly thinking in this way can sometimes lead to depression too.

The most important things in a student's life should be studying, learning good habits and gaining knowledge to become a person with a good moral character. But today, as we can see in various studies, this optimal learning process is seriously jeopardized by students becoming entrapped by the ploys of social networking. Students have started to neglect their studies by spending time on social networking websites rather than studying or interacting with people in person.

Getting involved in social media for too long can lead to an addiction that inculcates bad habits. Students prefer to chat with friends for hours which leads to waste of time that could have been used for studying, playing or learning new skills. It is often said that a long-term friendship or relationship is developed when people meet each other, spend time with each other and share their experiences face to face. But this virtual way of communication does not lead to a natural, friendly experience and hence cannot produce a healthy relationship. Also, these relationships tend to terminate easily and the reason behind that is lack of personal contact.

The system generates a competition to make as many new friends/contacts as possible and the so-called "social quotient" of a person is decided by how many friends they have and not on how good they are in nature. Often, students who are not even able to accurately analyze the working of the world, 'like' or 'comment' on social or political issues, and this sometimes leads to serious controversies.

Considering all the above mentioned pros and cons, it is necessary to develop certain regulations on the use of such social networking sites, especially for high school and college students. Also, the students should get the choice to spend time socializing in an effective way.

It should not hamper their academic performance. It should be kept in mind that social networking sites create virtual worlds that drastically differ from reality and can create certain issues as well.

Students should develop the cognitive and intuitive ability to analyze how much time they want to spend on social media platforms. It is left up to the students to decide what really matters in their life and how much of this virtual life translates to real life.

3. FINDINGS

According to a recent report from the Pew Research Center, 95% of teens use a smartphone, and 45% say they are online almost constantly. About 70% of teens are on Snapchat and Instagram, while 85% are on Youtube. It indicates how much the student community is involved in this virtual world of social networking.

The findings shows that there is no relationship between social media and scholastic performance as it is clearly projected in their overall grade average which doesn't change with the number of hours spent on social media. Neither does it affect the amount of time they invest in studying.

4. CONCLUSION

June Ahn stated, “emerging studies find that youth spend a considerable portion of their daily life interacting through social media.” (Ahn,
2011b, p. 1435) According to this study, it is a true statement given that the majority of the students spend between one to more than six hours daily on social media platforms, such as Facebook and Google.

According to the study, it is clear that whether the students spend less than an hour on social media or more than six hours on social media, he/she still share the same grade range average. It is because the students with the highest grade ranges which is 90%-100% varied between all four time ranges on social media per day.So, it is safe to conclude that there is no negative impact of social media on the academic performance of the students. Also, there is no significant relationship between both the frequency of using social media with the overall grade average; and with the number of hours spent daily on studying.

The objective was to find out the type of influence caused by social media on the students' scholastic performance, why it is caused, and how. But now it is clear that social media does not impact students' academic performance in any way because even if they spend hours on social media, they still manage to find time to study, and achieve good grades.

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Consumer perception and readership pattern of toi readers – a case study

Dr. Ishita Adhikari*
Rashi Sangal**

Abstract

India is one of the fastest developing countries today. The increased newspaper readership is the result of its growing literacy and access to news on multiple technology and social media platforms. The research is based on overall consumer behaviour towards selection of newspaper with special reference with, India's leading newspaper brand. Study of consumer behaviour helps the organisations in improvisation of various strategies by understanding customer psyche while evaluating the various alternatives and selecting the best suited one from all available. It also emphasises on factors influencing buying decision and help the firm figure out the consumer's needs and accordingly provide customised products as desired by them.

The current study demonstrates how individuals make decision regarding the preferences towards the selection of a leading newspaper brand. Further, the research provided information which is useful in taking various marketing decision and helped to reduce the risk of consumer shift to various other brands prevailing in the market. The study was conducted through a survey of respondent's residing in NCR, Delhi. The research concluded that promotional schemes offered by Times of India had a positive correlation with the buying behaviour of the subscribers. However there is a need to strengthen the awareness of the promotional schemes on regular basis and establishing a strong emotional connect with the readers.

Introduction

Print media is one of the most powerful and cost effective medium to transfer information and knowledge. The print media industry in India is over century old. Additionally it is a settled industry. This industry basically involves in publishing daily papers and magazines. India has the second biggest population and one of the fastest developing economies on the planet. Along these the expanding level of income of people, groups and the strong rivalry in this industry help print media in its development.

