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STATEMENT OF THE PROBLEM

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HYPOTHESIS (ES)

RESEARCH METHODOLOGY

RESULTS & DISCUSSION

FINDINGS

RECOMMENDATIONS/SUGGESTIONS

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- Bowersox, Donald J., Closs, David J., (1996), "Logistical Management." Tata McGraw, Hill, New Delhi.
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A STUDY ON THE MODERATING EFFECT OF BRAND PARITY ON THE ANTECEDENTS OF BRAND LOYALTY

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ABSTRACT
Experience shows it is difficult to differentiate new products from those already on the market. Perceived brand parity relates to the perception among consumers when they feel that all major alternatives in a product class are alike or similar in some way they associate. Many researches has been conducted to find out the effect of brand parity but very few researches has been conducted to find out the factors that contribute towards brand parity. The consequences of not being able to differentiate brands are significant and one of the major factors that parity will affect is Brand Loyalty. Within this, Brand Loyalty can be looked into through the quality of the product that the customer perceives, the satisfaction the customer gains from the product and the trust that the customer will have in the brand. And for the marketer it leads to inefficiency to market the product. The need for differentiation is important, as it would help the marketer to communicate the key features of the product and let the customer perceive the differences between brands of the same product class. Despite anecdotal evidence that consumers hold strong brand parity beliefs, prior research has not investigated whether stable individual differences contribute to the difficulty of achieving differentiation. The results of this explanatory study suggest that perceptions of brand parity are guided and controlled by many individual factors, processing factors and market belief. This research has considered factors that might have some relationship with perceived brand parity as proved by the previous researchers. The model was constructed by adding different construct from the previously done research Brand Parity. The variables include perceived quality, customer satisfaction, trust, and brand loyalty. This study was carried out among the youth tech savvy population from different cities in India who have used deodorants least once in their life time. 131 samples were taken from the total 150 surveyed. The analysis of the structure was done using WARP PLS software which works with the partial least square method. The final result indicated that there is a significant influence of brand parity on the relationship between trust and the perceived quality of the product.

KEYWORDS
brand parity, perceived quality of the product, brand loyalty.

INTRODUCTION
The deodorant industry is highly fragmented & there is the issue of very little brand loyalty. More than 500 types of deodorant are available in the market at a point of time and of more than 300 brands. The deodorant market is largely youth centered, who constitute the bulk of India's population. Deodorants are taking the place of talcum powder just the way tooth paste displaced tooth powder a long time ago. There are many little known companies that are churning out smell-good sprays for customers in smaller towns and rural areas, people from middle income & low income group also taking up deodorants. Given the penetration of deodorant is still moderate and the consumption low, as compared to the other developed countries, we can say that the deodorant market is still in a phase of growth. Deodorant industry has low entry barriers and good margins, which makes it one of the most sought after industry by Indian Personal care & Pharmacy companies.

Deodorant comes under personal care category, but unlike the norm in personal care which is generally dominated by women; deodorant market is dominated by Men as per previous studies. Men generally work outdoors for long hours in hot & humid conditions. Hence, Men require deodorant to keep them fresh throughout the day. Deodorants are of different variety of types and the category is evolving along with change is consumer attitude & lifestyle. Besides deodorant, high-end perfumes in the men category are also doing considerably well due to the growing urge among urbane Indian males to stay well-groomed.

There are limited options for women but the segment is growing rapidly, as women have started switching to deodorants from Talcum Powder as well as perfumes. Women segment is still an untapped category with enormous growth potential. Indian women have traditionally preferred perfumes to deodorants, but this is changing slowly. Hindustan Unilever is one of the largest players in deodorant market & has products like Axe, Rexona and Dove, Yardley etc. Since there is very little brand loyalty, even new players can gain market share. Going forward, the brands that are able to drive penetration as well as usage would emerge as winners. There has been an upsurge in demand from small cities owning to change in lifestyle & aspiration of middle class; Deodorant companies are now shifting their focus from large metro cities and exploring other markets and gearing up to launch a range of affordable deodorants, perfumes and colognes during summers. Every marketing textbook exhorts marketers to differentiate themselves from competitors and competing brands (Lamb, Hair, McDaniel, Boshoff & Terblanche, 2004). The suggested differentiating variables range from branding to convenience to price differentiation. However, many if not most firms operate in markets where competing firms have very similar cost structures which make price competition difficult. As most of the differentiating variables suggested in the literature are easily copied by competitors, many firms are focusing their efforts on quality of product as a means of differentiation. Providing quality that meets or exceeds customer expectations has become a major source of competitive advantage for many firms as it reduces price elasticity and builds loyalty and customer retention (Anderson & Fomell, 1994:242). Perceived quality has also been shown to be an important driver of customer satisfaction both from a theoretical viewpoint (Heskett, Sasser & Schlesinger, 1997) and empirically substantiated in a variety of industries (Anderson & Sullivan, 1993; Churchill & Suprenant, 1982) including service industries such as tourism (Green & Boshoff, 2003) and health care (Woodside, Frey & Daly, 1989). The empirical findings of studies investigating the relationships between product quality, customer satisfaction and their outcomes have found broad support. Perceived brand parity is the belief in the consumers mind that major offerings in a product category are similar. Whether that is good or bad depends on the type of competitive strategy a firm has chosen. Kottman (1977) argued that product differentiation is the "sine qua non of successful marketing" (p. 146). Within a product category, when such differentiation does not exist (i.e., all brands are very similar), brand parity is said to exist. According to Kottman (1977) brand parity can be very problematic to the marketing managers. With a differentiation strategy, advertising should be used to fight parity perceptions. However, with a low price strategy, parity perceptions should be fostered in an attempt to discourage brand loyalty. Thus, a starting point for many advertising campaigns should be a clear understanding of both the parity perceptions in the marketplace and the need to either develop or fight brand loyalty.

REVIEW OF LITERATURE
PERCEIVED BRAND PARITY
It is "the overall perception held by the consumer that the differences between the major brand alternatives in a product category are small" (Muncy, 1996, p, 411), According to Muncy, if a consumer sees all the major offerings in a product category as being similar, then the brand parity of that product is high. On the

other hand, if the consumer sees major differences between products in a category, then the brand parity of that product is low. Though parity has been shown to be related to brand loyalty, the exact nature of the relationship has never been explored. Muncy (1990) discusses a research study which found a strong relationship between perceived brand differences and information search. He then explained these findings by stating that "it is only when the consumer perceives that differences actually do exist that he or she is motivated to find out information about what these differences are." Several variables have been shown to have a causal relationship with brand loyalty. It seems unlikely that parity is one of these causal variables (as seems to have been assumed in previous research; see Muncy, 1996). It seems more likely that parity would act more like a moderating variable, weakening the effect of variables such as satisfaction and perceived quality on brand loyalty. Currently, there is no study that has looked to see if indeed parity operates as a moderating variable in the development of loyal customers. The current article presents the results of such a study that empirically investigated this relationship.

COGNITIVE BRAND LOYALTY

Cognitive brand loyalty develops when there is a perceived superiority attributed to the brand (Jacoby and Chestnut, 1978). There are at least two variables that could cause that perception of superiority: the satisfaction with the exchange and the perception of quality. Some commentators, somewhat cynically, suggest that there are just two types of consumers, namely those who are intrinsically loyal to a brand or store and those potential switchers who, on every purchase occasion again choose between competing offerings (Colombo & Morrison, 1989).

Keeping customers loyal is not easy, but its importance can hardly be overstated. In fact, consumer loyalty has been described as the marketplace currency for the twenty-first century. By including value as a mediator of the trust-loyalty effect, the study has identified mechanisms that mediate the conversion of trust into loyalty. (Singh & Sirdeshmukh, 2000). It is widely considered that loyalty is one of the ways with which the consumer expresses his/her satisfaction with the performance of the product or service received (Bloemer and Kasper, 1995; Ballester and Aleman, 2001). The study by Bloemer and Kasper (1995) goes beyond this simple main effect between satisfaction and loyalty. They found that the relationship between customer satisfaction and loyalty was moderated by the amount of elaboration shown out by respondents on the evaluation of the brand choice. They specifically reported that the positive relationship between customer satisfaction and loyalty was stronger when satisfaction was clear. The results of this study imply that not all satisfaction is equal and that different types of satisfaction (i.e., manifest and latent), depending on the amount of elaboration used, will have different effects on loyalty.

BRAND TRUST

Studies have shown that trust is a critical factor for building Brand Loyalty (Chaudhuri and Holbrook, 2001; Morgan and Hunt 1994). Trust has gained a great concern from the researcher in marketing (Morgan & Hunt, 1994). According to Morgan & Hunt (1994), the presence of relationship commitment and trust is central to successful relationship marketing, not power and its ability to "condition" others. And when both commitment and trust are present, they produce outcomes that promote efficiency, productivity, and effectiveness. In short, commitment and trust lead directly to cooperative behaviors that are conducive to relationship marketing success. Morgan and Hunt (1994) describes trust as existing when one party has confidence in an exchange partner's reliability and integrity. Researchers of different fields have different viewpoint on the trust, so each scholar has defined BT differently. According to Cemal et al (2005) defined Brand Loyalty as the process of continuing and maintaining the valued and crucial relationship that has been created by the trust. In other words, trust and loyalty should be linked, because both are very critical in relational exchanges and valued relationship. It has been found that trust leads to loyalty (Moorman, et.al, 1992; Morgan and Hunt, 1994). Therefore, we can say that Brand Trust will contribute to both attitudinal loyalty and purchase loyalty.

CUSTOMER SATISFACTION

When customers are satisfied with a product they have purchased but then they think all brands are the same, then they are not likely to feel a superior concern for the brand they purchased. If parity perceptions are high, then, they are likely to think, "yes, I was satisfied but I would have been satisfied had I chosen any brand since they are all the same." However, if parity perceptions are low, a higher degree of satisfaction is more likely to be attributed to the brand that provided the satisfaction. Customer satisfaction is defined as "the emotional reaction following a disconfirmation experience which acts on the base attitude level and is consumption-specific" (Oliver, 1981, p. 42). From this perspective, it is to be assumed that an accumulation of transaction-specific assessments leads to a global assessment represented by perceived quality, the direction of causality is from customer satisfaction to service quality (Bitner, 1990; Bolton & Drew, 1991a, b; Carman, 1990; Parasuraman Et al., 1994). This means that customer satisfaction will precede the firm's perceived quality. Cronin and Taylor (1992), who conceptualize satisfaction as an aggregated construct, and that perceived quality precedes overall satisfaction.

PERCEIVED QUALITY

According to Oliver, Brand Loyalty has strongly held commitment to repurchase a product at regular basis (Oliver, 1999). The definition that has given by Oliver focuses both attitudinal and behavioral aspects. Brand Loyalty is considering as the most important factor that affects the choice of consumers (Rubionsion and Baldinger, 1996). Bristow et al (2002) explained that when objective quality of a product is hard to justify, buyers would take more abstract signals such as brand name as the key consideration. In the mind of customers, perceived quality defines perception, product quality and superiority. This effect on customers generally stimulates brand integration and exclusion which leads to positive consideration set before purchase decision.

According to MacConnell (1968), the perceived quality could explain the potency of Brand Loyalty because such kind of association has the potency to add differentially towards the customer behaviors and attitudes. Furthermore, the relationships between the variables will be explained ahead.

PERCEIVED QUALITY & TRUST

According to Andrea Everard and Dennis R Galletta (2006), Trust and credibility are important, related constructs. Trust refers to a "positive belief about the perceived reliability of, dependability of, and confidence in a person, object, or process" and credibility is a perceived quality of a site or the information contained therein, often equated with believability. That is, the perception of quality of a product plays an important role in a consumer's mind.

PERCEIVED QUALITY AND BRAND LOYALTY

Brand Loyalty has strongly held commitment to repurchase a product at regular basis (Oliver, 1999). The definition that has given by Oliver focuses both attitudinal and behavioral aspects. Brand Loyalty is considering as the most important factor that affects the choice of consumers (Rubionsion and Baldinger, 1996). Bristow et al (2002) explained that when objective quality of a product is hard to justify, buyers would take more abstract signals such as brand name as the key consideration. In the mind of customers, perceived quality defines perception, product quality and superiority. This effect on customers generally stimulates brand integration and exclusion which leads to positive consideration set before purchase decision. According to MacConnell (1968), the perceived quality could explain the potency of Brand Loyalty because such kind of association has the potency to add differentially towards the customer behaviors and attitudes. If the consumer feels that they see a significant change because of the brand they are using, they tend to get attached to the brand, thereby increasing brand loyalty.

CUSTOMER SATISFACTION & BRAND LOYALTY

When customers are satisfied with a product they have purchased but then they think all brands are the same, then they are not likely to feel a superior concern for the brand they purchased. This means that customer satisfaction will result in the increase of a brand's loyalty factors. Cronin and Taylor (1992), who conceptualize satisfaction as an aggregated construct, and that perceived quality precedes overall satisfaction.

TRUST & BRAND LOYALTY

The effects of brand trust on brand loyalty according to Azize Sahin, Cemal Zehir, Hakan Kitapc (2011) show that brand trust has a significant effect on brand loyalty. These results were supported by the Chaudhuri and Holbrook (2001); Morgan and Hunt (1994). Brand trust leads to brand loyalty (Chaudhuri and Holbrook, 2001). Because, trust creates exchange relationships between brand and customer (Morgan and Hunt, 1994). Thus, loyalty underlies the ongoing process of continuing and maintaining a valued and important relationship that has been created by trust (Chaudhuri and Holbrook, 2001). A consumer who trusts in the brand is more willing to remain loyal to it, to pay a premium price for it, to buy new products introduced under it in the existing and in new categories, and to share some information about his or her tastes, preferences, and behavior (Chaudhuri and Holbrook, 2001) Trusted brands should be purchased more often. Higher brand trust working through higher purchase loyalty to the brand. Trust is important in many high-involvement; premium product markets because consumers are exposed to costs associated with adverse selection and moral hazard, both agency costs.

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NEED/IMPORTANCE OF THE STUDY

Despite the importance of parity, there has been surprisingly little research on product level brand parity perceptions. This research was mainly done to understand the effect of brand parity on brand loyalty, customer satisfaction, perceived quality and trust among customers. The more marketers know about consumer evaluations and reactions to price, the more successful they should be in meeting profitability goals. There will occur issues to this when the customer would want to choose another brand's product considering them all to be the same. This would cause a loss to the brand that the customer overlooked. One of the biggest fears of many consumer goods companies is that their brands will slip into the world of high brand parity.

Indeed, high parity consumers do appear to be significantly more price sensitive. Also high parity consumers appear to use price less as a cue for product quality. It is believed that if high parity exists, consumers will be much more price sensitive. This forces them to compete on price, thus lowering their margins and reducing their profits. It is also believed that brand parity is inversely related to brand loyalty. Because high levels of brand loyalty create high levels of brand equity, such brand equity is difficult to create in a world of high parity perceptions. So naturally, anything that affects profits and brand equity is of great concern to those who manage brands.

The purpose of the study is to provide valuable information about the antecedents of brand loyalty that the customer associates with creating a sense of parity among products, for marketing management purpose. This research was mainly done to understand the effect of brand parity on brand loyalty and its antecedents like quality of the product, customer satisfaction and trust.

STATEMENT OF THE PROBLEM

This deodorant industry has many players; it is important for each player to be unique to be leader in the market. It is said that when brand parity is low- customers finds difference in each brands and when it is high customers finds the products of different brands as similar. This study demonstrates the role of Brand Parity in developing loyal customers. This study thus attempts to assess how Customer Satisfaction, Product Quality and Trust Drive Brand Loyalty in the deodorant industry and also how Brand Parity moderates the relationship between the variables.

OBJECTIVES

To study the moderating effect of Brand Parity on the relationship between Product Quality and Brand Loyalty, Trust and Brand Loyalty and between Customer Satisfaction and Brand Loyalty.

HYPOTHESES

H1: Perceived Quality Has a significant impact on Trust.
H2: Perceived Quality Has a significant impact on Brand Loyalty.
H3: Customer Satisfaction has a significant impact on trust.
H4: Customer Satisfaction has a significant impact on Brand Loyalty.
H5: Trust has a significant impact on Brand Loyalty.
H6: Brand Parity has a moderating effect on the relationship between Perceived Quality & Trust.
H7: Brand Parity has a moderating effect on the relationship between Perceived Quality & Brand Loyalty.
H8: Brand Parity has a moderating effect on the relationship between Trust & Brand Loyalty.
H9: Brand Parity Has a moderating effect on the relationship between the relationships between Customer Satisfaction & Brand Loyalty.
H10: Brand Parity has a moderating effect on the relationship between Customer Satisfaction & Trust.

RESEARCH METHODOLOGY

TYPE AND NATURE OF STUDY

The framework or the blue print for conducting this particular study is an explanatory design which aims at explaining the influence of brand parity on brand loyalty. This is done to establish and explain the relationship between the dependent and the independent variables. The dependent variable is brand loyalty and the independent variables are Perceived quality of the product, customer satisfaction, trust and all these are moderated by the variable brand parity.

Primary data was collected through survey method with the help of structured questionnaire.

SAMPLING DESIGN

The sample frame of this particular is the customers of deodorants who regularly use or have used them, and are residing in different cities in India. As our research problem is to identify the influence of parity perceptions on how brand loyal the customers are, the sample is also taken from customers who have used deodorants of different brands. The sample size is 131 and was done by convenience sampling method.

DATA COLLECTION METHOD

Data was collected by using structured standardized questionnaire. All items in the model were measured using Likert scales. Four variables were measured using a 5 point Likert scale and one variable was measured using a 7 point Likert scale. Data was collected using a questionnaire that was given to customers by hand as well as incorporating it into Google forms and sending them to customers.

SCALE OF MEASUREMENT

Customer Satisfaction (CS) – The scale for Customer Satisfaction was adopted from the study entitled 'The Role of Brand Parity in Developing Loyal Customers' IYER, R. and MUNCY, J.A. (2005), Journal of Advertising Research.
CS1. My experience with the deodorant was good.
CS2. I am happy that I decided to use this deodorant.
CS3. My use of this deodorant worked out as well as I thought it would.
CS4. I am sure it was the right thing to use this deodorant.
Cognitive Brand Loyalty (BL) – The scale for Cognitive Brand Loyalty was adopted from the study entitled "Measuring Perceived Brand Parity" James A. Muncy, Advances in Consumer Research Volume 23, © 1996.
BL1. If I went to the store and they were out of my favorite brand of deodorant, 1 would simply purchase another brand.
BL2. Only under extreme circumstances would I consider purchasing a brand of deodorant different from the one I usually buy.
BL3. There are other brands of deodorant which are just as good as the one I usually purchase.
BL4. To me, the brand of deodorant I usually purchase is clearly the best brand on the market.
If the store was out of my favorite brand of deodorant, I would go somewhere else or wait until tater to buy some.
Brand Parity (BP) - The scale for Cognitive Brand Loyalty was adopted from the study entitled "Measuring Perceived Brand Parity" James A. Muncy, Advances in Consumer Research Volume 23, © 1996.
BP1. I can't think of many differences between the major brands of deodorants.
BP2. To me, there are big differences between the various brands of deodorants.
BP3. The only difference between the major brands of deodorants.
BP4. A deodorant is a deodorant; most brands are the same.
BP5. All major brands of deodorants are basically alike.

Perceived Quality (PQ) - The scale for Perceived Quality was adopted from the study entitled done by Yoo et. Al (2000).

PQ1. This brand is of high quality.

PQ2. It is likely that the brand is very reliable.

PQ3. It is likely that brand is of very consistent quality.

PQ4. It is likely that the brand offers excellent features.

Trust (T)- The scale for Trust was adopted from the study entitled "The chain of effects from brand trust and brand affect to brand performance: The Role of Brand Loyalty" Arjun Chaudhuri; Morris B Holbrook, Journal of Marketing; Apr 2001.

T1. I trust this brand.

T2. I rely on this brand.

T3. This is an honest brand.

T4. This brand is safe.

All constructs in this model were measured using Likert scale. Four of them were measured using a 5-point scale and one was measured using a 7-point scale. and the analysis were done using WARP PLS and SPSS.

RESULTS & DISCUSSION

PRELIMINARY ANALYSIS

The survey was conducted among 131 respondents who have used deodorants. The demographics of the variable which was considered for this study includes the Gender, Age group, Marital Status and Educational Qualification. The statistical analysis of the study is done using WARP PLS software and SPSS software (IBM Statistics 21). The developed model was tested using WARP PLS software. From the statistics performed, the following results were obtained.

DEMOGRAPHICS OF THE RESPONDENT AGE

TABLE 1: AGE

		Frequency	Percent	Valid Percent	Cumulative Percent
	18-25	69	52.7	52.7	52.7
	26-35	47	35.9	35.9	88.5
Valid	35-40	15	11.5	11.5	100.0
	Total	131	100.0	100.0	

The analysis was done using SPSS software (IBM Statistics.21) a descriptive statistics tool. From the analysis of demographic variable, we could infer that the majority of the respondents were between the age group of 18-25 which accounted for 52.7% of the total sample size and the remaining 35.9% belongs to the age group of 26-35 and 11.5% to the age group of 35-40.

TABLE 2: GENDER

		Frequency	Percent	Valid Percent	Cumulative Percent
	Male	49	37.4	37.4	37.4
Valid	Female	82	62.6	62.6	100.0
	Total	131	100.0	100.0	

Now when we move on to the gender wise classification 62.6% of the respondents were female and 37.4% male which indicates that the majority of the respondents who were willing to take part in the survey was female respondents.

TABLE 3: EDUCATIONAL QUALIFICATION

		Frequency	Percent	Valid Percent	Cumulative Percent
	Higher Secondary	3	2.3	2.3	2.3
	Bachelors	61	46.6	46.6	48.9
Valid	Post Graduate	67	51.1	51.1	100.0
	Total	131	100.0	100.0	

Now looking on to the educational qualification profile, majority of the respondents have done their undergraduate education at 46.6% and pursuing their post-graduation at 51.1%.