As per Arc Gate (2010), Indian Magazine Market Overview, “sensational impacts of internet and globalization in current situation are playing high effect on media industry. Individuals are presently consuming news and data from web through computers or mobiles, the fame of print media is not decreasing. To avoid a decline of market share in comparison with other media instruments, the producer should be able to produce high quality printed content and magazines”.

Ali Saukat (2010), in his Study of Consumer Behaviour & Loyalty In Print Media – Challenges & strategic prescriptions with Special reference to English, Hindi, Marathi News Paper readers-Mumbai, in one of his leading researches states that developing customer loyalty and retaining readership can be a huge challenge for the publishers. Today, there is wide range of choices available to readers. Therefore publishers are busy creating something very special and innovative in contents or subscription schemes to impress upon the readers. They should address the need and demand of consumer to fortify their dedication and readership. This study was conducted to understand the changing consumer perception, and buying behaviour regarding Print Media, identifying consumer preferences and the factors influencing their selection vis a vis the price, promotional schemes etc. plays a crucial part.

Further, understanding the issues governing the declining readership amongst the consumers will aid in customizing the product for the benefit of the consumer leading to a “WOW” experience.

Literature review

Consumer behaviour can be defined as, "The study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society." Consumer perception is the process by which a consumer selects, classifies and interprets raw stimuli to create coherent image of the product or the brand. Marketing theory emphasizes that a consumer views/perceives a stimulus according to his/her own unique needs, experiences, and expectations.

The three stages of perception that a consumer goes through are exposure, attention and inference.

*** Associate Professor, ASM, Dwarka**
**** PGDM IInd year student, ASM , Dwarka**

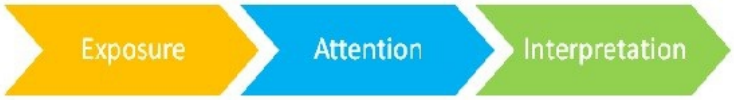


Fig 1: CONSUMER THREE STAGES OF PERCEPTION

In other words, it is the overall brand image that a consumer construes from the information available to him: details and visual appeal of the product/brand, advertisement, promotions, feedback or opinions. The consumer perception theory is used to develop advertising and marketing strategies pertaining to consumer's thought processes in order to attract as well as retain the existing customers.

Lucas & Brit (2004) deals with four theories of Consumer Behaviour in connection with advertising. The figure below shows a model of **Anatomy of Purchase Decision.** When making even the simplest purchase, a consumer goes through this complicated mental process.

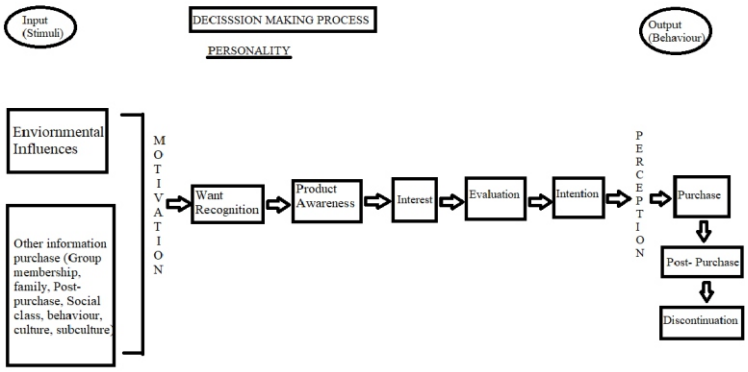


Fig 2 Anatomy of Purchase Decision

This model shows how external stimuli such as the company's marketing efforts as well as various non-commercial sources of information (Family, Friend, Teachers etc.) join to activate the decision-making process. At the same time, this process is also filtered by many personal influences on Consumer Behaviour such as Motivation, Personality, learned Attitudes and Perception. At any time, the decision process may be terminated if the consumer loses interest or, after evaluating the product, decides not to buy. If he does make a purchase, he has the opportunity to evaluate whether the product satisfies his needs. Behaviour occurs either for the individual, or in the context of a group (e.g. friend influence what kinds of clothes a person wears) or an organization.

Consumer behaviour generally involves the use and chucking away of products as well as the study of how they are purchased. Product use is often of immense interest to the marketer, because this may influence how a product is best positioned or how we can persuade increased consumption. Since many environmental problems result in product ejection. Consumer behaviour also involves innovative ideas as well as tangible products and services. The impact of consumer behaviour on society is also of great importance. For example, insistent marketing of fatty foods, or insistent marketing of easy credit, may have serious repercussions for the national health and economy.

As a final benefit, analysing consumer behaviour should make us better consumers. Even after knowing that this fact will sensitize you to the need to check the unit cost, it basically determines whether you are really getting an edge over it. Consumer behaviour is the mental and emotional processes and the observed behaviour of consumers during searching, purchasing and post consumption of a product and service.

O'Brien (1971), tried to develop an operational model which could integrate various stages of decision making by buyers, as shown below.

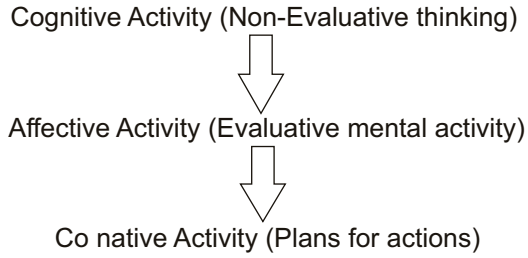


Fig – 3 STAGES OF DECISION MAKING BY BUYERS

Another leading research by Erdmann Tulip and Swait Joffre (2004) looked at the role of brand credibility (Trustworthiness and Expertise) on brand choice and consideration across multiple product characteristics that vary with potential uncertainty about attributes, information acquisition costs and perceived risk of consumption. Amongst other findings, it is suggested that trustworthiness has a greater impact on consumer choice than expertise.

According to Indian Readership Survey (IRS) 2017 has confirmed once again that Times of India is country's favourite English language publication, by a whopping margin. In fact, with a total readership of 1.3 Crore, TOI is not only far ahead of the competition, it also has more readers than the No 2 Hindustan Times 968.47 Lakh) and No 3 The Hindu (53 Lakh) put together.

Readership pattern

Newspaper Readership is concerned with people irrespective of any kind of classification of occupation, profession, employment, religion, caste or language etc. However, literacy is a factor which is related to newspaper readership. It is visual media which faced challenges over the years with the revolution in the field of information with introduction and implementation of varieties of other media.

Amiel T. Sharon, (1972) in her research, "Racial Differences in Newspaper Readership", states that the reading habits of blacks and whites in the general population indicates that the proportion of white readers is greater than that of black readers in every type of reading material. Another study by Ernest F, Larkin (1975) concluded that subscribers use the local newspaper for local information- both news and advertising- that they are more interested in local news and also they view advertising as a source of local news. Chic, Brin and David H, Weaver (1979) in their research paper infer that newspaper readership has followed a jump, though it is comparatively more among those who are beginners of journalism profession than others.

Jerry R, Lynn and Ellen M Bennett (1980) advocate in their article 'Newspaper Readership Patterns in Non-Metropolitan Communities', that town and small city audiences differ from rural, farm audiences in some newspaper content preferences as a consequence, the newspaper readership, tastes, behaviour and keenness differ among people in town and small cities from those in rural areas of farms.

OBJECTIVES OF THE STUDY:

- To study and understand readership habits of different target groups of newspaper.
- To study the criteria used by consumers while choosing newspaper and its impact on buying decision.
- To understand and to know sales and promotional techniques of the company's magazines and newspaper subscriptions with respect to consumer behaviour.

Research Methodology

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his problem along with the logic behind. Research methodology is the process to gather data and information with the objective of taking business decision. The methodology includes interviews, publication research, surveys and other research techniques, and may include both past and present information.

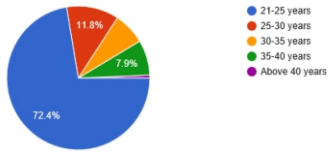
- Geographical location: The geographical location taken for the purpose of data collection and the research is Delhi-NCR.
- Sample size: The sample size for collecting primary data is 152 respondents. Random Technique of sampling was used

Data Collection

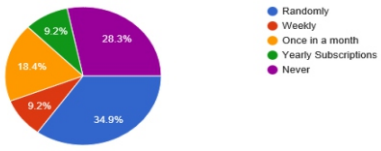
- Data collection method: The data has been collected through personal interview, door to door visit and telephonic interview.
- Target group: The respondents consist of existing subscribers, discontinued subscribers and non-readers.

Research analysis

(DEMOGRAPHICS)

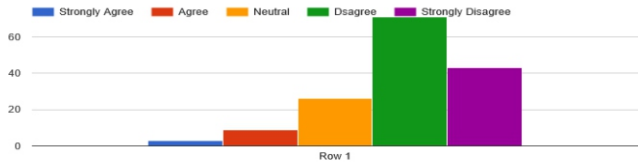


A total of 152 responses were collected which had equal number of male and female respondents. More than three fourth population was in the age group of 21-25 years. This is because of the supplements that TOI offers catering to each group including Education Times, Times Accent and so on, and there was an equal and proportionate distribution across rest of the age groups.