TABLE 4: MARITAL STATUS

		Frequency	Percent	Valid Percent	Cumulative Percent
	Single	92	70.2	70.2	70.2
Valid	Married	39	29.8	29.8	100.0
	Total	131	100.0	100.0	

Among the respondents, 70.2% were single and 29.8% were married.

TABLE 5: DESCRIPTIVE STATISTICS

	N	Minimum	Maximum	Mean	Std. Deviation
Customer Satisfaction	131	1	5	3.90	.897
Brand Loyalty	131	2	5	3.01	.747
Parity	131	1	4	2.67	.878
Product Quality	131	1	5	3.88	.964
Trust	131	1	7	5.35	1.330

From the above table descriptive we could find that all the construct in the model is not having an above neutral response which is seen as ranging from a minimum value of 1 to 5 for a 5-point scale and 1 to 7 for a 7-point scale with a standard deviation above 0.5 for all. Parity is the variable that seems to be having a below average response with a mean of 2.67 and a standard deviation of 0.878. Perceived quality is having an above average response of 3.88 with a standard deviation of.964. Brand Loyalty is having an above average response of 3.88 with a standard deviation of.747. Trust is having an above average response of 5.35 with a standard deviation of 1.33. Customer Satisfaction is having an above average response of 3.90 with a standard deviation of.897.

The Independent sample t-test was carried out to find the difference in mean for the response to different construct's sample belonging to the male and female respondents in the sample.

TABLE 6

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
Customer_Satisfaction	Equal variances assumed	.863	.355	.305	129	.761	.050	.163	-.272	.371
	Equal variances not assumed			.320	116.515	.749	.050	.155	-.257	.356
Brand_Loyalty	Equal variances assumed	1.364	.245	.054	129	.957	.007	.135	-.261	.275
	Equal variances not assumed			.055	104.043	.956	.007	.134	-.259	.274
Parity	Equal variances assumed	8.842	.004	1.951	129	.053	.306	.157	-.004	.616
	Equal variances not assumed			2.072	119.474	.040	.306	.148	.014	.598
Product_Quality	Equal variances assumed	.757	.386	-1.175	129	.242	-.204	.174	-.548	.140
	Equal variances not assumed			-1.226	114.563	.223	-.204	.167	-.534	.126
Trust	Equal variances assumed	.402	.527	-.557	129	.579	-.134	.241	-.610	.342
	Equal variances not assumed			-.578	112.922	.564	-.134	.232	-.594	.325

The test result indicates that all constructs in the model was found to be insignificant (p>0.05) which implies that no significant difference were found in the response irrespective of gender.

MODEL FIT INDICES

Goodness of FIT Indices were as follows:

TABLE 7

Average path coefficient (APC)	0.184	P=0.007
Average R-squared (ARS)	0.424	P<0.001
Average adjusted R- squared (AARS)	0.399	P<0.001
Average block VIF (AVIF)	4.276	ideally <= 3.3, acceptable if <= 5

All values satisfy the recommended criteria and hence the model is of a good fit.

TABLE 8: CORRELATION

		Customer Satisfaction	Brand Loyalty	Product Quality	Trust
Customer Satisfaction	Pearson Correlation	1	.361**	.853**	.794**
	Sig. (2-tailed)		.000	.000	.000
	N	131	131	131	131
Brand Loyalty	Pearson Correlation	.361**	1	.350**	.332**
	Sig. (2-tailed)	.000		.000	.000
	N	131	131	131	131
Product Quality	Pearson Correlation	.853**	.350**	1	.848**
	Sig. (2-tailed)	.000	.000		.000
	N	131	131	131	131
Trust	Pearson Correlation	.794**	.332**	.848**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	131	131	131	131

Customer Satisfaction is positively correlated to Brand Loyalty with a correlation coefficient of 0.361. Product Quality is positively correlated to Brand Loyalty with a correlation coefficient of 0.350. Customer Satisfaction is positively correlated to Trust with a correlation coefficient of 0.794. There is a strong positive correlation. Product Quality is positively correlated to Trust with a correlation coefficient of 0.848 which indicates a strong positive correlation. All these correlations are significant at the 0.01 level.

FIG. 1: STRUCTURAL MODEL PATH ANALYSIS

The relationship between Perceived Quality and Trust was significant at 0.05 level (p<0.01) and the path coefficient Beta is.68 which means a unit change in Perceived Quality can explain.68 change in Trust. The relationship between Perceived Quality and Loyalty was significant at 0.05 level (p=0.01) and the path coefficient Beta is.19 which means a unit change in Perceived Quality can explain.19 change in Brand Loyalty. The relationship between Customer Satisfaction and trust was significant at 0.05 level (p<0.01) and the path coefficient Beta is.25 which means a unit change in Customer Satisfaction can explain.25 change in Trust. The relationship between Customer Satisfaction and Brand Loyalty was significant at 0.05 level (p<0.01) and the path coefficient Beta is.26 which means a unit change in Customer Satisfaction can explain.26 change in Brand Loyalty. The relationship between Trust and Brand Loyalty was found to be insignificant. The overall R square value is 0.20 which means 20% of dependent variable could be explained using the independent variables (predictors) which shows that overall model is fairly good.

Moderation effect of Brand Parity can be observed on the relationship between Trust and Perceived Quality with a p value less than 0.01.

FINDINGS
HYPOTHESES

Hypotheses	Accepted/Rejected
H1 : Perceived Quality Has a significant impact on Trust	Accepted
H2 : Perceived Quality Has a significant impact on Brand Loyalty	Accepted
H3 : Customer Satisfaction Has a significant impact on Trust	Accepted
H4 : Customer Satisfaction Has a significant impact on Brand Loyalty	Accepted
H5 : Trust Has a significant impact on Brand Loyalty	Rejected
H6 : Brand Parity Has a moderating effect on the relationship between Perceived Quality & Trust	Accepted
H7 : Brand Parity Has a moderating effect on the relationship between Perceived Quality & Brand Loyalty	Rejected
H8 : Brand Parity Has a moderating effect on the relationship between Trust & Brand Loyalty	Rejected
H9 : Brand Parity Has a moderating effect on the relationship between the relationship between Customer Satisfaction & Brand Loyalty	Rejected
H10 : Brand Parity Has a moderating effect on the relationship between Customer Satisfaction & Trust	Rejected

The relationship between Perceived Quality and Trust was significant at 0.05 level (p<0.01) and the path coefficient Beta is.68 which means a unit change in Perceived Quality can explain.68 change in Trust. The relationship between Perceived Quality and Loyalty was significant at 0.05 level (p=0.01) and the path coefficient Beta is.19 which means a unit change in Perceived Quality can explain.19 change in Brand Loyalty. The relationship between Customer Satisfaction and trust was significant at 0.05 level (p<0.01) and the path coefficient Beta is.25 which means a unit change in Customer Satisfaction can explain.25 change in Trust. The relationship between Customer Satisfaction and Brand Loyalty was significant at 0.05 level (p<0.01) and the path coefficient Beta is.26 which means a unit change in Customer Satisfaction can explain.26 change in Brand Loyalty. The relationship between Trust and Brand Loyalty was found to be insignificant. The overall R square value is 0.20 which means 20% of dependent variable could be explained using the independent variables (predictors) which shows that overall model is fairly good. Moderation effect of Brand Parity can be observed only on the relationship between Trust and Perceived Quality with a p value less than 0.01.

CONCLUSIONS

From the overall study we could understand that brand parity plays a very important role in the loyalty intentions of a customer. This is due to influence of factors such as the trust factor, perceived quality of the product, satisfaction etc. So that companies should enhance the trust factor so that people would rely and adopt brands when compared to the other brands that have the similar product offering. Another major finding of this study is that parity will influence the relation between the trust and the perceived quality that the customer has about the product. As to improve the other factors, the way in which marketers try to influence the customers could be used in different ways and enhanced so that the real benefit of the product can be seen and be able to be differentiated in the eyes of the customer.

LIMITATIONS

The reliability of the study depends on the truthfulness of the population. The sample size is not enough to fully analyze a broad concept such as this. The convenience sampling technique used in the present research is not a fully representative profile of the population. Hence, we cannot confidently generalize the findings elsewhere. Items in the questionnaire may have been misinterpreted by the respondents

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CORPORATE SOCIAL RESPONSIBILITY - INITIATIVES ADOPTED BY INDIAN ENTERPRISES

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ABSTRACT
This paper examine the underlying mechanism of corporate social responsibility (CSR) and how CSR activities are taking place in the contemporary manner in the modern day business environment. It also provides the enterprises and managers dedication towards the protection and promotion of the society and environment. This article is prepared based on the available secondary data.

KEYWORDS
Indian enterprises, corporate social responsibility.

INTRODUCTION
Corporations around the world are struggling with a new role, which is to meet the needs of the present generation without compromising the ability of the next generations to meet their own needs. Organizations are being called upon to take responsibility for the ways their operations impact societies and the natural environment. They are also being asked to apply sustainability principles to the ways in which they conduct their business.

DEFINITIONS
➢ Corporate social responsibility (CSR) is a business approach that contributes to sustainable development by delivering economic, social and environmental benefits for all stakeholders. CSR is a concept with many definitions and practices
➢ Corporate social responsibility (CSR) is the way a corporation achieves a balance among its economic, social, and environmental responsibilities in its operations so as to address shareholder and other stakeholder expectations.

It is known by many names, including
Corporate responsibility,
Corporate accountability,
Corporate ethics,
Corporate citizenship,
Sustainability,
Stewardship,
Triple-E bottom line (economical, ethical, and environmental).

OBJECTIVES OF THE STUDY
1. To Study the CSR practices adopted by the corporate world, specifically by Indian Corporate houses.
2. To analyze the impacts of CSR practices on Corporate Brand Building.
3. To carry out the comparative study of the Brand building through CSR practices.
4. To study and compare different CSR Concerns responsible for the Brand Building.
5. To compare various CSR Concerns among the customers' perception towards Brand Building.
6. To compare various CSR Concerns among the business executives' perception towards Brand Building.

RESEARCH METHODOLOGY
The qualitative use of data sources predominantly drawn from the respective companies' websites as well as some of the other secondary data sources were employed in gathering the data for presenting this paper. This paper is prepared purely on the theoretical knowledge based on the secondary sources.

CONTEMPORARY CSR CONCEPTS
Corporate social responsibility is the terminology still widely used to represent business's social responsibilities. However, other terms have appeared that incorporate the consideration of economic responsibilities as well, including corporate sustainability, reputation management, social impact management, triple-E bottom line (TBL), and corporate citizenship.

CORPORATE SUSTAINABILITY
As with the definition of CSR, academics, consultants, and practitioners have formulated many definitions of corporate sustainability, some of which are similar to those for CSR. Corporate sustainability (CS) refers to corporate activities demonstrating the inclusion of social and environmental as well as economic responsibilities in business operations as they impact all stakeholders. Marrewijk identified five levels of CS that are similar to how CSR could be viewed:
• Compliance-driven CS—Involves following government regulations and responding to charity and stewardship considerations considered appropriate by society.
• Profit-driven CS—Consideration is given to the social, ethical, and environmental aspects of business operations provided they contribute to the financial bottom line.
• Caring CS—CS initiatives go beyond legal compliance and profit considerations where economic, social, and environmental concerns are balanced, as it is the right thing to do.
• Synergistic CS—Well-balanced and functional solutions are sought that create value in the economic, social, and environmental areas, as it is a winning approach for all stakeholders.

• Holistic CS—CS is fully integrated and embedded in every aspect of the corporation's activities, as this is important to the quality and continuation of life on this planet.

REPUTATION MANAGEMENT

Is any effort to enhance the corporation's image and good name? In the past, the focus of these efforts was on media and public relations, and, to some extent, crisis management. Today, reputation management is being extended to relations with all stakeholders. Many managers believe that reputation management enhances financial performance, improves competitive positions, and increases public approval of corporate activities, and studies support this view.

A successful process to implement reputation management involves several stages: the identification of a desired perception of the corporation, the recognition of the significance of image with all stakeholders, an awareness of the influence of interactions with stakeholders on the corporation's reputation, and continuous efforts at maintaining relationships with stakeholders.

Reputations take a long time to establish and can be destroyed quickly. As a result, a reputation can be an asset but at times a liability. Managers must understand all the factors that encompass a reputation and be aware of the measures used to differentiate a good reputation from a bad one. Examples are provided by surveys appearing in the media, including the "Canada's Most Respected Corporations" survey in The Globe and Mail, sponsored by KPMG and conducted by Ipsos-Reid; the "Canada's Best Managed Companies" survey in the National Post, sponsored by Deloitte, CIBC, and the Queen's School of Business; and the "Best Corporate Citizens in Canada" survey by Corporate Knights: The Canadian Magazine for Responsible Business. The purpose in describing these surveys is to establish that public measures assessing a corporation's reputation are available. It also establishes the importance of reputation and the need for managers to consciously monitor it.

SOCIAL IMPACT MANAGEMENT

One of the main advocates of social impact management is the Aspen Institute. The Institute defines social impact management as "the field of inquiry at the intersection of business needs and wider societal concerns that reflects and respects the complex interdependency between the two." This is very much a "business and society" approach, stressing the need for contemporary business to recognize and understand this interdependency if business and the society in which it operates wish to thrive. The Institute argues that this understanding is becoming increasingly important as corporations take on a bigger role and society increases pressure for corporations to address more essential social and environmental concerns.

The approach stresses the intersection of traditional business concerns (i.e., for financial or economic matters) and society's concerns for the consequences of the impact of the corporation (i.e., the social impact of business). Thus, social impact management is two directional: society's influence on corporations, and the corporations' influence on the social and environmental concerns of society.

The Institute believes that "social impact management, as a way of thinking about business activities, explicitly considers and evaluates three aspects of a business:

(i) **Purpose**: What is the purpose—in both societal and business terms—of a business or business activity?

(ii) **Social Context**: Are the legitimate rights and responsibilities of multiple stakeholders considered? Is a proposed strategy evaluated not only in terms of predicted business outcomes, but also in terms of its broader impacts—for example, on quality of life, the wider economy of a region, and security and safety?

(iii) **Metrics**: How is performance and profitability measured? What is being counted and what is not being counted? Are impacts and results measured across both short and long term time frames?"

TRIPLE BOTTOM LINE (TBL)

The triple-E (economic, ethical, and environmental) bottom line evaluates a corporation's performance according to a summary of the economic, social, and environmental value the corporation adds or destroys. A variation of the term is the triple-P bottom line: people, planet, profit. The narrowest meaning of the term is a framework for measuring and reporting corporate performance against economic, social, and environmental indicators. Recently, a broader meaning has been attributed to the term in that the concept is used to capture a whole set of values, issues, and processes that corporations must address in order to minimize any harm resulting from their value-adding or -destroying activities. This includes clarifying the corporation's purpose and taking into consideration all stakeholders. The triple-E bottom line approach is often the basis for corporate reporting of economic, ethical, and environmental responsibilities.

The triple bottom line approach has been criticized as being of limited value and even misleading. Norman and MacDonald argue that conceptually and practically the approach is not helping the discussion of CSR. The claims made are difficult to assess and amount to misleading rhetoric. The authors claim that the use of the triple bottom line may be providing a smokescreen behind which corporations can avoid ethical and environmental responsibilities and reporting.

FOR AND AGAINST CSR

There are two main points of view, whether business should be socially responsible or not.

1. Business has an only task to maximize profits; it should not do anything that does not suit this principle. It should not interfere in social problems, as it is a field of government regulation. The only way for business to help the society is to pay taxes and to provide people with work places.

2. Business is more than just economic unit, it is a part of complex surrounding consisting of various intermediaries like consumers, suppliers, mass-media, unions, employees and shareholders and it should definitely help the society, carrying out various social programs, cooperating with government. Social expectations concerning good corporate activities have already formed and there is nothing left for corporations but to follow them in order to be successful.

ARGUMENTS FOR

1. Favorable prospective in long run
2. Changing consumers' expectances and closer relationship with the society
3. Following moral standards and responsibilities
4. Creation of excellent reputation

ARGUMENTS AGAINST

1. Violation of profit maximization principle
2. The expenses on social programs mean costs for the company and these costs will be included into extra cost and thus will be indirectly paid by the consumers.
3. Business employees are not specialized in solving social problems and won't work effective enough

Actually nowadays, there is no choice. In spite of all disadvantages, most companies have started to develop social responsibility and CSR is necessary to be successful in the market and avoid contradictions with government, consumers and mass media.

FUTURE PROSPECT OF CSR

There are no doubts that this crisis will have a great impact on CSR throughout the world. Even European countries and the USA will feel the difference, but our country will be in a difficult situation. CSR in Russia is still forming and the crisis will put many companies in front of a reasonable question "Do we really need to be socially responsible?", moreover those who will answer "Yes" have a very big chance to face commercial problems and may be won't be able to carry out social supporting programs. As you know, it is very easy to stop, but hard to start again. So the companies will have 3 possible opportunities: to stop all social programs, to stop only several social problems and to carry on the main ones or to keep on with all the programs if they can afford them. In my study I hope to analyze all

the information I will get and to find out possible opportunities of CSR development in Russia because I'm sure that it is very important. The process of forming CSR will take a lot of time and effort, but the results worth this!

INITIATIVES BY INDIAN ENTERPRISES

ANAND CORPORATE SERVICES LIMITED

Anand has a longstanding commitment to addressing the needs of the society, in view of its belief that for any economic development to be meaningful, the benefits from the business must trickle down to the society at large. Anand is of the firm view that the corporate goals must be aligned with the larger societal goals. 25 years ago, the SNS Foundation, an expression of Anand's corporate social responsibility, was born. The objective of SNS foundation was comprehensive community development. The Foundation has created programs in the fields of health, education, natural resource management and life skills training, only to make sure that fellow humans could breathe easy.

APTECH LIMITED

Aptech Limited, a leading education player with a global presence, has played an extensive and sustained role in encouraging and fostering education throughout the country since inception. As a global player with complete solutions-providing capability, Aptech has a long history of participating in community activities. It has, in association with leading NGOs, provided computers at schools, education to the underprivileged and conducted training and awareness-camps.

Aptech students donated part of the proceeds from the sale of their art work to NGOs. To propagate education among all sections of the society throughout the country, especially the underprivileged, Aptech fosters tie-ups with leading NGOs throughout the country, including the Barrackpur-based NGO, Udayan, a residential school for children of leprosy patients in Barrackpur, established in 1970. The company strongly believes that education is an integral part of the country's social fabric and works towards supporting basic education and basic computer literacy amongst the underprivileged children in India.

AVON CYCLE LIMITED

The poor and ignorant of India's rural population turn to nearest towns and cities for healthcare. They face indifference and exploitation. Hope gives way to despair. This gave inspiration to AVON for locating Matakaushalya Devi, Pahwa Charitable Hospital. Mr. Sohan Lal Pahwa, AVON's Chairman and Principal Trustee of the hospital, spent a good part of his working life devoted to philanthropy. The hospital, in its 5th year of inception, has risen to serve a model healthcare facility boasting of some bold experiments in its very early years of existence. Its support since inception has been of the order of Rs. 3 core to date and it continues uninterrupted. Reaching out to the needy farther afield, the hospital holds regular camps in surrounding villages to propagate scientific approach to healthcare. Recently the hospital took the social responsibility concept a step further and formulated a scheme titled 'Celebrated Female Child' to enable and inspire positive and enduring environment for society's all–consuming passion for 'sons only' to end.

CISCO SYSTEM INC.

Philanthropy at Cisco is about building strong and productive global communities - communities in which every individual has the means to live, the opportunity to learn, and the chance to give back. The company pursues a strong "triple bottom line" which is described as profits, people and presence. The company promotes a culture of charitable giving and connects employees to nonprofit organizations serving the communities where they live. Cisco invests its best-in-class networking equipment to those nonprofit organizations that best put it to work for their communities, eventuating in positive global impact. It takes its responsibility seriously as a global citizen. Education is a top corporate priority for Cisco, as it is the key to prosperity and opportunity.

ICICI BANK LTD.

The Social Initiatives Group (SIG) of ICICI Bank Ltd works with a mission to build the capacities of the poorest of the poor to participate in the larger economy. The group identifies and supports initiatives designed to break the intergenerational cycle of poor health and nutrition ensure essential early childhood education and schooling as well as access to basic financial services. Thus, by promoting early child health, catalyzing universal elementary education and maximizing access to micro financial services, ICICI Bank believes that it can build the capacities of India's poor to participate in larger socio-economic processes and thereby spur the overall development of the country. The SIG works by understanding the status of existing systems of service delivery and identifying critical knowledge and practice gaps in their functioning. It locates cost effective and scalable initiatives and approaches that have the potential to address these gaps and supports research to understand their impact. This is undertaken in collaboration with research agencies, nongovernmental organizations (NGOs), companies, government departments, local stakeholders and international organizations.

INFOSYS TECHNOLOGIES LIMITED

Infosys is actively involved in various community development programs. Infosys promoted, in 1996, the Infosys Foundation as a not-for-profit trust to which it contributes up to 1%PAT every year. Additionally, the Education and Research Department (E&R) at Infosys also works with employee volunteers on community development projects. Infosys leadership has set examples in the area of corporate citizenship and has involved itself actively in key national bodies. They have taken initiatives to work in the areas of Research and Education, Community Service, Rural Reach Programme, Employment, Welfare activities undertaken by the Infosys Foundation, Healthcare for the poor, Education and Arts & Culture.

ITC LIMITED

ITC partnered the Indian farmer for close to a century. ITC is now engaged in elevating this partnership to a new paradigm by leveraging information technology through its trailblazing 'e-Choupal' initiative. ITC is significantly widening its farmer partnerships to embrace a host of value-adding activities: creating livelihoods by helping poor tribals make their wastelands productive; investing in rainwater harvesting to bring much-needed irrigation to parched dry lands; empowering rural women by helping them evolve into entrepreneurs; and providing infrastructural support to make schools exciting for village children. Through these rural partnerships, ITC touches the lives of nearly 3 million villagers across India.

MAHINDRA & MAHINDRA

The K. C. Mahindra Education Trust was established in 1953 by late Mr. K. C. Mahindra with an objective to promote education. Its vision is to transform the lives of people in India through education, financial assistance and recognition to them, across age groups and across income strata. The K. C. Mahindra Education Trust undertakes number of education initiatives, which make a difference to the lives of deserving students. The Trust has provided more than Rs. 7.5 Crore in the form of grants, scholarships and loans. It promotes education mainly by the way of scholarships. The Nanhi Kali project has over 3,300 children under it.

SATYAM COMPUTER SERVICES LIMITED

Alambana (support) is the corporate social responsibility arm of Satyam Computer Services Limited, formed to support and strengthen the vulnerable and under-privileged sections in urban India. Registered as Satyam Alambana Trust in 2000, Alambana aims at transforming the quality of life among urban population. Alambana's services are directed primarily at the disadvantaged sections in all the cities that Satyam have offices in. Volunteers from among Satyam associates and their family members lead the services and perform the required tasks.

TATA CONSULTANCY SERVICES

The Adult Literacy Program (ALP) was conceived and set up by Dr. F C Kohli along with Prof. P N Murthy and Prof. Kesav Nori of Tata Consultancy Services in May 2000 to address the problem of illiteracy. ALP believes illiteracy is a major social concern affecting a third of the Indian population comprising old and young adults. To accelerate the rate of learning, it uses a TCS-designed Computer–Based Functional Literacy Method (CBFL), an innovative teaching strategy that uses multimedia software to teach adults to read within about 40 learning hours.

DCM SHRIRAM CONSOLIDATED LIMITED

Shriram Fertilisers and Chemicals, is a unit of DSCL, located at Kota, 475 kms. Over the last 3 decades, various initiatives have been undertaken by the unit, in the Hadoti region (Kota, Bundi, Jhalawar districts) in ICU, ambulances, family planning, medical assistance; schools, scholarships, emphasis on girl child education; water to people and infrastructure.

GOODEARTH EDUCATION FOUNDATION (GEF)

Work of GEF was initiated in 1996 with a project in the Rai Bareilly district in Uttar Pradesh. The four-year project covered 63 government schools and benefited 15,000 children. GEF is currently implementing projects in Thane district, Maharashtra (in 56 schools & balwadis), Alwar District, Rajasthan (this Project is being implemented in partnership with the NGO Bodh Shiksha Samiti, covering 71 schools & balwadis) and Solan district, Himachal Pradesh (10 Balwadis). GEF Objectives include providing equal opportunities in pre-primary& primary education to all children, and quality of education by ensuring that it is relevant, effective and activity based.

HINDUSTAN CONSTRUCTION COMPANY (HCC)

HCC plays an active role in CSR initiatives in the fields of Health, Education, Disaster Management, and Environment. Disaster Resource Network DRN is a worldwide initiative, promoted by the World Economic Forum (WEF).Trained volunteers and equipment resources from Engineering Construction & Logistics companies will complement the existing efforts of Government, NGO's and International Organizations in disaster management. It was during the WEF annual meet that the massive earthquake struck Gujarat in January 2001. The need for a trained and effective participation from industry was first felt there. The members of Engineering and Logistics segment of WEF came together to establish this network. The idea was further strengthened during the 9/11 incident where again the industry participated in the relief operations. DRN Worldwide was formally launched in New York in January 2002. And shortly thereafter, DRN - India Initiative was launched.

INDIA ALUMINUM COMPANY LIMITED

The Women's Empowerment project was initiated by Indal-Muri in Jharkhand where the Company operates an alumina refining plant. It was implemented in collaboration with an NGO, CARE-Jharkhand. The central problem this project has attempted to address is the very low socio-economic condition of the rural and tribal population of Silli block caused by low agricultural productivity, lack of or low cash income, unresponsive health/ Integrated Child Development Services (ICDS) schemes. The Project has helped set up around 100 Self Help Groups so far, which are running successfully with members trained in various vocational income–generating skills, agricultural methods for better yields and health care initiatives. About 2000 women have been brought into the fold of this activity helping to improve not just their own lives but the quality of life of their children and families as well.

JCB INDIA LTD.

JCB India adopted a Government school, in the vicinity of the company premises as its social responsibility. They strongly believe that children are the foundation of our nation and they could be helped, we could build a better community and society tomorrow. The reason for adopting this particular school was the poor management of the school in terms of infrastructure, resources and quality of education. The company's commitment to the school goes much beyond just providing monetary support towards infrastructure and maintenance of school building.

CONCLUSION

Thus, it is concluded that corporetes around the world are showing their concern even on the other stakakeholders including society at macro level. In the recent past companies are trying to adopt CSR initiatives in a contemporary manner addressing various societal issues.

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SOCIAL ACCOUNTING REPORTING AND PROFITABILITY OF COMPANIES IN NIGERIA: EVIDENCE FROM THE BUILDING AND CONSTRUCTION SECTOR

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ABSTRACT

The concept of economic activity reporting is extended to include social welfare activities where a business is not only responsible to its shareholders but also to its entire stakeholders. This study examined how profitable it is for Building and Construction companies in Nigeria to practice and report on social activities. The study was motivated by the fact that shareholders are majorly interested in return on their investment. However, the main objective of this study was to determine the relationship between Social Accounting Reporting (Education Programmes Cost and Community Development Cost) and Profitability (Return on Equity) of Building and Construction companies in Nigeria. Descriptive research design was adopted in the study and data for this study were obtained from financial reports of five Building and Construction companies quoted on the Nigerian Stock Exchange from 2009 to 2014. The data were analysed using multiple regression technique. The results showed that there is insignificant negative relationship between Education Programmes Cost (EPC); Community Development Cost (CDC) and Return on Equity of Building and Construction companies in Nigeria. The results indicated that given the current practice of Social Accounting Reporting (SAR), the perceptions of investment in SAR are not good predictors of the ROE of Building and Construction companies in Nigeria. Based on the results of the data analysis, it was concluded that, there is no significant relationship between Social Accounting Reporting and Profitability of the Building and Construction companies in Nigeria. Hence, it was recommended among others that Building and Construction companies should treat Social Accounting Reporting Costs as expenses not as distribution of profits. This implies that SAR costs should form part of statement of comprehensive income for the year instead of appropriating it from profit after tax.

KEYWORDS
Nigeria, social accounting reporting, building and construction sector.

1. INTRODUCTION

Social Accounting became an issue in United Kingdom in 1970, but today, reporting social impact of business activities has become a global practice and is based on Global Reporting Initiative (GRI) and International Standards Organisation (ISO) framework (Bastian, Laura & Staffan, 2014). The published ISO guidelines are frequently translated and adopted as a national standard by the ISO members. Social Accounting reporting is seen by management of companies as more than a collection of initiative; motivated by business benefit, because companies have a great deal of flexibility within Social Accounting framework (Nkaiwalei, 2011). However, the issues that represent a company's Social Accounting Reporting focus vary by business, size, sector and geographical region (Iya, Badiya & Faiza, 2015).

In Nigeria, there is no mandatory requirement for quantitative disclosure of social information in financial reports either under the Companies Act or as per International Financial Reporting Standards (IFRS). Therefore, any social accounting practice by Nigerian companies is purely voluntary (Makori & Jagongo, 2013). In as much as Social Accounting is voluntary, there is bound to be bias in what is reported (Wood & Sangster, 2005). Therefore, "Social Accounting Reporting" is used to describe a company's obligation to be accountable to its entire stakeholder in all its operations and activities and it relates to the collation and communication of data – financial, quantitative and/ or qualitative about an organisation's interactions with society (Gray, Collison & Bebbington, 1998).

Social Accounting Practices include a wide range of activities such as; employment, training and advancement of disabled person, community development, health, safety in addition to welfare at work of the employees of the company, the involvement of employees in the affairs, policy and performance of the company and so on (CAMA, 1990). To ascertain the level of Social Accounting Reporting, Appah (2011) carried out a study on social accounting disclosure in the financial report of Nigerian companies. He discovered that thirty (33) companies out of forty 40 representing eighty two and a half percent (82.5%) from various industry grouping made social accounting disclosure at least one year in their financial report between 2005 and 2007. And these disclosures were voluntary and largely qualitative made under the director's report and note to the accounts.

However, expenditure on Social Activities may result in the creation of assets or liabilities. Therefore, management of companies has to balance its need to make a profit and social consideration. Although empirical research carried out in the developed nations and theoretical research showed that Social Accounting reporting (SAR) increases profits of companies (Shehu, 2013). This supposition may not hold in less developed nations such as Nigeria due to the understanding and practice of Social Accounting. Moreover, measuring the benefits associated with SAR is extremely challenging, if not impossible because of the current practice of Social Accounting Reporting. Daferighe (2010) observed that that valuation is an important input into social cost-benefit analysis and that to value societal costs is both difficult and controversial.

In the literature, the empirical analyses provide contradictory evidence of the relationships between Social Accounting Reporting and profitability of companies in Nigeria. For instance, Uwuigbe and Jimoh (2011), Ilaboya and Omoye (2013), Shehu (2013), Ajide and Aderemi (2014), found positive relationship between Social

Accounting Reporting and Profitability of companies in Nigeria. On the other hand, Bessong and Tapang (2012), Babalola (2013) Folajin, Ibitoye and Dunsin (2014) found negative relationship. The previous studies have been on Oil and Gas, Banking and Manufacturing sectors based mostly on profit after tax as performance measurement and reporting score as Social Accounting Reporting measurement. However, companies' involvement in social transactions notwithstanding, companies' owners' attention is focused on the return on their investment. Thus, the focus of this study is to investigate profitability in practicing and reporting Social activities using Nigeria as a reference source.

1.1 STATEMENT OF THE PROBLEM

The concept of economic activity reporting is extended to include social welfare activities where business is not only responsible to its shareholders but also to its entire stakeholders. Companies are sometimes reluctant to increase the level of reporting because of the associated cost of SAR which includes: cost of collating and preparing the required information, the cost of disseminating information and the anticipated cost consequences of exposing disclosure that will lead to loss of returns. However, the cost associated with Social Accounting Reporting can be so high such that will demand both costs and associated benefits to be reported. More often, the benefit side of the analysis is difficult to measure because of the numerous factors that are involved in earning revenue and the difficulty of measuring public view and companies' reputation. Therefore, the determination of how to report the social actions taken by a company and the impact on the Company and its environment is the social accounting problem. It seems Social Accounting Reporting will pose a burden on profitability of companies in Nigeria. In view of the disparity in the literature between Social Accounting Reporting and Profitability of companies in Nigeria, no empirical study has been carried out on Building and Construction sector of the Nigerian economy. Thus, this study seeks to determine the relationship between Social Accounting Reporting measured by Reported Education Programme Cost (EPC) and Community Development Cost (CDC); and Profitability measured by Return on Equity (ROE) of companies in the Building and Construction sector of the Nigerian economy.

1.2 OBJECTIVES OF THE STUDY

The main objective of this study is to determine the relationship between Social Accounting Reporting and profitability of companies in Nigeria. The specific objectives are to:

1. Find out the Social activities reported in financial statements of companies in Nigeria.
2. Collate social cost reported in the financial statements of companies in Nigeria.
3. Determine the relationship between Community Development Cost and Return on Equity of companies in Nigeria.
4. Determine the relationship between Education Programs Cost and ROE of companies in Nigeria.

1.3 HYPOTHESES OF THE STUDY

The following hypotheses are formulated for this study and are stated in the null form:

Ho_1 There is no significant relationship between Community Development Cost and Return on Equity of companies in Nigeria.

Ho_2 Education Programmes Cost is not significantly related to the Return on Equity of companies in Nigeria.

The study is significant in the sense that it will contribute to the existing literature in its methodology and findings. The result of the study would provide information on the impact of SAR on the profitability of Building and Construction companies in Nigeria and would serve as evidence to support or refute the claim that Social Accounting Reporting influences economic result of companies in Nigeria. However, the study could be of immense benefit to management, investors, Government and future researchers. Hopefully the findings of this study would influence management strategies and will management to understand full implication of investment in corporate social reporting. It would aid investors in taking investment decision and would also influence government policies. Also, the results of this study may encourage the Nigerian government to make Social Accounting Reporting mandatory in the future.

The scope of study is basically on Social Cost reported and Return on Equity of five (5) companies from Building and Construction sector of the Nigerian economy for six (6) years (2009 – 2014). The five companies are selected because the result of the pilot survey for this study showed that they consistently published Social Cost from 2009 to 2014. Presumably too, it is the assumption of the researcher that these are companies whose operations have much negative impact on the society and are deeply engaged in social activities than the companies in other sectors. The companies are: Julius Berger Plc, Dangote cement Plc, Ashaka Cement Plc, Lafarge Cement Wapco Plc, and Roads Nigeria Plc. These give a panel data of 30 observations.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 THE CONCEPT OF PROFITABILITY

Profitability is the degree to which an organization can effectively utilize its available funds and assets and convert them into profit (Obehioye, Adeyemi & Augustine, 2013). It is one of the factors in which a company's performance is measured (Sanusi, 2009). However, accounting variables can be used in measuring the profitability of companies in the context of Social Accounting Practice (Duke & Kankpang, 2013). Thus, the accounting variable used in this study is Return on Equity (ROE). This variable is essentially a financial efficiency measure that seeks to establish the extent to which companies generate sufficient returns to cover their cost of expenditure. The ROE is the preferred variable for this study because shareholders are always interested in the return on their investment. ROE as a fundamental indicator of a company's ability to increase its earnings per share reveals how well a company is using its money to generate additional earnings. However, according to Ilaboya and Omoye (2013), ROE is the ratio of Net Profit after tax to equity capital. The ratio is usually expressed in percentage.

According to Ehi- Oshio, Adeyemi & Enofe (2013), the determinant factors in profitability are numerous which include internal and external factors in the shaping of a company's earnings. The internal factors relate to a company's specific characteristics and they include: liquidity and leverage (Mahamed & Hazem, 2013). On the other hand, the external factors represent both industry and macroeconomic conditions which include: interest rate and inflation (Emre, 2013). However, Aburime (2016) identifies significant macroeconomic determinants of bank profitability using a panel data set comprising 1255 observations of 154 banks over 1980 - 2006 period and macroeconomics indices over the same period. The regression results reveal that interest rate, inflation, monetary policy and exchange rate are significantly macroeconomic determinants of bank profitability in Nigeria. Therefore, these determinants may be adopted in any sector of the Nigerian economy. However, only internal factors that determine profitability are considered in this study.

2.2 SOCIAL COSTS

The results of an activity are often accompanied by externality. If the external impact causes loss of welfare, it is called a negative externality but if it gives rise to increased welfare it is a positive externality. An important feature of externality is that the corresponding costs termed social cost are borne by the agent causing the externality. Therefore, social costs refer to all effects of the activity, both the direct ones, appropriated by the involved party, and the externalities, borne by others (Akbar, 1995). This implies that social costs should be incurred on externality and wholly and exclusively created by the operations of the business. It is obvious that companies have to bear social cost after their legal obligation to government who are well placed to handle and perform social activities. This consensus is based on the principles of environmental economics called: Polluter Pays Principles (PPP). The PPP is far from being applied everywhere because it is difficult to connect a specific loss of environmental value to a specific polluter. Thus, there are basic components of social costs relative to ease estimation and inclusion in most social cost analyses of environmental policies. Eric and Kurt (2001) name them as: real-resources compliance costs, government regulatory costs, social welfare losses, transitional costs, indirect costs.

(i) Real-Resources Compliance Costs: These are direct costs and the principal component of total social costs and are associated with purchasing, installing and operating new pollution equipment, changing the production process by using different inputs or capturing the waste product and selling or reusing them. The real-resources cost include unpriced resources that have opportunity costs associated with unpaid labour diverted from other productive uses and extra administrative costs associated with compliance.

(ii) Government Regulatory Costs: These include the monitoring, administrative and enforcement costs associated with new regulations. They also include the costs of setting up a new market when incentive-based regulations such as tradable permits are established.

(iii) Social Welfare Losses: These are the losses in consumer and producer surpluses associated with the rise in the price of goods and services that occurs as a result of an environmental policy.

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(iv) Transitional Costs are the value of resources displaced because of the regulation-induced reduction in production and the private real-resources costs of reallocating resources. Offsetting these cost, in theory, are regulation-induced increases in resources use in related market.

(v) Indirect Costs: These costs include the adverse effects of policies on product quality, productivity, innovation, and changes in market indirectly affected by the environmental policy. All of these have impact on the net levels of measured consumer and producer surplus.

However, according to Wajsman (1995), unplanned effects of companies' activities on the environment have the following direct consequences:

- People and other life forms will have to breathe unsafe air. This may cause actual disease, lost of enjoyment, put citizens in jeopardy and threaten their welfare both materially and non- materially.
- Building and art works some of which may be cultural heritage lose their beauty and magnificence.
- Fishes and other aqua-culture in lakes and downstream of the polluted rivers will die. This will result in economic losses to agriculture, gardening and sea food sources as well as lose of esthetic and recreation.
- Polluted air contribute to such macro-level effect as acid rains, the greenhouse effect, the ozone weakening of and erosion in the layer, the global warming of the planet and many other similar unfavorable phenomena.

Most of the consequences of the negative externalities are difficult to measure even with the application of basic and alternative method of social costing.

2.3 SOCIAL ACCOUNTING

Accounting is a measurement and communication process used to report the activities of profit and not- for - profit seeking organizations (Hermanson, Edwards & Maher, 1992). As a measurement and communication process for an organisation, accounting supplies information that permits informed judgments and decisions by users of the data. Social Accounting is the process of communicating the social and environmental effects of organization's economic actions to particular interest groups within a society and the society at large (Oni & Kabir, 2010). In addition to the companies' economic and legal obligation, they also owe the society some responsibility. But in the classical view, companies act in socially responsible fashion if they strove to utilize, as efficiently as possible, the resource at their disposal by providing the goods or services that the society wants and at the prices which the consumers were willing to pay (Aluko, Odugbesan, Gbadamosi & Osuagwu, 2004). Once this is done, classical economic theory assumed that business would maximize profit.

Damagum (2010) viewed Social Accounting practice as the practice by which companies voluntarily provide users with the information above statutory limit. Also, Social Accounting reporting is described as that process which involves the practices of measuring, disclosing and being accountable to internal and external stakeholders for organisation's performance towards the goal of sustainable development (Uwuigbe, 2011). Therefore, Social Accounting refers to decision and actions taken by companies for reasons beyond the companies' direct economic interest.

Social Accounting Reporting is the provision of information about the performance of a company in relation to its interaction with its physical and social environment (Gray, Collison & Bebbington, 1998). Social Accounting Reporting includes: interaction with the local community, level of support for developing countries, health and safety record, training, employment, education programms; and environmental performance. Therefore, Social Accounting Report is based on Global Reporting Initiative (GRI) framework and International Standard Organisation (ISO). However, Hess (2001) opins that to achieve participation in social reporting, the first step is to gain the necessary practical experience to develop standards that will be applicable to all companies. Without standard development, most companies will need some incentive to participate in social reporting process. Such incentives will include:

- Development of a compliance label given to corporations who produce social report that meet certain minimum SAR requirements.
- Giving tax deduction for expenses incurred in creating a social report or giving complying corporations preferential treatment for government contracts

2.4 CHALLENGES OF SOCIAL ACCOUNTING

Kotter and Hamel (2011) identified the major challenges why companies do not produce social accounting report to include:

- Fear that they may undertake a corporate social responsibility while competitors do not. This implies that they may incur expenses and refocus management talent which may place them at a competitive disadvantage.
- No acceptable standard for quantitative information to be reported and at what depth.
- Problem of identifying stakeholders, which implies that the audience for social report may be ambiguous which however may undermine the quality of the reporting generally.

However, Onyekwelu and Uche (2014) specified three main valuation approaches for social accounting. These are:

(i) Descriptive Approach: This approach advocates the listing of all corporate social activities which are reported in the form of short sections in the annual report to the shareholders or in separate publication dealing with corporate social responsibility. The disadvantage of this approach is in lack of quantification to enable good assessment of corporate responsiveness toward social responsibility.

(ii) Cost Outlay Approach: This approach lists corporate expenditure on each social activity undertaken and quantified in monetary terms. One major advantage of this approach is its allowance for comparing achievements between successive years but without disclosing the benefits made, therefore, it does not comply with the accounting matching concept. Secondly, it may include the inefficient programme.

(iii) Cost-Benefit Approach: This approach matches expenditure incurred on each social activity with the associated benefits. However, its benefits are usually difficult to quantify, because they are qualitative, intuitive and subjective.

Therefore, Social Accounting reporting of the majority of companies in Nigeria is based on descriptive approach while a few other companies based theirs on cost outlay approach.

2.5 ARGUMENT FOR AND AGAINST SOCIAL ACCOUNTING PRACTICES

The issue of an organisation being socially responsible had been highly contested. The argument has produced two schools of thought. One supporting the view that organisation should have a social responsibility and the other opposing it. However, according to Bessong and Tapang (2012) the following arguments for and against Social Accounting Practices are specified:

Argument for Social Accounting Practices

- It enhances the image of the Company: A favourable corporate image is crucial from the investor's point of view as investors are usually eager to buy stocks of an organisation that supports social responsibility activities.
- A mature and stable outlook: Studies have shown that shareholders make better decisions if more information is made available to them and the market tends to be more efficient.
- A better environment for Business: The creation of better social environment benefits both society and business. Thus, the society gains through the better neighbourhood and employment opportunities. A cleaner and safer neighborhood, on the other hand, means a more stable community for companies to operate.

Argument against Social Accounting Practices

- Profit maximisation: The primary aim of business is profit maximisation profit by concentrating strictly on economic activities and as long as it stays within the rules of the game, social concerns could reduce economic efficiency.
- The cost for Social Responsibility: Eventually, the society pays for social responsibility by business through either high prices or the company's product mix, which provides less consumer satisfaction. Social involvement creates an excessive cost for business and the citizens of the society ultimately pay for these costs.
- Difficulty in Measuring Social Responsibility: Social actions are often difficult to measure; thus creating problem of comparing potential benefits with the potential cost of social action taken by companies

2.6 THEORETICAL FRAMEWORK

The adopted theories for this study are the two normative theories of business ethics and Corporate Social Responsibility. One of the normative theories emphasizes putting a priority on shareholders' interest, while the other emphasizes putting a priority on larger business stakeholders' interest. The normative theories are shareholders theory and stakeholder theory.