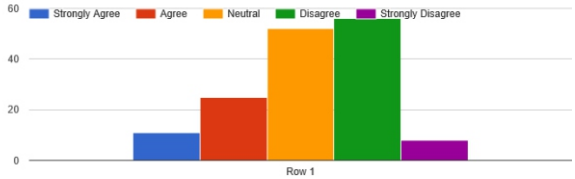
In terms of frequency of buying, equal number of people bought the newspaper on either daily basis or had yearly subscription or other means like monthly payments. Further, the respondents who read TOI are mostly the one who are hard core TOI readers reading for over more than 30 years.

Consumer Perception



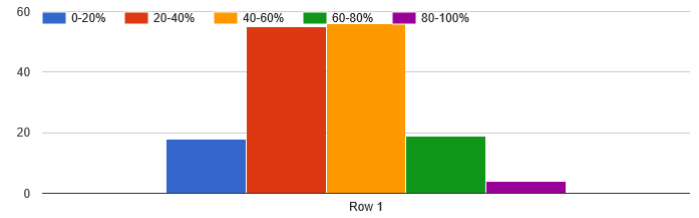
CONSUMER PEREPTION	Average Mean
Q1 There is a problem with understanding the language of The Times of India	2.06

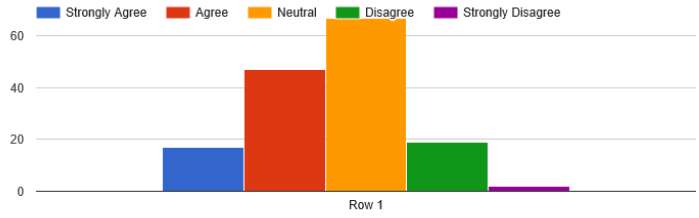
A large majority of the respondents are of the view that there is not much problem with understanding the language of Times of India. As opposed to other newspapers, the language of TOI is comparatively easy to understand as the supplements offered with the daily main newspaper is basically catering to the needs of each segment for instance times education for the students preparing for competitive exams, Times Classified for job seekers in various areas and so on.



CONSUMER PEREPTION	AverageMean
Q2 I believe Times of India lacks news rather it's more of advertisement	2.83

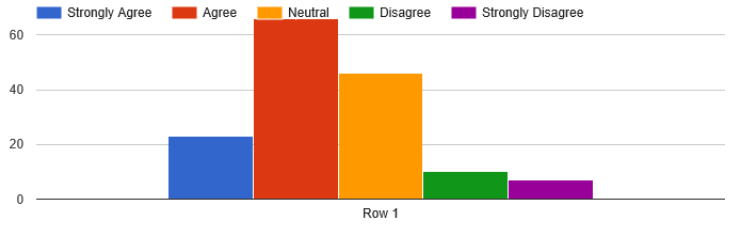
Majority of the respondents are of the view that there is a balance between advertisement and news and is considered to be a family newspaper and focuses on a wide target group as compared to other newspapers. But, as there are two sides of a coin, similarly some consumers are of the perception that it is more of advertisements that TOI prints. Mostly such statements are made by people who don't like TOI as a brand. In Today's time as per what research says is that out of 10 customers 8 are already reading TOI for past 20-30 years, so the rest 2 % are the one who are making such a statement.





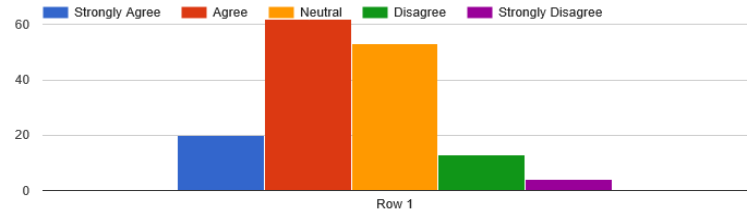
CONSUMER PERCEPTION	Average Mean
Q3 TV, Radio or Internet gives more knowledge than TOI	3.38

Majority of the respondents are of the view that TV, Radio or Internet are also knowledgeable as it is seen as per recent research that whatever one listens through audios and videos is retained for a longer period of time but at the same time the feel of reading newspapers physically is all together a different experience.