Shareholder Theory

Shareholders theory was introduced by Milton Friedman in 1970. This theorist suggests that the traditional responsibility of companies is to produce and distribute goods and services in return for profit. The classical economists have viewed the whole idea of social Accounting as being incompatible with the concept of a free market economy and hence a free society. Friedman believes that the business of business is a business; that is, companies are created to make money not to oversee the social development of the society and that social development is best handled by the government or Non-Governmental Organisations (NGOs). Friedman also believes that when companies are involved in social issues, wealth is diverted to issues outside the core expertise of the managers and that solving a social problem is the responsibility of the state. He further observes that corporate philanthropy and other activities that are not directly related to generating shareholders' wealth are waste of shareholders money. This inefficient use of wealth, according to him, will negatively affect society in the long run. Unlike Friedman, both Corroll and Freeman believe that if a company creates value for its stakeholders, it will create value for it shareholder as well (Pfarrer, 2010).

Stakeholders' theory

Stakeholder has been defined as any individual or group who can affect or is affected by the action, decision, policies, practice or goals of the organisation (Ebiringa, Yadirichukwu & Ogochukwu, 2013). The stakeholders identified in a business planning and policy model include the investors, customers, employees, government and suppliers (Bassey, Sunday & Eton, 2013). Thus, Stakeholders' theory was introduced by Edward Freeman in 1988. Stakeholder theorists emphasize that taking all constituent groups into account is the better way to maximize overall firm performance. Stakeholders' theory does not view maximization of shareholders' wealth as the most efficient way to generate competitive advantage for companies.

However, Friedman is against the stakeholder's theory that does not see wealth maximization as the ultimate goal of business. He insists that there is one and only one social responsibility of business; which is the use of its resources and engaging in activities designed to increase its profits. To him a manager is an employee of the shareholders whose loyalty, first and foremost is to them. Thus, his sole objective must be to make profit and keep the company alive. He also asserts that when managers are allowed the freedom to use organisational resource for the good of the society, rather than strictly upholding the interest of the owners, such managers are being conferred with arbitrary and dangerous powers which they may misuse. He adds that increasing Social responsibility of companies ultimately means a slower growth or decline in the Gross National Product (GNP), that since companies pay tax to the government, it would be exploitative to expect the same companies to also utilize part of earning in a socially responsible manner, and that companies are neither equally profitable nor are in a position to undertake social investment (Aluko, Odugbesan, Gbadamosi & Osuagwu, 2004). The stakeholder concept can be viewed both as simple and complex because it is simple to identify a stakeholder but complex to handle the relationship between stakeholder and profitability.

However, since shareholders' interests are captured by the stakeholders' theory, this study is based on stakeholders' theory.

2.7 EMPIRICAL REVIEW

Ajide & Aderemi (2014) examined the effects of Corporate Social Responsibility activities (CSR) on banks profitability in Nigeria. Contents analysis was used to obtain data from the financial reports and accounts of twelve sampled commercial banks (now deposit money banks) in Nigeria for the year 2012. The data were analysed using Ordinary Least Squares (OLS) regression. The result showed that banks size and Corporate Social Responsibility (CSR) disclosure score have a positive relationship with bank profitability while owners' equity has a negative association with bank profitability.

Bessong &Tapang (2012) set out their study to determine the influence of social responsibility cost on the profitability of Nigerian banks. The study adopted exploratory research design and data were collected from five Nigerian banks through secondary sources and analysed using the Ordinary Least Square (OLS) method. The study revealed that social cost and pollution cost negatively influence profitability of the banks

Shehu (2013) examined the influence of corporate social responsibility on profit after tax of some selected deposit money banks in Nigeria. The study used secondary data from financial reports of some selected banks for the period 2006 to 2010 by means of content analysis. The study employed regression and correlation in analysing the result of the formulated hypothesis. Thus, based on the outcome of the result, it was shown that weak positive relationship exists between CSR and Profit after Tax (PAT) but that it was significant at 5%.

Babalola (2012) examined the relationship between corporate social responsibility and firm's profitability in Nigeria with the use of secondary data sourced from ten (10) randomly selected firms' financial reports and financial summary between 1999 –2008. The Ordinary Least Square was employed in the analysis of the collected data. Findings from the analysis showed that the sample firms invested less than ten percent of their annual profit to social responsibility.

Awan (2014) investigated the impact of leverage, liquidity and inflation on firms' profitability of the food industries of Parkistan. The data for the study was collected from fifty five (55) companies for six years (2006 – 2011) making a panel data of 330 observation. The result of the regression showed that: liquidity has a strong negative significant relationship with return on equity; leverage has a strong negative relationship with return on equity while inflation showed a positive relationship with profitability.

Ehi-Oshio, Adeyemi & Enofe (2013) analysed the relationship between capital structures, firm size, cash liquidity, financial leverage and corporate profitability. A panel data consisting of forty (40) randomly selected companies for five (5) years was used in the study. Ordinary Least Square regression was used to analyse the existing relationships among the dependent and independent variables. The result showed a positive relationship between firm size, financial leverage and corporate profitability while capital structure and liquidity exhibited negative relationship with corporate profitability.

Also, Egbide, Uwuigbe & Uwalomwa (2013) investigated the relationship between liquidity and profitability. The analysis was based on 30 manufacturing companies listed on the Nigerian stock exchange for the period 2006 – 2010. The results suggest that current ratio and quick ratio are positively associated with profitability while cash conservation period is negatively related with profitability of manufacturing companies in Nigeria. The association in all cases was statistically insignificant indicating low degree of influence of liquidity on the profitability of manufacturing companies. Hence it was recommended that the overall state of liquidity should be improved by establishing more realistic credit policy which would engender shorter cash conversion period (CCP), hence have a favourable impact on the profitability of the company.

3. METHODOLOGY

Descriptive research design was adopted in this study to determine the degree of association between Social Accounting Reporting and profitability of companies in Nigeria. The population of the study consists of Building and Construction companies listed on the Nigerian Stock Exchange (NSE) consistently from 2009 to 2014. As at December 2014, only twenty three (23) Building and Construction companies were listed on NSE. This constitutes the population of the study. Out of 23 Buildings and Construction companies listed on the Nigerian Stock Exchange as of 2014, Purposive sampling technique was used to select five (5) companies namely Julius Berger Nigeria Plc, Dangote Cement Plc, AshakaCem Nigeria Plc, Lafarge (Africa) Wapco Plc and Road Nigeria Plc. These companies were selected because they consistently reported social costs from 2009 to 2014. The data were mainly secondary data generated from financial reports of the five Building and Construction companies quoted on the Nigerian Stock Exchange for the period, Central Bank of Nigeria (CBN) statistical bulletin and the Nigerian Stock Exchange (NSE) Fact Books for the same period. Specifically, the data from the financial report was obtained from Director's report, Statement of financial position, and Statement of comprehensive income. Multiple regressions analysis was the analytical technique used to estimate the relationship between Social Cost and ROE. Correlation analysis was also conducted to make inference necessary for reaching valid conclusions. Thereafter, descriptive and inferential statistics were used to analyse the result of data analysis (these include: percentages, mean, coefficients, variance and ranks).

3.1 MODEL SPECIFICATION

Multiple regression analysis is adopted in this study. The multiple regression equation according to Zikmund (2003) is stated in a functional form as follows:

$Y_i = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$ ----------------- (1)

Where:

Y is the profitability of the companies measured by ROE. X is Social Accounting Reporting measured by reported Education Programmes Cost, Community Development Cost (CDC); and other control variables such as, Liquidity (LIQ) and Leverage (LEV).

Thus, ROE =f (EPC, CDC, LIQ, LEV,) ----------------------------------- (2)

Substituting the variables above in the multiple regression equation we have:

ROE= α + β_1EPC + β_2CDC + β_3 LEV + β_4LIQ + e ----------- (3)

Where :

ROE =Return On Equity. ROE is the ratio of Net Profit after tax to equity capital. The ROE ratio is usually expressed in Percentage.

α = Intercept.

β_1, β_2, β_3, β_4 = estimated coefficients of the independent variables.

EPC = Education Programmes Cost measured by expenditure on education related Programs.

CDC = Community Development Cost measured by expenditure on community development related Programmes.

LEV = Leverage measured by the ratio of total debt to total assets

LIQ = Liquidity measured by the ratio of current assets to current liability

e = Error term

4. DATA PRESENTATION AND ANALYSIS

The data presented in this section is the results of regression analysis of the relationship between Education Program Cost (EPC); Community Development Cost (CDC); the control variables [Liquidity (LIQ) and Leverage (LEV)] and Return on Equity (ROE) of Building and Construction Companies in Nigeria.

TABLE 1: DESCRIPTIVE STATISTICS FOR ROE, EPC, CDC, LIQ, LEV

	N	Minimum	Maximum	Mean	SD	Skewness		Kurtosis	
Variables	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ROE	30	0.10	0.80	0.38	0.19	0.77	0.43	0.55	0.83
EPC	30	0.02	15.23	3.12	3.94	1.51	0.43	2.09	0.83
CDC	30	0.00	139.81	16.24	26.63	3.68	0.43	16.46	0.83
LIQ	30	0.30	2.90	1.06	0.69	1.45	0.43	1.37	0.83
LEV	30	0.19	0.94	0.58	0.25	0.21	0.43	-1.50	0.83

Source: SPSS Output (2016)

Table 1 represents the descriptive statistics for the variables, which are ROE, EPC, CDC, LIQ and LEV. The mean of 0.38, 3.11, 16.24, 1.06 and 0.58 were obtained for ROE, EPC, CDC, LIQ and LEV respectively. The value of the skewness for ROE, LEV were less than 1 while that of EPC, CDC, LIQ were greater than 1. Also, the kutosis obtained for ROE and LEV was less than 1 while that of EPC, CDC, LIQ were all greater than 1 indicating a skewned distribution. This result suggests that the distribution of ROE, EPC, CDC, LIQ and LEV did not follow normal distribution. Therefore, to actually assess the normality of the distribution of the data, the Kolmogorov-Smirnov test was used. The detail result is presented in Table 2.

TABLE 2: SUMMARY RESULT OF NORMALITY TEST

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
ROE	.143	30	.122	.927	30	.041
EPC	.246	30	.000	.778	30	.000
CDC	.271	30	.000	.574	30	.000
LIQ	.259	30	.000	.808	30	.000
LEV	.188	30	.008	.886	30	.004

Source: SPSS Output (2016)

From Table 2, it is clear that all the five variables have p-value less than 0.05 which means that the distribution of these variables do not follow normal distribution. Hence, due to this result, the non-parametric correlation method known as Spearman rank Correlation was used to examine the relationship among variables. The result is presented in Table 3.

TABLE 3: SUMMARY OF THE SPEARMAN RANK CORRELATION RESULT

		ROE	EPC	CDC	LIQ	LEV
ROE	Pearson Correlation	1	-.200	-.311	.309	-.137
	Sig. (2-tailed)		.288	.094	.096	.472
	N	30	30	30	30	30
EPC	Pearson Correlation	-.200	1	.227	.142	-.286
	Sig. (2-tailed)	.288		.228	.454	.126
	N	30	30	30	30	30
CDC	Pearson Correlation	-.311	.227	1	-.141	-.450*
	Sig. (2-tailed)	.094	.228		.457	.013
	N	30	30	30	30	30
LIQ	Pearson Correlation	.309	.142	-.141	1	-.395*
	Sig. (2-tailed)	.096	.454	.457		.031
	N	30	30	30	30	30
LEV	Pearson Correlation	-.137	-.286	-.450*	-.395*	1
	Sig. (2-tailed)	.472	.126	.013	.031	
	N	30	30	30	30	30

Source: SPSS Output (2016)

Table 3 represents the Spearman Correlation result, the Spearman Correlation coefficient result shows that there is negative correlation between ROE and EPC (r = -0.200, p = 0.288, p > 0.05). This result implies that as the companies social accounting reporting increases, it ROE decreases though not significant at 5% (p> 0.05). Also, Building and Construction Companies' ROE was also found to be negatively related to its Community Development Cost (r = -0.311, p = 0.094, p> 0.05) and LEV (r = -0.137, p = 0.472, p> 0.05) shows negative relationship with ROE. The result indicates that as Community Development Cost increases, ROE decreases. Positive relationship was obtained between LIQ and ROE (r = 0.309, p = 0.096) which means that as liquidity increases, ROE also increases.

TABLE 4: MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.505a	.255	.135	.17331	1.781

Source: SPSS Output (2016)

Table 4 shows the multiple Correlation Coefficient of 0.505 with Adjusted R^2 of 0.135. This result implies that the independent variables explained 13.5% of the variation in ROE. The standard error of 0.1733 shows that 17.33% of the effect on ROE is explained by variables other than the independent variables considered

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in this study. The result of Durbin Watson which yielded a value of 1.781 shows no evidence of serial correlation of the error. Hence, the result can be used for policy purpose.

TABLE 5: ANOVA RESULT SUMMARY

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.257	4	.064	2.136	.106[b]
	Residual	.751	25	.030		
	Total	1.008	29			

Source: SPSS output (2016)

From Table 5, (ANOVA Result), the F-calculated of 2.136 was obtained with p-value of 0.106 with F-critical value of 2.76. The F-calculated is not greater than the critical F-values which mean that there is no significant effect of the independent variables on ROE.

TABLE 6: MODEL COEFFICIENT

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	.537	.159		3.379	.002					
	EPC	-.011	.009	-.226	-1.243	.225	-.200	-.241	-.215	.900	1.112
	CDC	-.003	.001	-.372	-1.753	.092	-.311	-.331	-.303	.664	1.506
	LIQ	.046	.056	.170	.830	.414	.309	.164	.143	.711	1.407
	LEV	-.223	.169	-.301	-1.319	.199	-.137	-.255	-.228	.571	1.750

Source: SPSS output (2016)

Table 6 represents the regression coefficient for the model parameters, EPC (β = -0.011, S.E = 0.009, Tcal. = -1.243, p = 0.225, p> 0.05), CDC (β = -0.003, S.E = 0.001, Tcal. = -1.753, p = 0.092, p> 0.05) and LEV (β = -0.223, S.E = 0.169, Tcal = -1.319, p = 0.199, p> 0.05) both had negative effect on ROE. This implies that as EPC, CDC and LEV increase, company ROE decreases. The result also shows that if other variables are held constant, for every N1 increase in EPC, ROE will decrease by 0.11 while for every N1increase in CDC, ROE decreases by -0.003. In summary, the result indicates that there is a negative effect of EPC and CDC on ROE. The Variance Inflation Factor (VIF) and tolerance were used to assess if there is any multicollinearity, the VIF of 1.112 and 1.506 were obtained for EPC and CDC, which indicates that there is no multicollinearity (VIF is less than 10). Also, the tolerance value were consistently smaller than 1.00, therefore extend the fact that there is complete absence of multicollinearity between the independent variables. Hence, we confirm the null hypotheses that there is no significant relationship between EPC; CDC and ROE.

5. FINDINGS

Figures generated from the financial reports of Building and construction companies in Nigeria revealed that, the amount committed to Social Accounting Reporting vary from one company to another and from year to year. This implies that companies exercise considerable control over the choice to report social activities and costs. However, the regression analysis result in Table 3.5 depicts a negative relationship between Social Accounting Reporting measured by EPC (Education Program Cost); CDC (Community Development Cost) and Profitability of Building and Construction companies in Nigeria measured by ROE (Return on Equity). This is in accordance with the a priori expectation which state that there is no significant relationship between EPC; CDC and ROE. This also implies that: (i) the more the investment in Education related programs by Building and Construction companies in Nigeria, the lower their Return on Equity; and the less the investment in Education related program, the higher their Return on Equity, (ii) the more investment in Community Development related programs by the companies, the lower their Return on Equity and vice versa. These results suggest that if the companies continue to invest in Social Accounting Reporting with the current practice, their long run existence may by threaten because the reporting is made by appropriating profit after tax. The findings of this study are consistent with the study of Bessong and Tapang (2012); and Shehu (2013) but contradict with the view of the stakeholders' theorist that if a company creates value for its stakeholders, it will create value for its shareholders.

6. CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it is concluded that:

Investment in Education Related Programme has insignificant negative relationship with Return on Equity of Building and Construction Companies in Nigeria. Cost of social action taken by Building and Construction Companies in Nigeria in relation to Community Development programme has insignificant negative relationship with Return on Equity of the companies. These results indicate that the current practice of Social Accounting Reporting may be inadequate and need modifications. Considering the conclusion of this study, the following recommendations are made:

i.   Building and construction companies in Nigeria should be driven to prepare more relevant and credible Social Accounting Reports by focusing on the issues that are material to the business and their key stakeholders so as to balance the need of the stakeholders and their need to make a profit.

ii.   Government agencies responsible for policy formulation should develop viable Social Accounting Reporting Standards that will enhance and harmonize quantitative social reporting practices as well as enhancing returns of companies in Nigeria. For instance, a percentage (%) of the average net profit made by the companies during block of three years should be given to Social Accounting Reporting.

iii.   Like any other expense, Social Accounting Reporting expenses should be treated as expenses not distribution of profits. This implies that SAR expenses should form part of statement of comprehensive income for the year instead of appropriating it from profit after tax.

iv.   Preferential treatment for government contracts should be given to socially responsible Building and Construction companies in Nigeria.

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APPENDIX
Data for ROE, EPC, CDC, LIQ, LEV

TABLE 7

YEAR	ROE	EPC	CDC	LIQ	LEV
2009	0.42	1.68	9.36	0.7	0.9
2010	0.36	0.16	1.1	0.6	0.9
2011	0.48	0.63	2.86	0.6	0.7
2012	0.5	5.15	8.54	1.6	0.94
2013	0.29	0.91	2.32	0.9	0.9
2014	0.3	0.69	0.82	1.1	0.9
2009	0.33	7.9	36.07	2.9	0.35
2010	0.49	0.32	28.86	1.2	0.46
2011	0.42	5.36	24.41	0.6	0.43
2012	0.35	6.55	2.22	1.5	0.33
2013	0.36	3.27	13.8	0.9	0.3
2014	0.29	15.23	28.91	0.5	0.33
2009	0.11	6.04	2.84	1.6	0.49
2010	0.1	0.14	37.06	0.3	0.59
2011	0.15	0.02	15.18	0.7	0.53
2012	0.6	6.68	2.14	1.9	0.26
2013	0.5	0.4	1.85	2.6	0.3
2014	0.8	0.53	2.7	2.6	0.28
2009	0.45	6.35	33.4	1.6	0.4
2010	0.44	0.15	39.4	0.3	0.49
2011	0.77	0.03	14.39	0.7	0.53
2012	0.21	0.1	18.51	0.7	0.54
2013	0.3	0.17	9.44	0.9	0.42
2014	0.1	6.79	139.81	0.6	0.19
2009	0.36	0.08	6.7	0.9	0.93
2010	0.35	1.63	0.35	**0.6**	0.92
2011	0.25	0.21	0.81	0.7	0.9
2012	0.26	3.49	2.21	0.7	0.85
2013	0.8	0.65	1.08	0.6	0.6
2014	0.26	12.25	0	0.7	0.85

ASSESSING THE LEVEL OF ASSERTIVENESS AMONG COLLEGE STUDENTS

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ABSTRACT

Assertiveness is defined as the quality of being self-assured, confident without being aggressive, Assertive behavior includes starting, changing, or ending conversations, refusing others' requests, if they are too demanding, questioning rules or traditions that don't make sense or don't seem fair, addressing problems or things that bother, expressing positive or negative emotions and being firm so that rights are respected. Aim of the present study is to assess the Level of Assertiveness among college students. The main objective of this study is to enhance the Level of Assertiveness among college students so that they can be successful not only in workplace but also in family life. One hundred and twenty healthy and well-motivated Undergraduate College students, sixty Males and sixty Females, studying B.A., (forty students; 20 Males and 20 Females), B.Sc., (forty students; 20 Males and 20 Females) and B.Com., (forty students; 20 Males and 20 Females) from Government First Grade College, Vijayanagar, Bengaluru, constituted as a sample for the present study, The students were administered with Rathus Assertiveness Scale to assess the Level of Assertiveness among Undergraduate College students and gender difference, if any, existing in the performance of the Male and Female College students. Results clearly indicate that B.A., and B.Sc., College students are more assertive (P <.001) than the B.Com., students. Females are better (P <.001) than the Males in enhancing the Level of Assertiveness. High level of assertiveness promotes success in the academic, workplace and family life.

KEYWORDS
level of assertiveness, gender difference, different academic disciplines, undergraduate college students.

INTRODUCTION

Assertiveness is defined as the quality of being self-assured confident without being aggressive (David Colman, 1996), Assertiveness is defined as a form of behaviour characterized by a confident declaration or affirmation of a statement without need or proof (Patterson, 2000). Assertiveness, the term and concept was popularized to the general public by books such as Your Perfect right: A Guide to Assertive Behaviour by Robert and Emmons (2001), When I Say No I Feel Guity by Smith (1975). How to cope using hr Skills of Systematic Assertiveness Therapy by Manuel (1975). Assertiveness includes behaviors such as starting, changing, or ending conversations, sharing feelings, opinions, and experiences with others, making requests and asking for favors, refusing others' requests if they are too demanding, questioning rules or traditions that don't make sense or don't seem, addressing problems or things that bother, being firm so that rights are respected Expressing positive and negative emotions.

Assertiveness as a social skill is a construct, which has a number of different dimensions, including the ability to express oneself without anxiety or aggression in different situations (M. Bouvard, et al., 1999). Assertiveness is about effective communication and this does not just mean choosing the right words to say in a given situation. Tone of voice, intonation, volume, facial expression, gesture and body language all play an important part in the message. you are sending to the other person, and unless all parts of the equation match, You will be sending a garbled message (Bishop, 2000). According to Galassi and Galassi (1978) "assertion is the direct and appropriate communication of a person's needs, wants and opinions without punishing, threatening, putting down others and doing this without any fear during the process."Culha and Dereli (1987) conducted a 7-week assertiveness training for elementary school students, who are identified as nonassertive based on Rathus Assertiveness Inventory. Pretest, Posttest and Control group design was used and results showed significant improvement with respect to the Experimental group on the assertiveness level of the students. Undergraduate students, who report high levels of social anxiety have been shown to be less assertive (Creed and Funder, 1998; LeSure – Lester, 2001). College students, who report high levels of social anxiety are viewed by their peers as being vulnerable to threat, while those lower in social anxiety are not viewed in this way (Creed and Funder, 1998). Low levels of assertiveness and high social anxiety may increase the risk of sexual victimization among college women (Schry, 2011). Assertiveness plays a pivotal role in the life of the college students. Developing Assertiveness promotes psychological well-being, leading to success in academic, workplace and family life. Nowadays, corporate selection looks for the Assertiveness in the selection of candidates for their concern. Hence, the present study is undertaken.

AIM
The main aim of the present study is to assess the Level of Assertiveness among college students.

OBJECTIVES
Assertiveness plays a major role in the life of the college students. Once the level of assertiveness is identified at an early stage among college students, students can be trained to enhance the Level of Assertiveness so that they can be successful not only in academic and workplace but also in the family life. This reduces attrition rate in the colleges.
1. To assess Level of Assertiveness among Undergraduate College students from Arts, Science, Commerce discipline.
2. To find out gender differences, if any, among Male and Female Undergraduate College students in the Level of Assertiveness.

VARIABLES
Independent Variables studied are College Students and Gender differences
Dependent Variable studied is Level of Assertiveness 2.

HYPOTHESIS
1. There is no significant difference in the Level of Assertiveness among different academic disciplines of Undergraduate College students (HO).
2. There is no significant Gender difference existing in the level of assertiveness among male and female students (HO).

SAMPLE

One hundred and twenty healthy and well-motivated Undergraduate college students, sixty Males and sixty Females studying B.A., (forty students; 20 Males and 20 Females), B.Sc., (forty students; 20 Males and 20 Females) and B.Com., (forty students; 20 Males and 20 Females) from Government First Grade College, Vijayanagar, Bangaluru, age ranging from 16 to 19 years, with the mean age of 17 years, constituted as a sample for the present study (Table 1 and Figure 2),

TABLE 2: SAMPLE CHARACTERISTICS

PARAMETERS	B.A.		B.Sc.		B.Com.	
	CONTROL	EXPTL.	CONTROL	EXPTL.	CONTROL	EXPTL.
MALES	10	10	10	10	10	10
FEMALES	10	10	10	10	10	10

FIGURE 1: SAMPLE CHARACTERISTICS

The group, made up of 40: ten Males and ten Females in the Control group are matched with ten Males and ten Females in the Experimental group (**Table 1** and **Figure 2**).

The students are administered with Rathus Assertiveness Scale to assess the Level of Assertiveness among Undergraduate College students and find out gender differences, if any, among Male and Female college students, existing in the Level of Assertiveness. Short details of the psychology test is given below:

Rathus Assertiveness Scale: This scale has been developed by Rathus (1973) to assess the Level of Assertiveness of the college students. This is a self-report test to find out Assertive Behavior. The statements are asked to indicate how characteristic or descriptive each of the statements is?, using the code given below.

+ 3 always   -1 Once in a while
+2 usually   -2 rarely
+1 sometimes   -3 Never

The scale comprises of thirty statements, which have to be rated as per the code given above.

Scoring: Standard scoring procedure adopted

Statistical Techniques Used: Data thus collected are subjected to the following statistical techniques to assess the Level of Assertiveness among Undergraduate College students:

1. Descriptive Analysis (Mean, Standard Deviation)
2. Differential Analysis (t-value)

RESULTS AND DISCUSSION

The findings of the present study are given on Tables 2 and 3 and Figures 2 and 3.

TABLE 2: COMPARISON OF MEAN ASSERTIVENESS SCORES OF THE B.A., (n=40), B.Sc., (n=40) and B.Com., (n=40) COLLEGE STUDENTS

Undergraduate students		N	Total	Mean	Sd	"t"Value	Interpretation
B.A	Male	20	253	12.65	3.05	<0.01	Significant
	Female	20	350	17.5	3.42		
B.Sc.	Male	20	286	14.3	1.15	<.001	Significant
	Female	20	393	19.65	1.58		
B.Com	Male	20	317	15.09	3.01	<.001	Significant
	Female	20	364	17.33	2.28		

Comparison of Mean Assertiveness scores of the Undergraduate College students of different discipline (Table 2). There is a significant difference (P <.001) existing in the Level of Assertiveness among Undergraduate College students. B.Com., students are better (P <.001) than the B.A., and B.Sc., students in enhancing the Level of Assertiveness. B.Com., students are better than the B.A., and B.Sc., students in enhancing the Level of Assertiveness. Hence, we rejects the hypothesis 1,i.e., There is no significant difference in the Level of Assertiveness among different discipline Undergraduate College students. Infect, there is a significant difference (P <.001) existing among Undergraduate College students. The results of the present study are corroborated with the research findings of Bouvafd et al (1999), Culha and Dereli (1987) and Creed and Funder (1998). High level of Assertiveness brings success in academic, workplace and family life.

FIGURE 2: MEAN ASSERTIVENESS SCORES OF THE UNDERGRADUATE COLLEGE STUDENTS
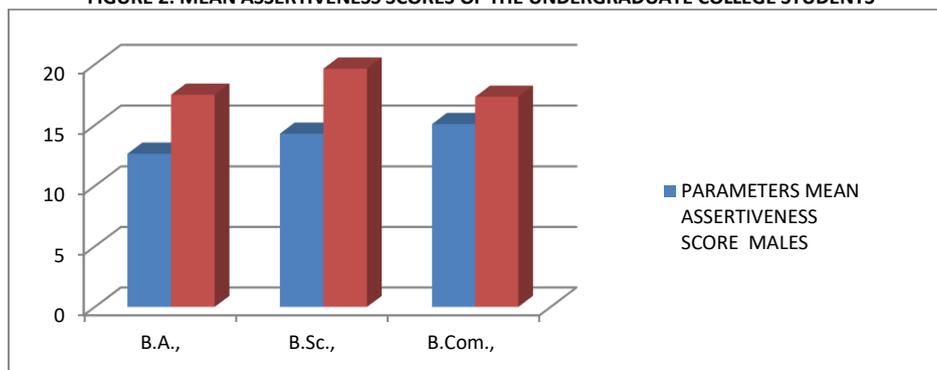

TABLE 3: GENDER DIFFERENCE: MEAN ASSERTIVENESS SCORES OF MALE (N=60) AND FEMALE(N=60) UNDERGRADUATE COLLEGE STUDENTS

PARAMETERS	Total Score	Mean	SD	"t"Value	Interpretation
Male	856	14.03	1.37	<.001	Significant
Female	1107	18.14	1.50		

Comparison of Mean Assertiveness scores of the Undergraduate Male and Female College students of different discipline. The result shows that Female students are better (P <.001) than the Males in enhancing the Level of Assertiveness Hence, we reject the **hypothesis 2.** i.e., there is no significant difference existing in the Levels of Assertiveness among Undergraduate Male and Female College students. Infect, Females are better(P <.001) than Males in enhancing the Level of Asser-tiveness in all the three disciplines. Findings of the present study are corroborated with the research conducted by Creed and Funder (1998) and LeSure Lester (2001). High level of Assertiveness brings success in academic, workplace and family life.

FIGURE 3: GENDER DIFFERENCE: MEAN ASSERTIVENESS SCORES OF MALE (N=60) AND FEMALE (N=60) UNDERGRADUATE COLLEGE STUDENTS
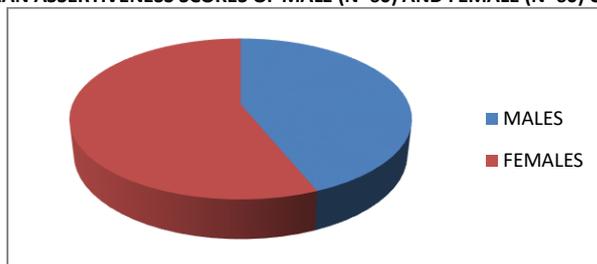
Therefore, undergraduate students of present study were taken into confidence and trained for healthy assertiveness training session by the Department of Psychology, in order to facilitate their coping skills and to prevent further psychological issues. The concern was appreciated by the students who were participants of the study, as well as the other Departments in the college.

SUMMARY AND CONCLUSIONS

Assertiveness plays a major role in the life of the college students. Once the level of assertiveness is identified at an early stage among college students, students can be trained to enhance the Level of Assertiveness so that they can be successful not only in academic and workplace but also in the family life. This reduces attrition rate in the colleges The present study was carried out to study the level of assertiveness among Undergraduate College students from different academic disciplines The following conclusions are drawn from the study:

1. Commerce students performed well in enhancing the Levels of Assertiveness
2. Female Undergraduate College students performed well in enhancing the Levels of Assertiveness
3. Assertiveness brings success in academic, workplace and family life.

SUGGESTIONS FOR FURTHER STUDY

1. In order to apply representative and comparative study, students drawn from other colleges of the Bengaluru University and rural background may be included in future studies.
2. In order to get more meaningful and comparative study, one or more independent variables may be included in future studies.

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SURVEY ON DIFFERENT TECHNIQUE FOR DETECTION AND RECOVERY OF MISBEHAVING NODE IN MANET

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ABSTRACT
A Self-ruling collection of mobile nodes communicating with each other with the help of wireless links either in a direct or indirect manner or rely on other mobile nodes is referred as MANET. The communication link may have some trouble conducted by the misbehaving nodes. Misbehaving nodes may degrade the performance of the overall network. In this paper, we studied the common communication routing protocols in MANET and detection techniques. As from the study, some of the nodes available in the communication link and refused to cooperate in packet transmission are called selfish nodes. A selfish node may give priority to battery power saving.

KEYWORDS
MANET, ad-hoc network, routing protocols, misbehavior detection.

1.   INTRODUCTION

Mobile Ad-hoc network is a network which includes mobile nodes (laptop, personal digital Assistants (PDAs) and wireless phones) with the uniqueness of self-organization and self-configuration which allow it to form a new network quickly. [1] A node may be capable of communicate with other nodes far away with the teamwork of intermediate nodes, forwarding the packets to the destination. In this multi-hop communication, each node acts as both host and router.

A variety of literature investigated that MANET possesses 4 kinds of nodes viz. i) regular node, ii) erroneous node, iii) selfish node, and iv) malicious node. A regular node is the one which is paying attention to set up communication with any other node for the purpose of forwarding a data packet. Erroneous node is the one with circuitry issues and faulty hardware design that potentially poses as a trouble for security protocols as well as for permitting reliable communication. While selfish node has a tendency to refuse to onward the data packet to the destined nodes in order to shop its resources, at the same time as malicious nodes usually keep dangerous intention to disrupt the traffic and steal the exclusive information. Fig 1. Suggests the communication model and node classification in MANET. [2]
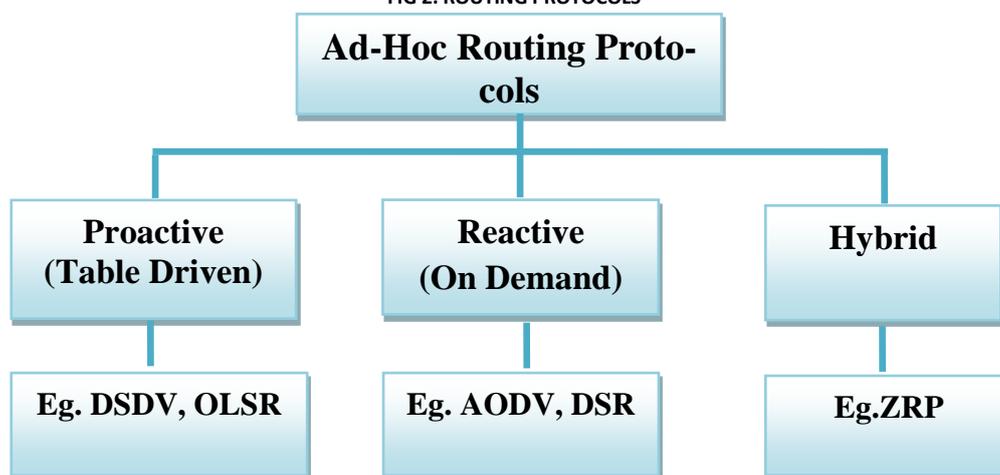
FIG. 1: TYPES OF NODES IN MANET
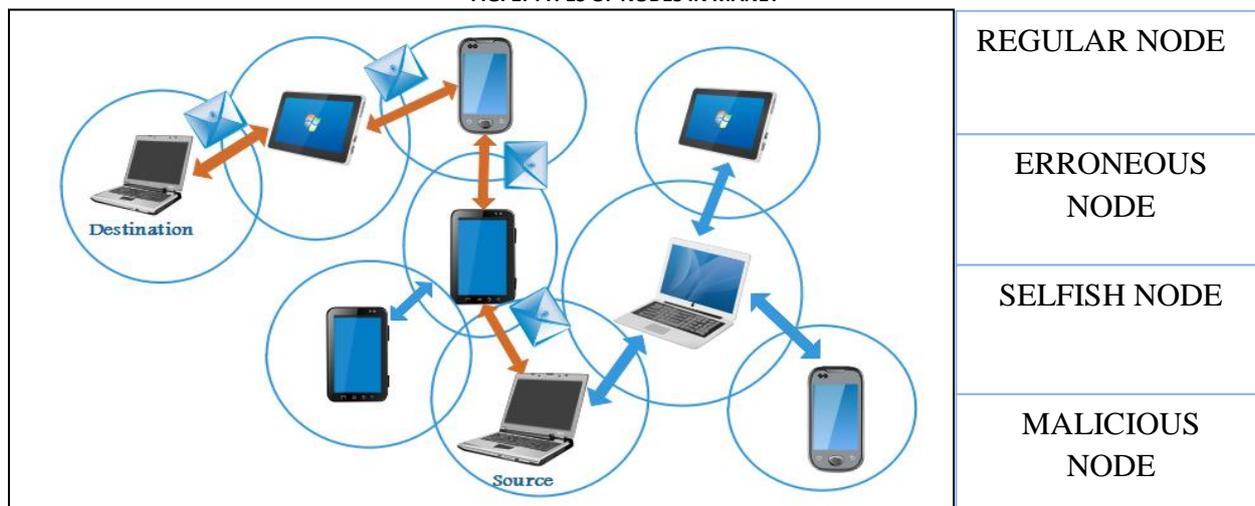
2.   STUDY ON AD-HOC ROUTING PROTOCOLS

The routing protocols are of these categories, which include proactive routing protocols, reactive routing protocols and hybrid routing protocols with respect to the routing topology used in MANET. The below Fig.2 mentions the primary classification of Ad-hoc Routing Protocol with examples. [3]

FIG 2. ROUTING PROTOCOLS

```
                    ┌──────────────────────────┐
                    │  Ad-Hoc Routing Proto-   │
                    │          cols            │
                    └──────────────────────────┘
          ┌──────────────────┼──────────────────┐
┌──────────────────┐ ┌──────────────────┐ ┌──────────────────┐
│    Proactive     │ │     Reactive     │ │     Hybrid       │
│  (Table Driven)  │ │   (On Demand)    │ │                  │
└──────────────────┘ └──────────────────┘ └──────────────────┘
┌──────────────────┐ ┌──────────────────┐ ┌──────────────────┐
│  Eg. DSDV, OLSR  │ │  Eg. AODV, DSR   │ │     Eg.ZRP       │
└──────────────────┘ └──────────────────┘ └──────────────────┘
```

2.1 Proactive (Table Driven) Protocols

In table-driven routing protocols, each node maintains one or more tables containing routing information to every other node in the network. All nodes update these tables to maintain a consistent and up-to-date view of the network. When the network topology changes the nodes propagate update messages throughout the network in order to maintain consistent and up-to-date routing information about the whole network.

2.1.1 (DSDV) Protocol

In this protocol, every mobile node within the network maintains a routing table listing all other nodes it has known both directly and through some neighbors. Each node has a single entry in the routing table. The entry will have information about the node's IP address, last known sequence number and the hop count to reach that node. In conjunction with those details, the table also maintains track of the subsequent hop neighbor to reach the destination node. The main contribution of the algorithm was to solve the routing loop trouble. [4]

2.1.2 (OLSR) Routing Protocol

OLSR is the table driven, proactive routing protocol designed for mobile ad-hoc networks. It exchanges routing information periodically and has path immediately available while wished. The OLSR protocol achieves optimization by way of determining for each node of the network a minimum subset of neighbors, referred to as Multi Point Relays (MPR) which is able to reach all 2-hop neighbors of the node. Usually, two kinds of routing messages are used a hello message and a Topology control (TC) message. Hello, messages are exchanged locally through neighbor nodes and aren't forwarded further to different nodes. In OLSR, only MPR nodes are answerable for forwarding TC messages. Upon receiving TC messages from all of the MPR nodes, every node can examine the partial network topology and can build a route to each node within the network. This message is used for route calculation.

Ex: Proposed SR-OLSR protocol was able to detect numerous attacks and mitigate the identical without affecting the best of service (QoS).

2.2 Reactive (On-demand) Protocols

These protocols take a lazy method to routing. The assessment of table-driven routing protocols, no longer all routes are maintained at each node as an alternative, the routes are created as and whilst required. While a source wants to send to a destination, it invokes the route discovery mechanisms to find the path to the destination. The route remains valid until the destination is reachable or until the route is no longer wished

2.2.1 Ad-Hoc On-demand Distance Vector (AODV)

AODV makes use of sequence numbers and routing beacons from DSDV but plays route discovery by the usage of on-demand route requests (RREQ); the same method as the DSR protocol. AODV is distinct to DSR in that it makes use of distance vector routing; this requires each node within the route to holding a temporary routing table for the duration of the communication. AODV has improved upon the DSR route request process the usage of an expanding ring search mechanism based upon incrementing time-to-live (TTL) up prevent immoderate RREQ flooding. Nodes inside an active route record the sender's address, sequence numbers and source/destination IP address within their routing tables, this information is utilized by route reply (RREP) updated construct opposite paths. AODV deals with node mobility the usage of sequence numbers up to date identify and discard outdated routes, this is blended with route errors (RERR) messages which can be sent while damaged links are detected, RERR packets travel up upstream updated the source informing nodes up to date delete the damaged links and trigger new route discovery if alternative routes aren't up-to-date.

2.2.2 Dynamic Source Routing (DSR)

The reactive DSR Protocol turned in up updated advanced via operation of the DSR protocol is damaged in up stages; route discovery phase and route maintenance phase, these phases are triggered on demand while a packet wishes to route. Route discovery phase floods the network with route requests if a suitable route is not available up on the route. DSR makes use of a source routing method up-to-date generate a complete route to the destination, this could then be updated temporarily in nodes route cache. DSR addresses mobility troubles through using packet acknowledgments; failure up to date receive an acknowledgment causes packets up to date be buffered and route error messages to be sent to all upstream nodes. Route error messages cause the route maintenance phase which removes wrong routes from the route cache and undertakes a new route discovery segment.

2.3 Hybrid Protocols

Hybrid routing is a mixture of the Proactive and Reactive routing protocol.

2.3.1 ZRP (zone routing protocol)

The zone Routing Protocol (ZRP) describes that takes gain of this truth and divides the entire network into overlapping zones of variable size. It makes use of proactive protocols for locating region neighbors (right away sending hello messages) as well as reactive protocols for routing functions among distinctive zones (a route is only established if wanted). Every node may additionally define its personal zone length, whereby the zone size is defined as the wide variety of hops to the zone perimeter. As an instance, the zone length may additionally depend upon signal strength, to be had power, a reliability of various nodes and so on. Even as ZRP isn't a very distinct protocol, it affords a framework for other protocols. To begin with, a node needs to find out its neighborhood which will be capable of building a zone and determine the perimeter nodes. [4]

3. EMPIRICAL STUDY ON MISBEHAVING NODES

Those nodes use the network and its services but they do not cooperate with other nodes. Such selfish nodes do not consume any energy along with CPU strength, battery and additionally bandwidth for retransmitting the data of other nodes and they reserve them only for themselves. The original AODV and DSR routing algorithms can be changed to detect such selfish nodes. [5]

3.1 Node Misbehavior

A node is marked as a misbehaving node when it avails from the network but it refuses to collaborate due to some motives. Those motives can be categorized into two primary kinds: honest and malicious reasons. The honest reasons are associated with collisions, channel errors and buffer overflow, even as the black hole, wormhole, and collision attacks are examples of the malicious attack. Such misbehaving movements bring about low packet delivery ratio and high packet delivery time, which in turn affects the overall performance of the MANET. Misbehaving nodes have 3 exclusive activities, which might be all described as misbehaving

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actions. Inside the first type, the node participates with network's nodes in routing discovery and maintenance operation, but, it refuses to forward the data packet. in the second type, the node does not make a contribution in both the routing lookup and data packet transmission. When the nodes switch its behaviors among the primary and second types, the third kind of misbehaving moves is presented. "Misbehavior" refers to a node that doesn't behave in a proper way and has an unusual behavior. In other phrases, if the behavior of node deviates from its specification or set of behaviors than the node is stated to be misbehaving [6]. Misbehavior takes place in following approaches:

• Delay Packets
• Drop Acknowledgements
• Delay Acknowledgements
• Drop packets and alter routing information
• Don't forward packet to keep its own resources
• Forward control packets while losing data packets. There can be numerous types of misbehavior. Some of them are indexed underneath:

➢ **Failed / Malfunctioned:** A node malfunctions due to hardware and software program problems, weather, radio channel, link breakdown, unintentional physical harm.
➢ **Selfish:** selfish nodes have passive misbehavior. It does not intend to without delay damage other nodes and does not cooperate. It saves battery life for very own communication. A selfish node is unwilling to spend CPU cycles and to be had network bandwidth to forward packets.
➢ **Malicious:** Malicious nodes have active misbehavior. It deliberately damages other nodes and interrupts network operations. A malicious node may drop the packets, modify the routing information. it is able to deliver priority to battery power saving.[7]

4. COMPARATIVE STUDY ON VARIOUS ALGORITHMS FOR DETECTING MISBEHAVIOR

1. Reputation-based selfishness prevention techniques for mobile ad-hoc networks
Alberto Rodriguez-Mayol et.al., [8] proposed a three detection approach that improves the ability of selfishness prevention protocol to discover selfish nodes and to increase the variety of valid routes. Those three techniques are RAM (Reset Activity Mode), WM (warming mode) & RFM (reset failure mode).The research of proposed strategies is applied with team & Marti's protocol.