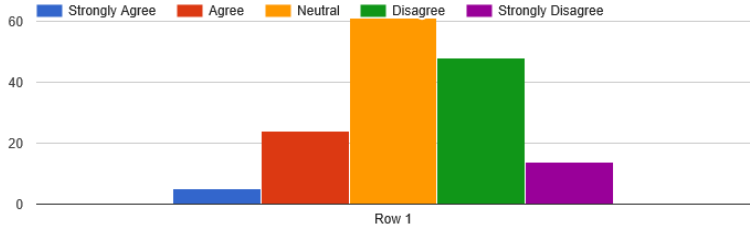
CONSUMER PERCEPTION	Average Mean
Q4 The information provided by TOI adds value to my life	3.57

Majority of the respondents are of the view that the information provided by TOI is better as compared to other newspapers and if we go as per the survey today, about 8 out of 10 respondents are reading TOI as there is a liking for TOI over years and this is because of the way TOI places its news over a period of time.



CONSUMER PERCEPTION	Average Mean
Q5. The quality of information of TOI is better as compared to others	3.53

Majority of the respondents are of the view that the quality of information provided by TOI is better as compared to other newspapers. Probably youngsters are more interested in reading TOI because of the way the news is placed. It is observed that most of the people buy daily as they are not aware of the schemes, offered as it is given to some short listed customers from the database. Two- third of customers buy on daily basis or a monthly package as they are of the perception that buying monthly is more economical than yearly subscription package. And only one third are under the bracket of subscription scheme offered.



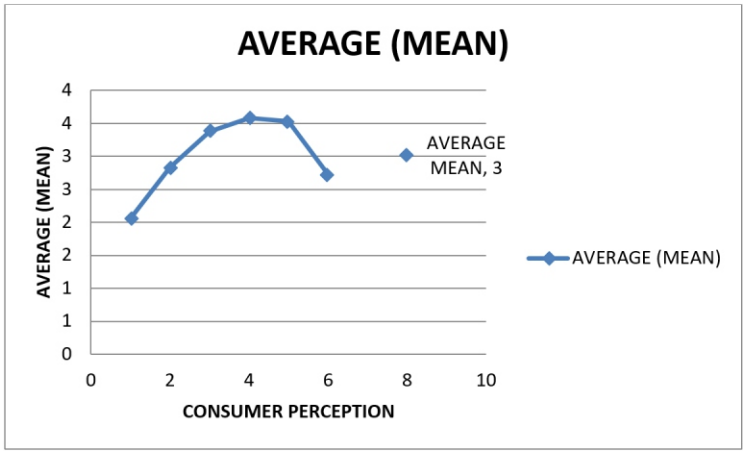
CONSUMER PERCEPTION	Average Mean
Q6 The cost of TOI is higher as opposed to others	2.72

Majority of the respondents are of the view that value addition is more important rather than pricing, so accordingly, the cost of TOI is comparatively reasonable as compared to other newspapers and at the same time on value addition, it is the only newspaper which is fulfilling the need of both youngsters looking for jobs and students. Further a copy is issued by TOI separately for students studying and also there is one supplement called "*Times Properties*" catering to people working with real estate.

<u>Overall data analysis:</u>AVERAGE MEAN (CONSUMER PERCEPTION) RESULT USING SPSS

CONSUMER PERCEPTION

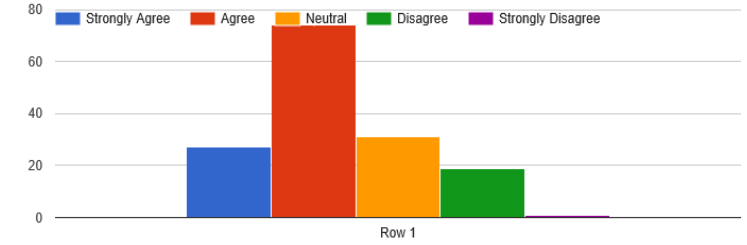
		Count	CONSUMER PERCEPTION Count	CONSUMER PERCEPTION Count	CONSUMER PERCEPTION Count	Q1 There is a problem with understanding the language of The Times of India Count	Q2 I believe Times of India lacks news rather it's more of advertisement Count	Q3 TV, Radio or Internet gives more knowledge than TOI Count	Q4 The information provided by TOI adds value to my life Count	Q5. The quality of information of TOI is better as compared to others Count	Q6 The cost of TOI is higher as opposed to others Count
Average Mean		5	0	0	0	0	0	0	0	0	0
	Average Mean	0	0	1	0	0	0	0	0	0	0
	AverageMean	0	0	0	1	0	0	0	0	0	0
	2.06	0	0	0	0	1	0	0	0	0	0
	2.72	0	0	0	0	0	0	0	0	0	1
	2.83	0	0	0	0	0	1	0	0	0	0
	3.38	0	0	0	0	0	0	1	0	0	0
	3.53	0	0	0	0	0	0	0	0	1	0
	3.57	0	0	0	0	0	0	0	1	0	0
	Average Mean	0	1	0	2	0	0	0	0	0	0



Majority of the consumer perception about TOI is good as compared to any other newspapers, so we can say that TOI has a greater chances of growth in the coming 5 years and the time is not far when TOI will be ranked No1 newspaper all across.