2. Detection & REAction to timeout MAC layer Misbehavior (DREAM)
Lei Guang, Chadi Assi et.al., [9] proposed mechanism that identifies the malicious nodes the use of a set of monitoring and reaction techniques. It makes use of stage reaction, the primary stage is for reaction and the second degree is of punishment that could improve the network overall performance. This gadget gives the excessive accuracy in identifying misbehaved nodes. The first reaction system is very powerful to mitigate the misbehaving impact and enhance network overall performance.

3. Watch dog/ Pathrater method
Kachirski O et.al., [10] the method identifies misbehaving node through eavesdropping at the transmission of the subsequent hop. Whilst a node forwards packets, Watchdog verifies whether the subsequent node within the route forwards the packets or not. If the subsequent node refuses to forward the packets, then it is referred to as misbehavior. The advantages of Watchdog mechanism is that it may discover misbehaving nodes not in forwarding level but also in the level of connection. In other phrases, it identifies nodes no longer only in the link layer but additionally inside the network layer. Implementation of Watchdog is especially easy. Kachirski O et al., proposed the technique calculates "path metric" for every path. Like Watchdog, each node runs Pathrater. The node maintains a degree of other nodes identified in the network. The path metric which is collected from past experience can be calculated by combining the node rating with link reliability. After calculating the path metric for all reachable paths, the path with the highest metric can be chosen by the pathrater.

4. Ex.Watchdog Technique
Nasser and Chen et.al., [11] proposed techniques to identify IDS called Ex.Watchdog which is actually an extension of Watchdog. It also detects intrusion from malicious nodes and reports this data to the response system. The main feature of the proposed system is the ability to detect malicious nodes which can partition the network by falsely reporting other nodes as misbehaving and then it proceeds to protect the network. So, Ex.Watchdog solves the fatal problem of Watchdog.

5. Record and Trust-Based Detection (RTBD) Technique
Senthil Kumar Subramanian et.al., [12] proposed a technique in which every node maintains global trust state for all nodes which is recorded in trust table. The selfish nodes are detected based on their trust value and predefined threshold for selfishness, their neighbors can use this information to avoid working with them, either for data forwarding, data aggregation, or any other cooperative function

6. Cooperative Bait Detection Scheme (CBDS)
In Jian-Ming Chang et.al., [13] proposed Cooperative Bait Detection Scheme (CBDS) which is able to detect and prevent malicious nodes launching cooperative black hole attacks. It integrates with the proactive and reactive defense architectures and the source node randomly cooperates with a stochastic adjacent node.

7. Token-Based Umpiring Technique (TBUT)
Jeba Kumar Mohan Singh Pappaji Josh Kumar et.al., [14] proposed a unified approach for detecting and elimination selfish nodes in MANETs using TBUT. It is the token based umpiring technique where every node needs a token to participate in the network and the neighboring nodes act as an umpire. Umpire nodes will monitor the behavior of the nodes and detect if any node is misbehaving. It is very efficient with reduced detection time and less overhead.

8. Secure Objective Reputation-based Incentive (SORI) scheme
Qu He et.al., [15] present a Secure Objective Reputation-based Incentive (SORI) scheme to encourage packet forwarding and discipline selfish nodes. This scheme consists of three components. First, neighbor monitoring component monitors packet forwarding behavior of the neighbor nodes and a Neighbor Node List (NNL) which consists of details for all the neighbors of a node is maintained by each node. Second Reputation Propagation is built a record of reputation by using the NNL and shared this reputation with all nodes to identify the selfish node. Finally, a punishment scheme is used by punishment component to penalize selfish nodes. The unique feature of this scheme is that.

9. TWO ACK and S-TWO ACK schemes
Kashyap Balakrishnan et.al., [16] TWOACK and S-TWOACK, which can be easily added-on to source routing protocols such as the DSR protocol. The schemes detect selfish nodes (links) so that other nodes may avoid them in future route selections, with the aim of overall improvement in end-to-end packet delivery ratio.

10. Observation-based Cooperation Enforcement (OCEAN) scheme
Bansal et.al., [17] OCEAN scheme for malicious node detection that is based on direct observations. In which rating of the node is depend on the behavior of the node. If the node behavior is positive then the rating of the node increased otherwise if the observed behavior is negative the rating of a node is decreased by more value than that is used for increment. If the rating of a node decreases beyond faulty threshold then it is added to the faulty list. This list is broadcasting to be used as the list of nodes to be avoided. A route is rated good or bad depending on whether the next hop is on the faulty list or not. Also used a chance mechanism which removes the node from the faulty list after an idle period with its rating remaining unchanged.

11. A Collaborative selfish node detection and incentive mechanism for opportunistic networks (SENSE) technique
Ciobanu et.al., [18] proposed SENSE that provides the selfish node detection by using community-based and context-based information of node. By using intensive mechanism it will appreciate the node to participate in the network. Use the altruism value to get the selfishness of node. It uses the home-cell community model for mobility model.

12. Fully Selfish Node Detection, Deletion and Secure Replica Allocation over MANET
N.Muthumalathi et.al., [19] proposed a selfish node detection method and novel replica allocation techniques to handle the selfish replica allocation appropriately. Selfish replica allocation technique reduces communication cost and secure hill cipher algorithm to provide security in replica data.

13. New Replication allocation technique
N.R.Suganya et.al., [20] proposed selfish node detection method and novel replica allocation techniques handle the selfish replica allocation properly. In our method the each node computes credit risk information on other associated nodes individually to appraise the degree of selfishness.

14. A novel technique for tracing the malicious nodes in the mobile ad-hoc network based on noise errors in different frequency bandwidths

Karjee, J et.al., [21] proposed a scanning procedure and security measures for the multi- hop wireless network after diagnosing the abnormal behavior of malicious node and verifying the physical presence of attack strategy in the wireless network. The model has not been validated for major routing issues like interference, asymmetric links channel capacity and effects of noise, etc. have not been taken into account. Furthermore, the work seems to be done on the assumption that selfish nodes never exist in MANET system.

15. Enhanced Adaptive Acknowledgement (EAACK)

K.Chinthanai chelvan et.al., [22] proposed EAACK (Enhanced Adaptive Acknowledgement) method designed for MANET was proposed for intrusion detection. EAACK demonstrates higher malicious-behavior-detection rates in certain circumstances while does not greatly affect the network performances.

TABLE 1: COMPARATIVE STUDY ON MISBEHAVIOR DETECTION ALGORITHMS

Misbehavior Detection Techniques / Misbehaviors	Authors	Proposal	Result
1. Reputation-based selfishness prevention techniques for mobile ad-hoc networks (Selfishness)	Alberto Rodriguez-Mayol&J. Gozalvez,	Three detection techniques, RAM (reset activity mode), WM (warming mode) & RFM (reset failure mode) may use to improve the ability of selfishness prevention protocol to detect selfish nodes and to increase the number of valid routes.	• Reduce the no of incorrect selfish accusations, • Increase the availability of safe multi-hop routes • Improving the final packet delivery ratio
2. DREAM-Detection & Reaction to Timeout MAC layer Misbehavior (Malicious Behavior)	Lei Guang, ChadiAssi, &Yinghua Ye	A Proposed mechanism that identifies the malicious nodes using a set of monitoring and reaction procedures.	• Achieves high accuracy in identifying misbehaved nodes. • First reaction system is very effective in mitigating the misbehavior effect and improve the network performance (e.g., throughput and delays)
3. Watch dog/ Pathrater Technique (Malicious Behavior)	Sergio Marti, T.J. Giuli, Kevin Lai, & Mary Baker	Watchdog technique to detects malicious node by overhearing next node's transmission. Pathrater helps to route protocols to avoid these nodes.	• Increase throughput by 17% in a network with moderate mobility, • Increases the ratio of overhead transmissions to data transmissions from the standard routing protocol's 9% to 17%. • Watchdog and pathrater can increase network throughput by 27%, • Improves the percentage of overhead transmissions from 12% to 24%.
4. Ex. Watchdog Technique (Malicious Behavior)	N. Nasser, & Yunfeng Chen	Ex-Watchdog intrusion detection system is an extension of Watchdog System whose function is to detect intrusion from malicious nodes and reports this information to the response system.	• Decreases the overhead greatly, • It does not increase the throughput obviously
5. RTDB: Record and Trust-Based Detection Technique (Selfishness)	Senthilkumar Subramaniyan, William Johnson,&KarthikeyanSubramaniyan	The selfish no desire detected based on their trust value and the predefined threshold for selfishness, their neighbors can use this information to avoid working with them, either for data forwarding, data aggregation, or any other cooperative function.	• Enhances the performance of MANET. • It improves the PDR and detection ratio. • It diminishes the overhead, latency, and packet dropping ratio. • Competently detects the selfish nodes in MANET
6. Cooperative Bait Detection Scheme (CBDS) (Malicious Behavior)	Jian-Ming Chang, Po-Chun TsouHan-Chieh Chao,&Han-Chieh Chao	Cooperative Bait Detection Scheme (CBDS) which is able to detect and prevent malicious nodes launching cooperative black hole attacks.	• CBDS presents good performance better packet delivery ratio • Not much overhead to network overhead under malicious node attack.
7. TBUT (Token-based umpiring technique) (Selfishness)	Jebakumar Mohan Singh PappajiJosh Kumar,AyyaswamyKathirvel, NamaskaramKirubakaran, PerumalSivaraman&MuthusamySubramaniam	A unified approach for detecting and elimination selfish nodes in MANETs using TBUT. it is the token based umpiring technique where every node needs a token to participate in the network and the neighboring nodes act as an umpire.	• To evaluate the performance of TBUT in the presence of 30% selfish nodes and have compared it with ETUS routing protocols. • TBUT significantly improves the performance of ETUS in all metrics, packet delivery ratio, and control overhead.
8. Secure Objective Reputation-based Incentive (SORI) scheme(Selfishness)	Qi He, Dapeng Wu & Pradeep Khosla	A (SORI) scheme to encourage packet forwarding and discipline selfish nodes	• Successfully identifies the selfish nodes and punish them accordingly.
9. TWO ACK / S-TWO ACK Scheme (Selfishness)	KashyapBalakrishnan, Jing Deng, Pramod & K. Varshney	The schemes detect selfish nodes (links) so that other node may avoid them in future route selections, with the aim of overall improvement in end-to-end packet delivery ratio.	• TWOACK scheme improves the end to-end packet delivery ratio from around 70% to almost 90% while increasing the overhead 4% to 7%. • S-TWOACK scheme, which is a derivative of the TWOACK scheme, achieves almost the same performance improvement.
10. Observation-based Cooperation Enforcement scheme (Selfishness)	Sorav Bansal & Mary Baker	OCEAN attempts to mitigate selfish routing behavior in ad hoc networks. The general idea is to punish nodes for their selfish behavior, by rejecting their traffic, in the hopes that this threat will act as a deterrent.	• Compared to such reputation schemes, OCEAN is more sensitive to the tuning of some parameters, • it fails to punish misbehaving nodes severely, it performs almost as well, and sometimes even better, across a wide range of degrees of mobility

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11. A Collaborative selfish node detection and incentive mechanism for opportunistic networks (SENSE)(Selfishness)	Ciobanu, Radu-Ioan, Ciprian Dobre, Mihai Dascălu, Ştefan Trăuşan-Matu, & Valentin Cristea.	SENSE that provides the selfish node detection by using community- based and context- based information of the node.	• Use the unselfishness value to get the selfishness of node. • It uses the home-cell community model for mobility model.
12. Fully Selfish Node Detection, Deletion and Secure Replica Allocation over MANET (Selfishness)	Muthumalathi & Dr.M.Mohamed Raseen,	An approach which stated that Selfish node may not share its memory space to store a copy for the profits of other nodes.	• Every node count credit risk information on another node individually to measure the amount of selfishness. • Selfish allocation schemes reduce communication cost and secure hill cipher algorithm to provide security in replica data.
13. New replication allocation technique (Selfishness)	N.R.Suganya, & S.Madhu Priya	Observe the impact of selfish nodes in a mobile ad hoc network which is termed as selfish replica allocation.	• Selfish node detection method and novel replica allocation techniques handle the selfish replica allocation properly.
14. A novel technique for tracing the malicious nodes in the mobile ad-hoc network based on noise errors in different frequency bandwidths. (Malicious Behavior)	Karjee & Banerjee,	Investigation and Mathematical analysis based upon the detection of a malicious node with attack modeling.	• Diagnosing the abnormal behavior of malicious node • Verifying the physical presence of attack strategy in the wireless network.
15. Enhanced Adaptive Acknowledgement (EAACK) method (Malicious Behaviour)	K.Chinthanaichelvan, T.Sangeetha, V.Prabakaran,&D.Saravanan	EAACK demonstrates higher malicious-behavior-detection rates in certain circumstances while does not greatly affect the network performances.	• Positive performance against Watchdog in the cases of receiver collision and false misbehavior report has been demonstrated

From the above Table.1, we examine which type of algorithms handling which type of misbehavior in MANET, accomplished that the MANET nodes most commonly behaves like Selfish nodes.

5. CONCLUSION

Now a day's, researcher's consideration on MANET, due to their open medium and wide distribution of nodes make MANET vulnerable to misbehavior issues. Misbehaviors of nodes are classified primarily as selfish nodes and malicious nodes. In this paper, we have analyzed the most common MANET routing protocols, misbehaviors of a MANET nodes and detection techniques that involved in misbehaving node detection. Hence I concluded that the most common problem in MANET is a selfish node. The Selfish behavior of a node affects the throughput of the network.

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OPPORTUNITIES AND CHALLENGES FOR THE HANDLOOM INDUSTRY: WITH SPECIAL REFERENCE TO WEAVERS OF MADHYA PRADESH

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ABSTRACT
India traditionally being an agrarian economy has strong dominance of agriculture and allied activities since post-independence days. Handlooms has not only being a crucial sector for economic development but always displayed the rich socio cultural diversity of India. Handloom industry the second largest employment generator in rural India after agricultural, is contributing significantly in Exports too. However, it is going through tough times in the recent past due to internation-alization and globalization, when the modern power looms started dominating the traditional industry. As per the Third handloom Census, the industry that gen-erates 77% employment for women has observed an overall decline in the employable weavers from 65.5 lakhs (in 1995-96) to 43 lakhs (2009-10). With the continuous efforts of government to revive the sector through skill development programs and financing activities to increase the productivity and marketing the sector is lagging behind. The study focuses on identifying the challenges and weakness of the sector to suggest a prescriptive solution. To accomplish the objective we have narrowed down by emphasizing on world famous Maheshwari and Chanderi handlooms of Madhya Pradesh, to assess the state of weavers and structural issues. Thus, it relies on both primary and secondary data to suggest remedial measures in a globally competitive market.

KEYWORDS
handloom, heritage, revive, micro finance, government schemes, marketing.

INTRODUCTION
The diversity of Indian culture that reigns in multifarious aspects has always showcased Handlooms as one of its unique possession. Since pre independence days it has been the second largest employment generator employing 81.8% and 57.6% women in rural and urban areas respectively bridging the gender gaps along with improving the financial status of women. However, the race of economic and political might have not spared the country with the entry of industrialization, which automated the manufacturing to produce large volumes of standardized goods. This left the fate of handloom industry at the misery of industrialist and compensation packages of state.

The Textile sector based on the differentiation of modern technology, capital, volume can be classified primarily into Handlooms, Power looms and the Mill segment competing for the same market share. As of the total handlooms work force 76 % (29.08 lakh weavers) constitute the adult workforce (in their productive years) out of which 64 % are full time engaged (61.2% in rural and 80.4% in urban) in weaving and rest in allied activities. But to utter disappointment 29.4 % had never gone to schools and only 6.9% attended school after high school limiting their knowledge on modern technical and marketing skills. The various financing, skill development and differentiated policy schemes of Government to appraise and restructure the sector have gone unnoticed. However acknowledging the potential of employment generation and generating foreign reserve apart from fulfilling the fuelled domestic consumption demand, with the changes in de-mographics and lifestyle in Indian Subcontinent government is persistently trying to research and come with concrete productive solutions.

Madhya Pradesh known for the rich handlooms of Maheshwar and Chanderi, employed skilled artisians of Surat and Malwa was significantly promoted during the reign of the Holkars by Rani Devi Ahilya Bai Holkar for gifting beautiful weaved sarees to her friends and relatives. The rich intricacies, natural dyes and organic fabric dispersed nationally and internationally conversing the taste of elite and aristocrats. However, a dramatic decline in Post-independence days prompted the Holkar Lineage deeply connected with it since inception, to form Rehwa Society in 1979 for revive the dying heritage apart from giving employment opportunities to the people working in hands with Government. Currently M.P. has 14761 weavers (4331876 weavers in India) and 3604 handlooms (2377331 handlooms in India) that reflects the myriad situation where most of them are working independently or under master weavers without any looms. The number of engaged weavers residing in rural areas have declined dramatically and migrated to urban areas looking for other jobs to earn higher steady income. There is also a sharp fall in weavers under 18 years opting to choose this profession due to minimal earnings and no social security benefits. The dearth of credit indebtedness and strong dominance of the modernized power looms on the Indian Textile market has posed a major threat on sustainability and profitability of the overall Indian Handloom Industry and handlooms of Madhya Pradesh are facing the brunt of same.

INITIATIVES OF INDIAN GOVERNMENT
The Third Handloom Census (2009 – 10) prompted the Government into action realizing the significant contribution of handlooms in exports and GDP after the decline number of weavers will enhance the economic and social problems. It came out with many schemes to uplift weavers and looms to bring sustainability and profitability within the sector. Few of them are :
- ❖ Credit Guarantee Fund Trust for all medium and small scale enterprises without any guarantee / annual service fee upto 85 % extended to banks.
- ❖ Loan Waivers of overdue loans and revival of handloom cooperative societies for working capital needs / Term Loans at interest rates of 6 % for 3 years and margin money assistance upto Rs 10,000 per weaver for individual weavers, Self Help Groups, Joint Liability Group and Master weavers under Revival Reform Restructure Package.
- ❖ Financial Assistance for developing workshop sheds, technological assistance, etc. upto 80 % from central Government, 10 % from state government and rest from SHG's, NGO's under Mudra scheme of PNB Bank.
- ❖ Introduction of Hathkargha Samvardhan Sahayata (HSS) to help weavers improve quality and productivity through a Public Private Partnership Model (PPP) for supplier's assistance and technological upgradation of looms with upto 90% financial assistance directly to beneficiary account Information, education and communication including Bunker Facilities extended through business correspondents via Banks, NGO's and others.
- ❖ Setting Up a Corpus Fund for establishing Yarn Depots under NHDC upto Rs 5 lacs Financial assistance to ensure uninterrupted yarn supply to Weavers.
- ❖ State level enforcement wing to monitor the activities to safeguard the interest of weavers ensuring infrastructure, technical and managerial aids.
- ❖ Establish Common Facility Centre with administrative offices, internet, Storage rooms, dying unit, training centre, Yarn godowns, wrapping section and rest for all the weavers in a block.
- ❖ Block level Cluster development for sustainability in highly competitive market and formulating development schemes for product development, Designing, Marketing, Credit Assistance, Training, and other managerial assistance.
- ❖ Comprehensive Handloom development scheme that has merged the Integrated Handloom Development scheme (IHDS), Diversified Handloom Develop-ment Scheme (DHDS) and Marketing and Export Promotion Scheme (MEPS) under the 12th plan for holistic development of handlooms and weavers.

MEASURES TAKEN BY MADHYA PRADESH GOVERNMENT
Apart from measures taken by the central government, the State government is also working effortlessly to improve the living standard of weavers of Madhya Pradesh through various financial and non-financial schemes apart from increase the productivity and ensuring quality assurance. It tied up with independent

designers and institutes like NIFT for developing a strong market presence and increasing the marketing skills of weavers. The government collaborated with banks, cooperative societies for ensuring supplies through yarn depots, credit / marketing assistance and other purposes like technically upgrading the looms, etc.

It is persistently providing seamless support to weavers through Cluster development, Marketing & distribution, Design intervention and financial assistance. It has added a lot of thrust to the knowledge repository for ecological tourism and economic independence of weaver households. In 1961 they started with exclusive handlooms and handicraft showroom displaying arts of M.P " Mrignaynee " providing a platform to weavers. Crisp an Indo German conglomerate of MP Government also organizes periodic training programs of design and development. Later, It started the e procurement and export oriented units to take care of design development, marketability and documentation. It holds Exhibitions, Trade Fairs in prominent cities and rented few permanent places like Bhopal Haat to display handlooms on ongoing basis without any fees from weavers.

The Rehwa society of the Holkar dynasty is also working persistently since 1978 to protect the linage of Maheshwari sarees. They played a proactive and dynamic role for bringing handlooms not only in apparels like sarees, suits but to home furnishing and accessories too like bags, bed-sheets, table cloths, cushion covers etc adding a modern contemporary touch to households. They identified the changes in lifestyle owing to socio cultural factors and brought aesthetic changes to handlooms. The continuous efforts of the Rehwa society and the government has made it a global name crossing the borders of Madhya Pradesh to various domestic (Mumbai, Delhi etc) and International markets (France, UK, Germany etc).