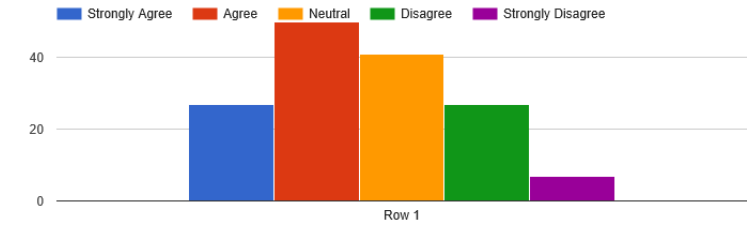
Readership Pattern

Please indicate your level of agreement with each of the statements.



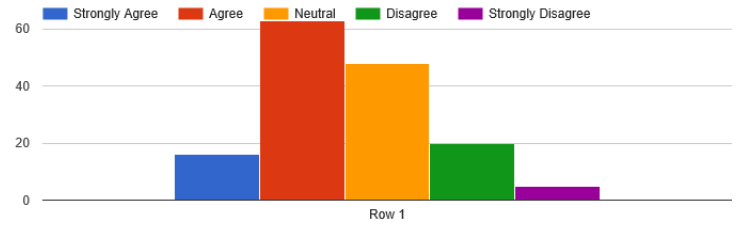
READERSHIP PATTERN	Average Mean
[A] I usually read newspapers and magazines based on availability	3.71

Majority of the respondents are of the view that they usually read newspapers based on availability as in today's scenario time constraint is the major factor and today's youth nowadays are very addicted to digital media. Although it has its own positives and negatives too, but for TOI it impacted in a positive way. There are still some villages where delivery of physical copy is an issue or a bit late so in that case online platforms helps a lot in a positive way and capture more and more customer base in the long run.



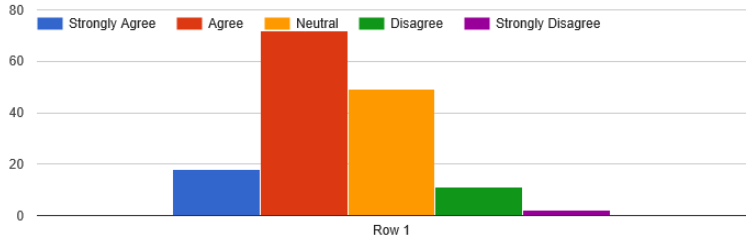
READERSHIP PATTERN	Average Mean
[B] I prefer E-magazines to Print magazines	3.41

A vast majority of the respondents are of the view that they usually read newspapers electronically i.e. E- Newspapers. As in today's scenario there is time constraint for working people and digitization is prevailing so for that TOI has an on-line platform to make their customers in tackled with the brand for longer period of time and as a result switching over costs drastically drops down.



READERSHIP PATTERN	Average Mean
[C] Promotional schemes are an important factor to buy a newspaper or a magazine	3.42

gain a larger number of respondents are of the view that promotional schemes moderately impact the consumes as over a period of time for people TOI becomes part of their lives and whether any promotional scheme exist or not, the situation is such people want to anyhow read TOI. Basically they are the one who are reading it for over 20-30 years that now the major concern is reading TOI, whether it's under any subscription or on cash it hardly matters as it is a necessity of majorly 80% of the houses.

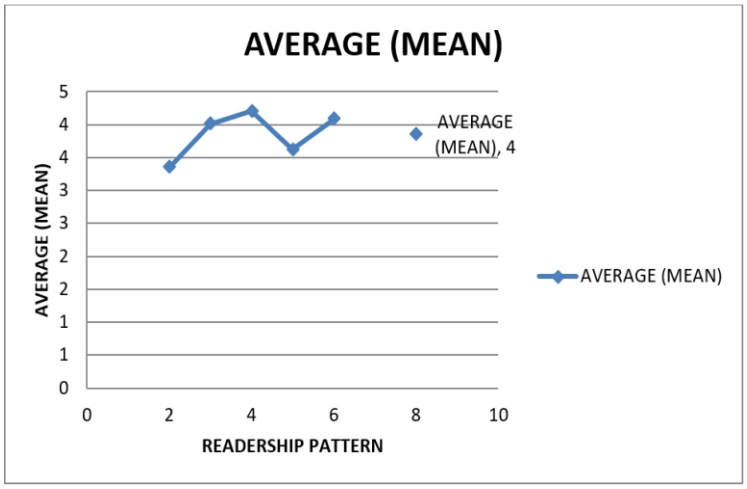


READERSHIP PATTERN	Average Mean
[D] Magazines are a good source of information	3.61

Yet again a majority of the respondents are of the view that the newspapers provided by TOI has advertisement but at the same time are informative too as opposed to other newspapers. As the main agenda that each newspaper brand tries to focus on is providing adequate and relevant knowledge to its customers so ultimately it adds some value to the lives of the readers.

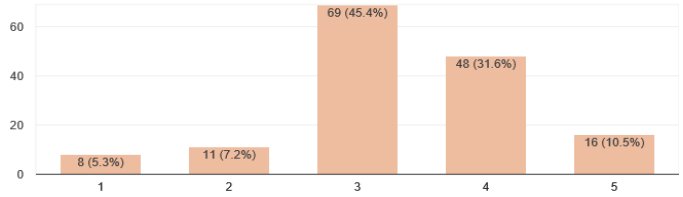
OVERALL DATA ANALYSIS: AVERAGE MEAN (READERSHIP PATTERN) RESULT USING SPSS

		READERSHIP PATTERN					
		Count	[B] I prefer E-magazines to Print magazines Count	[D] Magazines are a good source of information Count	[C] Promotional schemes are an important factor to buy a newspaper or a magazine Count	[A] I usually read newspapers and magazines based on availability Count	READERSHIP PATTERN Count
Average Mean		8	0	0	1	0	0
	3.41	0	1	0	0	0	0
	3.42	1	0	0	0	0	0
	3.61	0	0	1	0	0	0
	3.71	0	0	0	0	1	0
	Average Mean	0	0	0	0	0	3