OBJECTIVES OF THE STUDY

The study aims to create an understanding of the dilemma that has led to decline in usage of handloom textiles and its weavers. Many socio cultural an economic factors have gradually created a myriad of vicious problems for the centuries old traditional heritage industry. It a minuscule step to ascertain the challenges and opportunities faced by the Handlooms industry by drawing broad interpretations from the feedback of weavers of Madhya Pradesh.

The study tries to identify the problem from two ends i.e the behavioral and cultural changes by interviewing the consumers of different age groups and their preference for purchasing handloom products. While at the other end we question the weavers to know their awareness level towards government schemes, support systems, financial assistance, photo id cards, technical and marketing assistance, skill development projects etc.

RESEARCH METHODOLOGY

Bhopal host to numerous handloom exhibitions, training programs and outlets likes Mrignaynee, Bhopal Haat was selected for data collection. The Data enumeration and interpretation is based on data collected through interviewing 50 weavers exhibiting their art in community hall in Bhopal in festive season. While we framed structured questionnaire among 150 respondents of different age groups to analyze the changes in preferences and opinion of people towards Handlooms. We relied on Secondary Data collected available both online and offline like Handloom Census report 2009-10, Directorate of Handlooms, and other Union and state government data were taken to support the study for drawing broader interpretations. Since both the Quantitative and Qualitative data was used for data analysis. Chi Square test was applied on consumer data while percentages was used on data collected from weavers to suggest relevant measures.

REVIEW OF LITERATURE

India had being for producing the finest textiles globally since its golden days before the British Colonization. The textile industry has been the second biggest employment contributor after the agricultural sector, where handlooms employee 27.83 lacs (almost 87% households in rural areas) and a significant women workforce as per NCAER, 2010 is in a dilapidated phase with declining number of weavers since Independence. Under the British rule it experienced tremendous changes, "When India became its major raw material source of cotton. When Yarn came from a distance and had to be bought yarn dealers and financiers became necessary, and as the average weavers had little credit, the industry fell more and more into the grip of middlemen. Thus the independence of most weavers disappeared and a great majority of them came to work for mahajan either on contract or wage basis." report of Fact Finding Committee (1942:6).

Establishment of Development Commissioner, Handlooms and setting up Weaver's Service Centre, IIHT's, NHDC in 1970's slowly initiated the resurrection process, focusing on resource development and increasing exports through marketing and financial assistance. However the growth of the sector is faced by many hiccups due to uneducated and unaware weaving class facing the problems of marketing, documentation and other social problems. Most of the Weavers are still using the Traditional Pit Looms reporting Back Pain, Joint pains and breathing problems caused by dust of raw materials. (Sinha.S, Credit Support to Handloom Weavers – Problems and Prospects, NABARD Student Internship Scheme 2016-17.) Dr. Rachna Goswami and Dr. Ruby Jain in their research "Strategy for Sustainable development of Handloom Industry " highlighted the problems identified from most of the weavers of Rajasthan, Madhya Pradesh, Andhra Pradesh & Tripura as making low quality products with limited or no market exposure. Most of the weavers were not aware about the latest market trends thus making the outdated products which consumer didn't purchased. The distribution channel was also inadequate. As per their research statistics, weavers were that they were unaware about market trends (54%), lack of innovative designs (76%), looms were not upgraded (70%), yarn was not of required count (20%) and lastly poor quality yarn (54%). Thus supply of yarn and marketing continues to be a major constraint for handloom industry.

Government initiative of Health Insurance Scheme & Mahatma Gandhi Bunkar Bima Yojana apart from other financial and non-financial assistance have covered only handful weavers thus a more comprehensive and integrated outlook is the need of hour to bring profitability back to sector. A Report on market research for promotion of India Handloom Brand submitted to NHDC by Majestic MRSS recognizes the need of developing India Handloom Brand as premium brand of superior fine fabric and unparalled uniqueness using digital media campaigns to target both the weavers and customers for creating unique touch points. Declaration of National Handlooms Day on 7 th august 2015 and India Handlooms brand is a step towards endorsing the quality of handlooms and creating awareness among Younger Generations for the rich cultural heritage of India and importance of this sector for socio economic development along with boosting tourism and exports.(Note on Handlooms Sector - 30 th Dec 2015, Ministry of Textiles, Government of India).

LIMITATIONS

The study is restricted to a small group of respondents both weavers and customers of Bhopal. The Limitation due to paucity of time and resources had restrained it to a narrow scope however the scenario may be different for the other regions giving a different interpretation. Thus it is a reflection of a small group of respondents of Bhopal, Madhya Pradesh which mirrors the broad problems generalizing the topic. Thus it has a large scope of further enrichment in the other regions or same with different factors.

FINDINGS

There is a tremendous change in the outlook of consumers that has led to change in their preferences and frequency of purchase fuelled by socio cultural changes and urbanization. Majority of the people under 30 yrs are purchasing readymade apparels from branded outlets.

The growing inclination of youth for western civilized culture has made handlooms occasional purchases worn on special days like in marriages or festivities. 78 % feel the quality and designing is high(very good) but 54% felt the price and maintenance is also high within the age group of 30- 45 years.

However there is sharp contrast between the age group 18-30 yrs and people above 45 yrs as 91 % of gen x perceives its quality and organic colors and intricate designs as priced possessions available at reasonably low price and low maintenance passing it from generation to generation. While only 23 % of people from 18-30 yrs know of its characteristics and intricate skilled work and are of opinion that it requires high maintenance (dry cleaning, fabric conditioning, moth protection, ironing etc).While 68 % feel it's expensive from other branded modern and ethnic wear having more elaborate collection of designs, colors, easy to wear and maintain.

The Chi Square test shows a significant difference between the age group and preferences for handlooms accepting the alternate hypothesis at 5% level of significance, degree of freedom 2.

The majority of the weavers approximately 67 % are working independently or for local master weavers instead of being part of clusters / groups who are mostly school drop outs with limited means of financial and technical resources. They had highly limited marketing and knowledge sharing skills thus rendering a majority of 62 % people unaware or partially aware of government schemes. 71 % are depended on money lenders, master weavers cooperative societies and so for raising finance which is consumed mostly for personal reasons like education fees, medical expenses, household expenditure instead of productive purposes. A Minority that belong to large clusters / groups are aware of government aids and credit support programs of nationalized banks. Thus only a handful are eligible to apply for Handlooms Brand of India a recent initiative of Union Government. The scheme of weaver identity cards run by government to identify the weavers and provide them financial and non-financial aids like technical support, easy credit availability, procurement of yarn, trainings are seldom known to few. The lack of awareness and procedural delays have left the problems of weavers unaddressed forcing them to migrate to urban areas for other jobs leaving the weaving skills to die gradually.

SUGGESTIONS

The Handloom Sector, which caters to creatively skilled but economically weaker class of people. Being the catalyst of rural economy the government should bring some innovative measures then just providing only the financial measures or facilities to limited few. The major setback for the government measures is unaware-ness about majority of the schemes among the weavers and their accessibility as they are uneducated and ignorant of digital media. Handlooms sector face lack of marketing and promotions basically due to absence of a strong Handloom Brand and Quality assurance. The sheen of handlooms among customers is declining due to internationalization of Indian Culture that has brought remarkable change of taste and lifestyle among Indian women.

Due to restricted access to modern means of communication, resources and transportation the majority of weavers find difficulty in loan documentation, mana-gerial works like marketing etc. The Government should aim to bring *Cost Leadership* in procurement of material, facilities like product design and development, dying centre, packaging centre, yarn depots, training centre etc should within the territorial and financial accessibility of weavers.

Consolidation of small groups into clusters to eliminate internal competition and sharing of resources on a large scale.

Use of e Governance and e networks for supplying and monitoring the benefits of various schemes to direct beneficiaries.

Mobile Training Camps / Workshops through trainers, business correspondents moving in different cities on regular basis to impart training, marketing assistance, managerial or bank assistance to avail loans, charting project reports, general financial literacy etc.

Government should introduce use of ICT Tools (computer, television) for creating awareness among weavers about various concessional schemes and non-mon-etary programs. As most of the weavers find difficulty in attending training workshops due to loss of daily wages apart from fees so allowances along with place-ments, entrepreneurship activities and post training backups should be used to encourage skilled weavers.

A public Private Partnership model could be developed reaping support of some private retailers, e retailers, franchisees who look after the changes in trends, demands, design, accounting and marketing along with supplying the raw material to weavers for harnessing their weaving skills enhancing their economic social position.

In current Globalized world, differentiating the Brand plays a strategic role in creating value and long-term customers. Design Institutes awarding diploma, certif-icate courses or degrees at reasonable fee structure along with few scholarships students chosen through pan India Competition to create Designs, Quality and Fabric at par with world known brands.

Introduction of various uses of handlooms in accessories, furnishing, etc. in a range of colors, designs and prices to make it more affordable and convenient.

Focusing on the clientele, the age group, purchasing power and choice as per the changing scenario and utility will reap in not only the existing but additional customers too.

Brand Ambassadors like Narendra Modi, Amitabh Bachchan, Priyanka Chopra and other dignitaries could be roped in for promoting and creating awareness for the use of handlooms among next generation.

Technology and globalization has customized the world and customer relationship management plays a crucial role so both the aspects should be taken care through professional and private support in domestic and international markets.

Various sectors of economy have consolidated to provide value add on services to delight the customers so the cultural integration of handlooms with tourism sector to promote its rich heritage on prominent tourist destinations along with hotels, airports can be a game changer.

CONCLUSION

Emerging trends of globalization has shaken up the roots of the traditional heritage of handlooms, that is competing with the automation and standard quality products both from domestically and international players too. This had a huge impact on employment and living standard of people dependent over it but Indian Economic Growth rate and exports too. Government had taken many measures to enhance the competitiveness of the handlooms by ensuring steady supply of raw materials and other resources at subsidized prices along with training, marketing and other assistance. However being the roots of the sector belongs to rural, uneducated and marginalized people that is still not ventured to find out the grass root problems. Thus it will some more time and persistent efforts of government along with social groups to put the things in right frame by working amongst them for them.

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APPENDIX

TABLE 1

Year	Target MUS$	Achievement MUS$	Handloom Exports In Rupees term (In Crore)
2009-10	NA	278	1252.80
2010-11	300	350	1574.95
2011-12	500	535	2653.95
2012-13	400	520	2811.97
2013-14	602	372	2233.11
2014-15 April 14	460		151.83 148.14 (Apr 13)

TABLE 2

B7: DISTRIBUTION OF ADULT (18 YEARS AND ABOVE) HANDLOOM WORKERS BY EMPLOYMENT STATUS

Employment status	Number of workers			Per cent distribution		
	Rural	Urban	Total	Rural	Urban	Total
Independent workers	2,173,343	178,279	2,351,622	67.2	29.0	61.1
Under master weavers/private owners	907,855	391,146	1,299,001	28.1	63.6	33.8
Under institutions	151,027	45,185	196,212	4.7	7.4	5.1
Total	3,232,225	614,610	3,846,835	100.0	100.0	100.0

TABLE 3

B6: DISTRIBUTION OF ADULT (18 YEARS AND ABOVE) HANDLOOM WORKERS BY TYPE OF WORKERS

Type of worker	Number of workers			Per cent distribution		
	Rural	Urban	Total	Rural	Urban	Total
Weavers	2,522,121	386,659	2,908,780	78.0	62.9	75.6
Allied workers	710,104	227,951	938,055	22.0	37.1	24.4
Total	3,232,225	614,610	3,846,835	100.0	100.0	100.0

TABLE 4

B3: DISTRIBUTION OF ADULT (18 YEARS AND ABOVE) HANDLOOM WORKERS BY GENDER

Gender	Number of workers			Per cent distribution		
	Rural	Urban	Total	Rural	Urban	Total
Male	588,171	260,302	848,473	18.2	42.4	22.1
Female	2,644,054	354,308	2,998,362	81.8	57.6	77.9
Total	3,232,225	614,610	3,846,835	100.0	100.0	100.0

TABLE 5

B1: DISTRIBUTION OF TOTAL HANDLOOM WORKERS BY AGE GROUPS

Age group	Number of workers			Per cent distribution		
	Rural	Urban	Total	Rural	Urban	Total
Less than 18 years	400,931	84,110	485,041	11.0	12.0	11.2
18-35 years	1,818,593	310,027	2,128,620	50.1	44.4	49.1
36-45 years	752,574	139,998	892,572	20.7	20.0	20.6
46-60 years	529,654	123,901	653,555	14.6	17.7	15.1
Above 60 years	131,404	40,684	172,088	3.6	5.8	4.0
Total	3,633,156	698,720	4,331,876	100.0	100.0	100.0

TABLE 6

NUMBER OF ADULT (18 YEARS & ABOVE) HANDLOOM WORKERS BY NATURE OF ENGAGEMENT (2009-10)

State	Location	Full time	Part time	Total
MADHYA PRADESH	Rural	3,556	358	3,914
	Urban	8,361	906	9,267
	Total	11,917	1,264	13,181

TABLE 7

B5: DISTRIBUTION OF ADULT (18 YEARS AND ABOVE) HANDLOOM WORKERS BY LEVEL OF EDUCATION

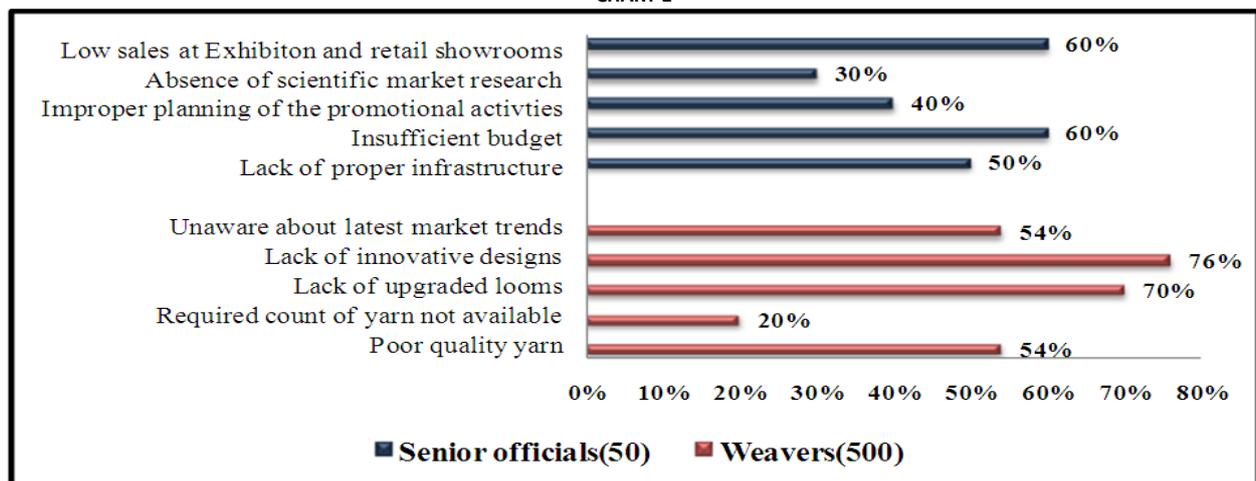| Level of education	Number of workers			Per cent distribution		
	Rural	Urban	Total	Rural	Urban	Total
Never attended school	931,324	199,121	1,130,445	28.8	32.4	29.4
Below primary	402,961	84,754	487,715	12.5	13.8	12.7
Primary	574,365	127,244	701,609	17.8	20.7	18.2
Middle	782,295	100,248	882,543	24.2	16.3	22.9
High school/secondary	328,493	63,347	391,840	10.2	10.3	10.2
Higher secondary	155,269	23,907	179,176	4.8	3.9	4.7
Graduate & above	52,186	12,867	65,053	1.6	2.1	1.7
Others	5,332	3,122	8,454	0.2	0.5	0.2
Total	**3,232,225**	**614,610**	**3,846,835**	**100.0**	**100.0**	**100.0**

TABLE 8

NUMBER OF HOUSEHOLDS REPORTING WHETHER THEIR CHILDREN INTERESTED IN TAKING UP HANDLOOM AS PROFESSION (2009-10)

| State	Location	Yes	No	Don't know	Not applicaple	Total
MADHYA PRADESH	Rural	486	868	879	373	2,606
	Urban	1,936	1,452	2,442	255	6,085
	Total	2,422	2,320	3,321	628	8,691

TABLE 9

NUMBER OF HOUSEHOLDS IN DEBT, PURPOSE AND MAJOR SOURCE OF LOAN (2009-10)

State	Location	Number of household in debt	Purpose of loan			Major source of loan for handloom purpose							
			Handloom	Other purposes	Both purposes	Money lender	Master weaver	Friend/ relatives	Cooperative societies	Commercial bank	SHGs	Traders	Others
Madhya Pradesh	Rural	29	22	4	3	0	0	0	3	18	0	0	1
	Urban	27	6	13	8	2	2	0	1	3	0	0	0
	Total	56	28	17	11	2	2	0	4	21	0	0	1

CHART 1

Source: Dr. Rachna Goswami and Dr. Ruby Jain in their research "Strategy for Sustainable development of Handloom Industry"

CHART 2: PERCEPTION OF HANDLOOMS PRODUCTS (SPECIFICATIONS) IN DIFFERENT AGE GROUPS (50 RESPONDENTS EACH) IN NUMBER OF CONSUMERS
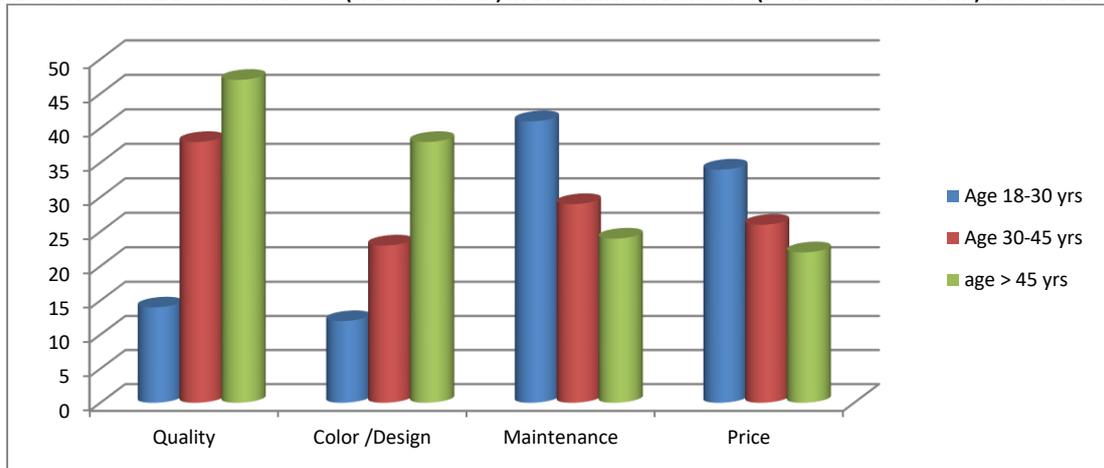
What is the Preferences of different age groups for purchasing Handlooms in Madhya Pradesh?

Null Hypothesis (H0) : There is no significance difference between the preferences of customers belonging to different age groups for purchasing Handlooms in M.P.

Alternate Hypothesis (H1) : There is a significance difference between the preferences of customers belonging to different age groups for purchasing Handlooms in M.P.

TABLE 10

AGE	Preference for Handlooms		
	Yes	No	Total
18-30 yrs	14	36	5o
30-45 yrs	27	23	50
45 & above yrs	41	9	50
Total	82	68	150

Degree of Freedom: (Row -1) (Column -1)

(3-1)(2-1) = 2

At 0.05% Significance level

TABLE 11

Actual	Expected	O-E	(O-E)*(O-E)	(O-E)*(O-E) / E
14	27.33	-13.33	177.69	6.501
27	27.33	-0.33	0.109	0.00398
41	27.33	13.67	186.87	6.8375
36	22.67	13.33	177.69	7.838
23	22.67	0.33	0.109	0.004808
9	22.67	-13.67	186.87	8.243
TOTAL				29.428

The Table value of Chi Square Test at degree of freedom 2 at 95% significance level is 5.90 (critical value) while the calculated value is greater than the critical value so we reject the Null Hypothesis and **accept Alternate Hypothesis** that says there is a significant difference between the preferences for purchasing Hand-looms amongst different Age Groups.

A COMPARATIVE STUDY OF AODV AND AOMDV WITH RATE ADAPTATION IN MANET

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ABSTRACT

Ad hoc network is a multi-hop wireless network formed by collections of mobile nodes without the intervention of fixed infrastruc-ture. The mobile hosts are self-organized and can be deployed everywhere and at any time. Multipath routing is the routing tech-nique of using multiple alternative path through a network, which can yield a variety of benefits such as fault tolerance, increased bandwidth, or improved security. The proposed protocol as the critical feature to adapt cross-layer interface in multipath mobile ad-hoc network. In this article show case improved method for existing system.

KEYWORDS

MANET, AODV, rate adaptation, packet delivery, energy.

1. INTRODUCTION

MANETs (Rubinstein et al 2006) are particular network designs that show up with regards to pervasive processing and multiplication of convenient compu-ting devices. A mobile ad-hoc network is a sort of wireless ad-hoc network, and is a self-configuring network of mobile routers (and related hosts) asso-ciated by wireless connections (Jubin and Tornow 1987). In wireless communication systems, there is a requirement for fast sending of free mobile clients. Critical illustrations incorporate building up survivable adequate, dynamic communication for crisis/save operations, fiasco help endeavors and military networks. The Demand to trade computerized data outside the typical wired office condition is additionally developing. Such network situations can't depend on concen-trated and sorted out availability, and can be considered as application of MANETs [1].