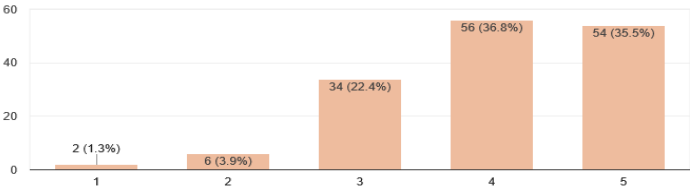


Rate the newspapers and magazines of TOI you prefer to read on a scale of 1 to 5

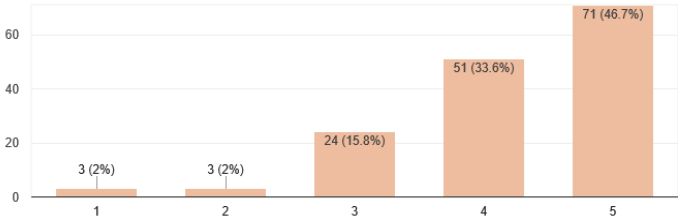
[A] Price *



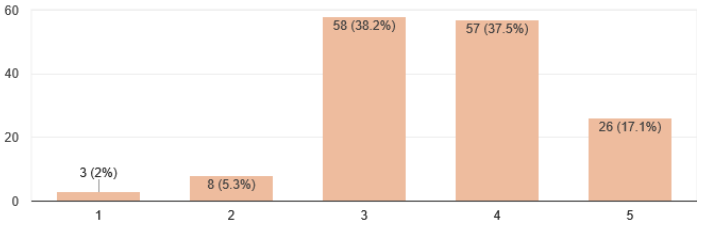
[B] Language *



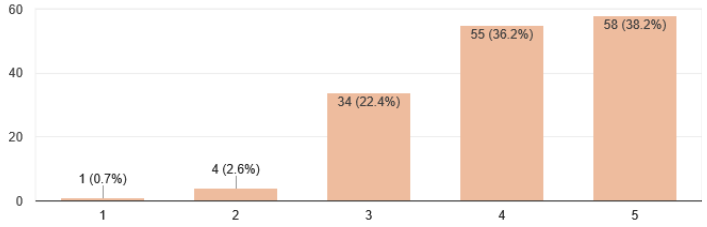
[C] Information *



[D] Entertainment *



[E] Service *



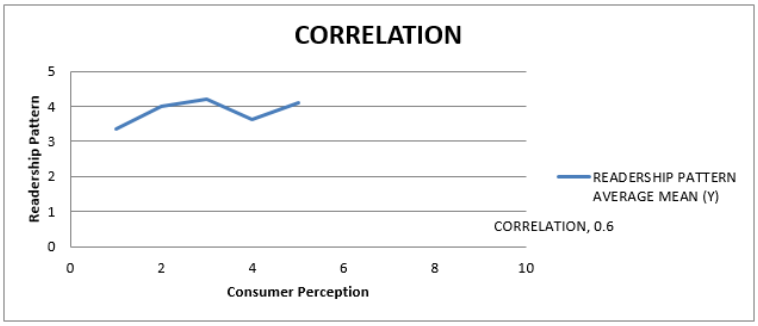
CORRELATION BETWEEN CONSUMER PERCEPTION AND READERSHIP PATTERN

CONSUMER PERCEPTION AVERAGE MEAN (X)	READERSHIP PATTERN AVERAGE MEAN (Y)
CORRELATION	0.6

CORELATION

CORRELATION BETWEEN CONSUMER PERCEPTION AND READERSHIP PATTERN

		Count
CORRELATION BETWEEN CONSUMER PERCEPTION AND READERSHIP PATTERN	CONSUMER PERCEPTION AVERAGE MEAN (X)	1
	CORRELATION	1



Define utility of correlation

The utility of the study of correlation is immense both in physical as well as social sciences. However, we shall confine ourselves to the utility of correlation studies in social sciences only.

(1) The study of correlation reduces the range of uncertainty associated with the decision making. In social sciences, particularly in the business world, forecasting is an important phenomenon, and correlation studies help us to make relatively more dependable forecasts.

(2) Correlation analysis is very helpful in understanding economic behaviour. It helps us in locating such variables on which other variables depend. This is helpful in studying factors by which economic events are affected.
(3) Correlation study help us in identifying such factors which can stabilize a disturbed economic situation.
(4) Correlation study helps us to estimate the likely change in a variable with a particular amount of change in related variable.
(5) Inter-relationship studies between different variables are very helpful tools in promoting research and opening new frontiers of knowledge.

Thus, correlation studies are widely used for variety of purposes and are considered to be basic tools for detailed analysis and interpretation of statistical data relating to two or more variables.

Perfect Correlation = 1	**No Correlation = 0**
A strong positive correlation = +0.70	**A strong negative correlation = -0.70**
A moderate positive correlation = +0.50	**A moderate negative correlation = -0.50**
A weak positive correlation = +0.30	**A weak negative correlation = -0.30**
	Perfect Negative Correlation = -1

Correlation value always lies between (**-1.0 to +1.0).** In above case, when we find **correlation** between **Consumer Perception** and **Readership Pattern**, is **0.6** which means that there is a moderate positive correlation between the two which is good for the company's future existence in the market.

CONCLUSION:

Nowadays the thought process of people is changing and they have started building perceptions based on their own beliefs and assumptions. In order to keep the older, core readers, new product line is launched separately for the less frequent readers. The editors always tries to show readers that the newspaper care about their issues. The research also provides some clues about how the growing number of people will affect news consumption. Also the interest in news increases with age.

Media plays a vital part in reporting information. The importance given by consumers, depends on the news quality, comprehensiveness, timeliness, reliability of media related information and issues. The responsibility of leading media house see and verify all the information that is being published meets the information needs of the readers. It provides base for such focussed readers and publish valuable news which they can obtain from reading a newspaper. From the study, we found that there is the need for awareness, regular promotions and advertisements to keep the consumer intact. Further, a strong and efficient distribution network which can outreach its competitors is the backbone of a company.

The Daily newspaper has been playing an important role in improvement of knowledge, and its services to the society is wonderful and splendid. It develops the business and employee and employer student and all knowledge fully.

RECOMMENDATION AND SCOPE OF FURTHER RESEARCH.

Lot of magazines are attracting potential readers. Hence in order to sustain in the market and lead its segment The Times of India has to work upon certain areas.

Distribution channel plays a very important role in newspaper industry. In some cities the distribution system of The Times of India is not proper, hence a need to strengthen the distribution channel. A more efficient sales team and a skilled workforce to convince, The Times of India house to subscribe the magazine. Promotional scheme offered to the consumers helped increasing the circulation of The Times of India magazines. Hence they need to be innovatively marketed and ensure of their outreach.

It would be a good option to launch regional magazines in local languages like Gujarati, Bengali etc. which is still an unexplored territory.

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