Rate adaptation is a highly difficult assignment in MANETs, principally when relative decency among aggressive nodes considered. A MANET node can't adjust its rate without considering the other aggressive nodes. Besides, con addressing nodes don't really have a similar channel conditions. They may likewise encounter diverse channel qualities. On the off chance that a given node does not consider its focused neighbors in its rate adaptation operation, an out of line circumstance is probably going to happen (Benslimane and Rachedi 2013). As a rule, the adequacy of a rate adaptation plot relies on how it adapts to the effect of transmission disappointments which may happen because of channel errors or packet collision. [2]

The choice of ideal transmission rate relies upon the channel quality. On the off chance that the sender picks a higher rate than the present channel can bolster, the packet is in risk to noise. In the event that the sender picks a rate that is lower than the channel can bolster, the channel use is low. Thus it decreases the throughput. The greater part of the rate adaptation algorithms accomplish this by looking at the quantity of effective and unsuccessful transmissions. The effective transmission is related to the ACK from the recipient. In the event that an ACK isn't gotten, the packet is thought to be lost because of channel errors, not assessing the correct justification for packet loss. Since the up degree in transmission rate relies upon the reason for packet loss, the main phase of the proposed approach is to recognize the correct reason for packet loss. [3]

2. LITERATURE REVIEW

Jidhesh R, et.al (2016) Analysis Adapting to dynamic nature on addressing to the difficulties in using the rare resources, for example, transfer speed, battery control has turned into a key thought in ebb and flow explore. Blockage amid transmission is another significant test looked by mobile ad hoc networks which influences the network movement and along these lines the execution straightforwardly. In spite of the fact that few blockage control networks are proposed, they cause deferral and therefore decay the execution of the network consequently. Adaptation to current network traffic and congestion helps conquering the defer caused and consequently enhances the execution contrasted with ordinary proactive and receptive routing components. [4]

Preeti Aggarwal, et.al (2016) depict the nodes in Mobile Ad hoc networks consistently move prompting arbitrarily changing topology which additionally prompts numerous issues, for example, interface package and loss of packets sent by the source node to the destination.[5]

Siddlingappagouda Biradar, et.al (2014) portray the simulations and correlations of two ad hoc routing protocols that are Ad-hoc On-Demand Distance Vector (AODV) and Ad hoc On-Demand Multipath Distance Vector (AOMDV) routing protocols. By utilizing the execution metric, for example, average end to end delay, throughput and jitter. [6]

S. Suganya, et.al (2015) Describe One of the real issues that influences the execution of a Mobile Adhoc Network is the way routing is actualized in a network. This paper exhibits a network to distinguish the misbehavior of nodes in MANET to increase/decrease the rate adaptation which thusly can enhance the throughput. [7]

K. Selvavinayaki, et.al (2015) Describe the manet is not protected against the attacks due to lack of security. The most common attack experienced by the Manet is black hole attack. This paper address the security oriented solution to prevent the black hole attack using the digital certificates to authenticate the routes selected during the route discovery process. The digital certificate authentication avoids the black hole node during the Route discovery itself. This methodology is implemented on AOMDV protocol. [8]

A.Ramesh, et.al (2014) Describe had taken Proactive, Reactive and Hybrid directing traditions for instance, AOMDV, AODV, DSDV, TORA and DSR in MANET and a short time later their execution was evaluated under different system situations. The execution estimations used for appraisal were package movement extent, throughput, and essentialness use. AOMDV was bankrupt down as the best tradition appeared differently in relation to AODV, TORA, DSR likewise, DSDV right when essentialness viability was taken into thought. [9]

Onkar Singh Bawa, et.al (2013) Compared proposed another blockage based route disclosure tradition in AOMDV which used lines to check stop up on each center point and source picked only that way which give enough line appraise and select as basic way and If it broke by then picks another discretionary route for transmission.This paper assumed that AOMDV tradition with obstruct based route disclosure approach performs superior to standard AOMDV tradition to the extent throughput, delay what's more, package disaster. [10]

Rahul Deshmukh, et.al (2014) contrasted the execution of AODV and its variety of Multipath rendition of AOMDV. The examination had been done under two protocols to be specific TCP and UDP. The outcomes exhibited in this paper plainly show that the execution of AOMDV protocols is superior to AODV concerning throughput and energy utilization. [11]

3. MANET AND RATE ADAPTATION

Rate adaptation is the procedure of powerfully exchanging data rates in view of the channel conditions. The destination is to choose a rate that can boost the throughput and its related packet delivery ratio. Rate adaptation includes two phases, for example, channel quality estimation and rate choice. A few measurements can be utilized as pointers of channel quality, for example, signal to-noise ratio, signal, symbol error rate, or bit error rate. The rate choice technique at that point utilizes the consequence of channel quality estimation to choose a fitting rate (Nguyen and Xiong 2005). A typical strategy of rate choice is to look at the estimation of the channel quality pointer against a rundown of edge esteems speaking to limits between the data rates.

To accomplish this objective of rate adaptation, numerous methods have been proposed in writing. One class of the strategies is the transmitter-based rate choice plans (Liu et al., 2012), like ARF, AARF, CAA, Sample rate, RARA which utilize packet measurements to assess current channel condition. Another classification of the techniques is the receiver based ones, as RBAR and OAR, contingent upon SNR for the adaptation algorithms. A few rate adaptation algorithms have been created over the previous decades. The majority of the algorithms modify their transmission rate with the assistance of the channel input gathered from MAC layer retransmission/loss tallies. Transmission capacity estimation is a fundamental capacity that is required to give QoS in MANETs (Ali and Zafar 2011). It is additionally an approach to decide the data rate accessible on a network route. It is important to clients wishing to improve end-to-end transport execution, overlay network routing and shared record circulation. Be that as it may, transfer speed estimation is to a great degree troublesome, on the grounds that each host has loose learning of the network status and connections change powerfully (Chen and Heinzelman 2004). In this way, a successful data transmission estimation conspire is very attractive.

Mobility and dynamic nodes in an ad hoc network causes visit changes of the network topology. Ad hoc appointed networks are portrayed by a high transmission error likelihood which is caused by mobility, the utilization of wireless connections and the restricted resources of nodes. A lot of work has been done in the fields of routing in mobile ad hoc networks, however the associations that help Quality of Service (QoS) prerequisites are not upheld completely. The fundamental assignment for QoS routing is to locate an achievable way through the network between the source and destination that will have the essential resources accessible to meet the QoS limitations. [12]

A routing issue is to discover one way between two nodes, which fulfills QoS necessities. QoS parameters vary from application to application for instance, interactive media applications the data rate and delay are the key elements though for military utilize security and unwavering quality turns out to be more imperative and on account of crisis, the key factor ought to be accessibility. This examination work considers QoS parameters for Real time applications. Continuously applications most critical QoS parameters to be considered are delay, data rate thusly required energy and transmission capacity accessibility of the node. Despite the fact that the execution of AOMDV with rate adaptation, AOMDV with transfer speed estimation and AOMDV with control performs better exclusively, when to get outflanking execution every one of the three measurements are consolidated with AOMDV. In this section, the rate adaptation, data transmission estimation and power aware routing proposed in the past parts are consolidated to give best QoS aware routing named as Rate adaptation, Bandwidth estimation and Power aware AOMDV (RABP-AOMDV) Routing.

4. OBJECTIVES & METHODOLOGY

OBJECTIVES

A novel multipath routing protocols which is an augmentation of AOMDV by finding routes in view of accessible energy level, transmission capacity and rate adaptation is proposed in this theory. The destination of this exploration work is to:
1.   Investigate the execution of AOMDV for changing mobilites.
2.   Propose an upgraded AOMDV with Bandwidth estimation and Rate Adaptation.
3.   Propose a Bandwidth Estimation, Rate Adaptation and Power Aware Routing.
4.   Propose streamlining calculation to enhance the parameters of the AOMDV routing.

PROPOSED METHODOLOGY

The viability of a rate adaptation conspire depends on how it adapts to the effect of transmission disappointments which may happen because of channel errors or packet collisions. The determination of ideal transmission rate relies upon the channel quality. On the off chance that the sender picks a higher rate than the present channel can bolster, the packet is in risk to noise. On the off chance that the sender picks a rate that is lower than the channel can bolster, the channel use is low. Therefore it decreases the throughput. The vast majority of the rate adaptation algorithms accomplish this by contrasting the quantity of effective and unsuccessful transmissions. The fruitful transmission is related to the ACK from the receiver. On the off chance that an ACK isn't received, the packet is thought to be lost because of channel errors, not assessing the correct justification for packet loss. Since the up degree in transmission rate relies upon the reason for packet loss, the main phase of the proposed approach is to distinguish the correct reason for packet loss. [13]

This investigation proposes a QoS aware routing for AOMDV. QoS is enhanced by transmission capacity estimation, rate adaptation and energy of the nodes. The proposed philosophy is exclusively connected to each resource and coordinates the three resources with standardized esteems. The Chart 1 demonstrates the flowchart of the proposed calculation.

CHART 1: FLOWCHART FOR THE PROPOSED SYSTEM
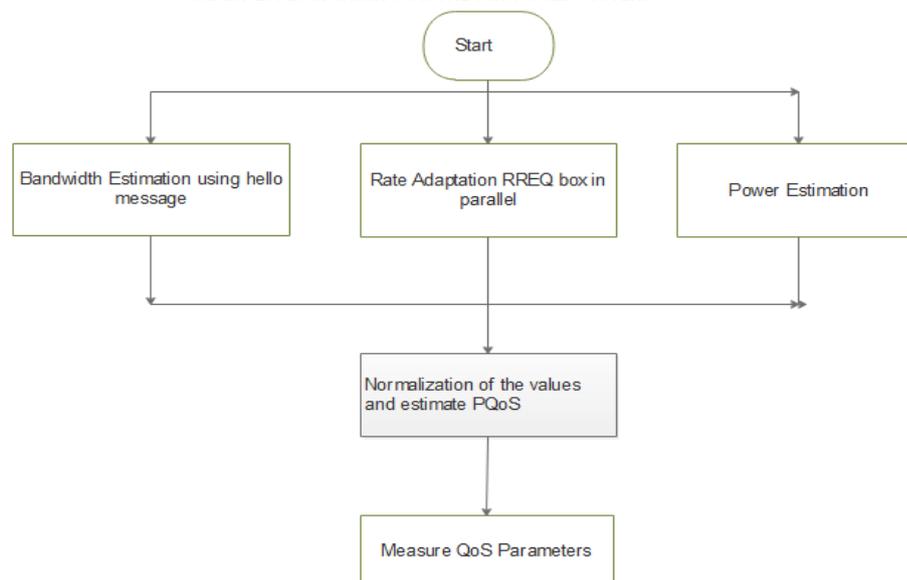
QoS parameter estimation is through standardization of the values and last esteem is processed as takes after:

P QoS * Available Bandwidth * Rate * E available

Where, and are constants with + = 1 and in this examination, and are allocated the estimation of 0.33 and = 0.34. The route with the greatest P QoS is utilized to transmit the packets. [14]

5. RESULT

In this work, a QoS aware routing for AOMDV is proposed. The QoS is improved utilizing Bandwidth estimation, Rate adaptation and Power Aware Routing. Reen-actment is utilized to assess the proposed AOMDV with Rate Adaptation, Bandwidth Estimation and Power Aware routing. Size of network utilized as a part of the reenactment is 2500 x 2500 m with 50nodes. Transmission energy of every node is 0.005 watt.

TABLE 1: PACKET DELIVERY RATE

Mobility Speed	AOMDV	AOMDV Rate Adaptation
10 Kmph	0.8776	0.9442112
18 Kmph	0.8018	0.8957887
36 Kmph	0.7413	0.8588748
54 Kmph	0.7135	0.8058592
72 Kmph	0.6723	0.7380958

FIGURE 1: PACKET DELIVERY RATE
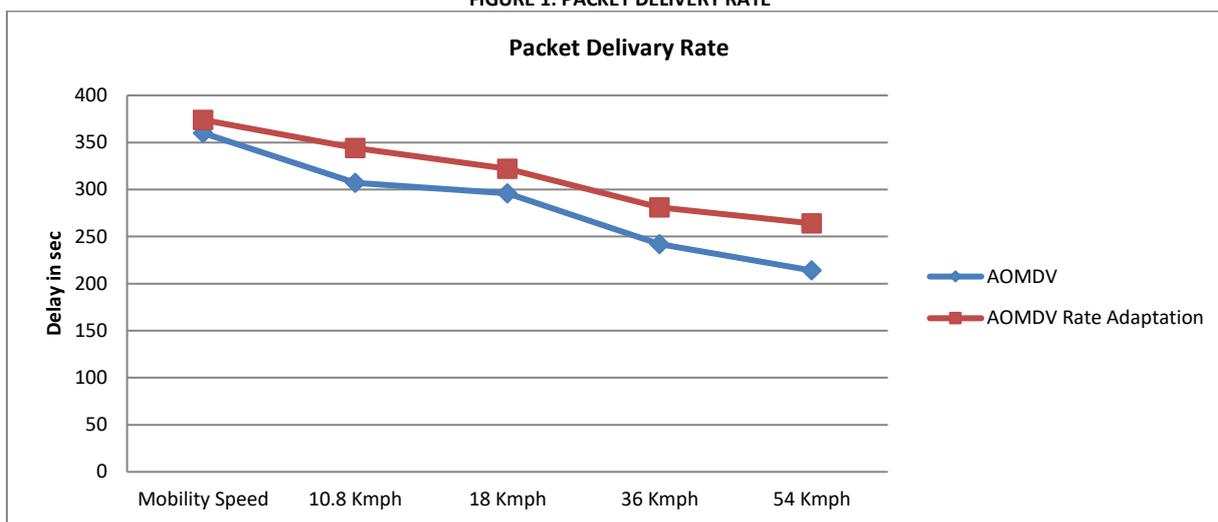
It is noted from the tables and Figures 2 and 3 that the execution measurements packet loss rate and End to End defer are less when contrasted with AOMDV and high when contrasted with the proposed AOMDV with Rate Adaptation.

TABLE 2: PACKET LOSS RATE

Mobility Speed	AOMDV	AOMDV Rate Adaptation
10.8 Kmph	0.1224	0.0557888
18 Kmph	0.1982	0.1042113
36 Kmph	0.2587	0.1411252
54 Kmph	0.2865	0.1941408
72 Kmph	0.3277	0.2619042

FIGURE 2: PACKET LOSS RATE
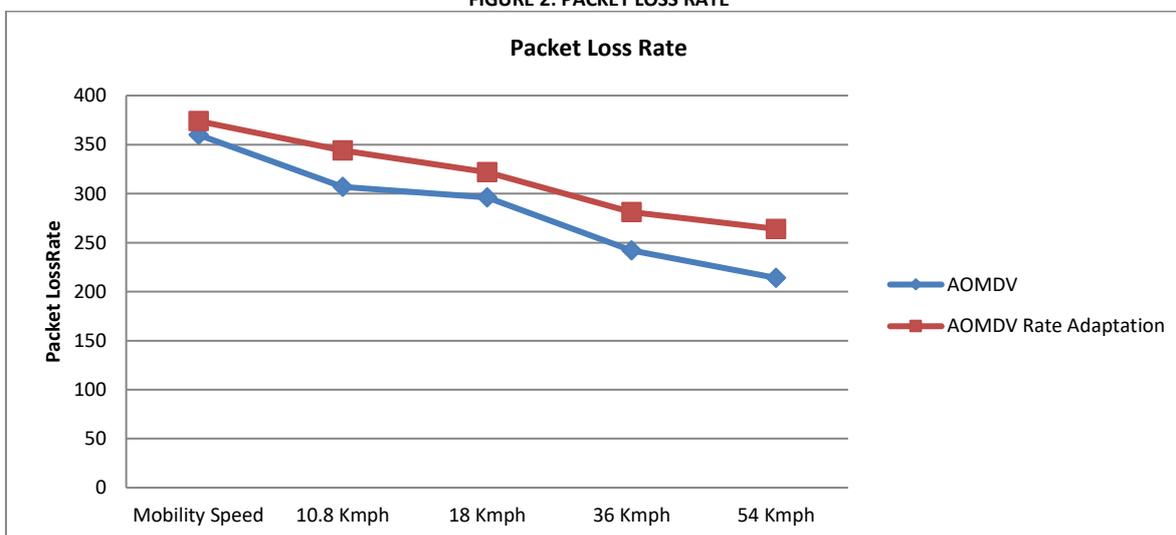
TABLE 3: END TO END DELAY

| Mobility Speed	AOMDV	AOMDV Rate Adaptation
10.8 Kmph	0.026	0.0075346
18 Kmph	0.0282	0.0067809
36 Kmph	0.0139	0.0103303
54 Kmph	0.0481	0.0124728
72 Kmph	0.1228	0.0599607

FIGURE 3: END TO END DELAY
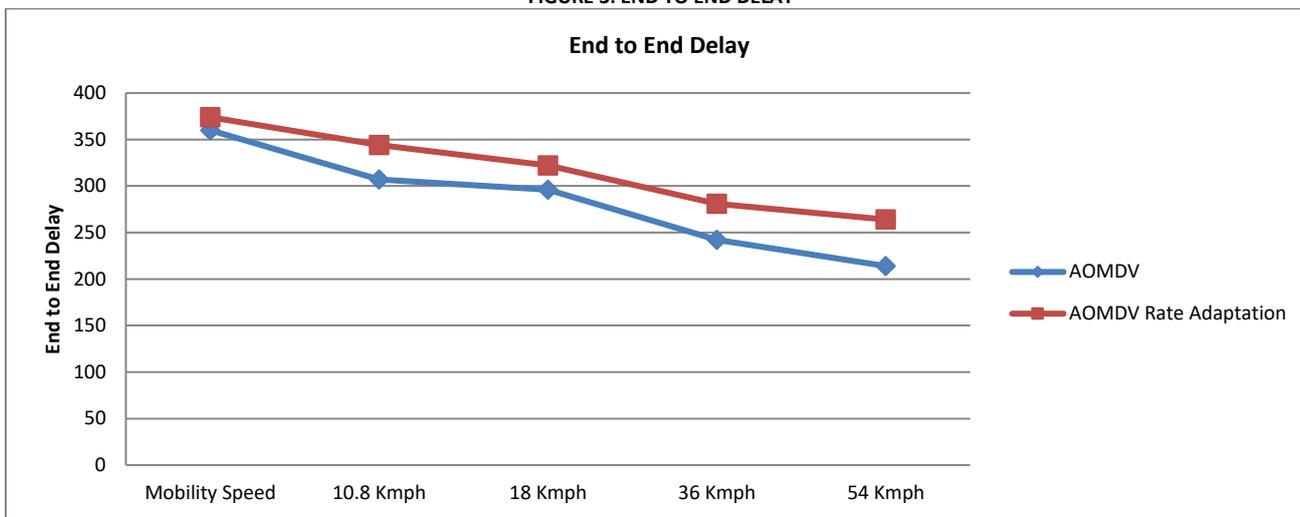
From Table and Figure 4, obviously the AOMDV with Rate Adaptation acquires 1.60% low outstanding energy in joules at mobility speed of 10.8 Kmph when contrasted with Power aware AOMDV. At 90 Kmph, the AOMDV and Rate Adaptation gets 1.36% low outstanding Energy in joules when contrasted with Power aware AOMDV.

TABLE 4: ENERGY IN JULE

Mobility Speed	AOMDV	AOMDV Rate Adaptation
10.8 Kmph	360	374
18 Kmph	307	344
36 Kmph	296	322
54 Kmph	242	281
72 Kmph	214	264

FIGURE 4: ENERGY IN JULE
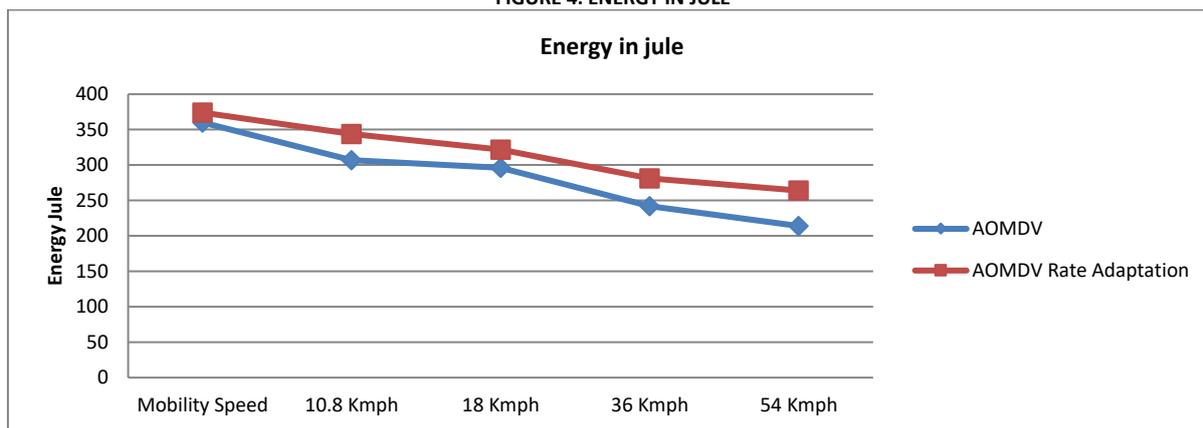
The routing needs to find a route from source to destination with the base energy level. This examination proposes to choose a node which have a base energy for transmission and that is chosen by contrasting it and the edge esteem. The outcomes demonstrate that the power aware AOMDV is altogether enhances the energy level at all mobility speed of the network. [15]

6. CONCLUSION

This work is the augmentation of AOMDV protocol with rate adaptation and the energy level. Way Path on-request Rate Adaptation for MANETs is a multi rate adaptation algorithm where a source node surges a RREQ to find a routing way as in on-request protocol protocols AODV and AOMDV. PRAM directs an data rate for RREQ and middle of the road nodes require not be uniform in the use of same data rate when sending RREQ. It finds problematic routing ways with effortlessness and lower control overhead. The best route for packet transmission can be recognized in light of the accessible data transfer capacity. It is likewise watched that the rate adaption exclusively accomplish preferable execution over the AOMDV the execution is altogether higher. Assist examinations can be directed to assess the proposed procedure for adaptability. The proposed algorithms can be joined in various multipath routing.

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COMPARATIVE STUDY ON K-MEANS, ANT, BEE, FIREFLY AND CUCKOO OF NATURE INSPIRED ALGORITHMS

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ABSTRACT

Nature does things in an amazing way. Behind the visible phenomena, there are innumerable invisible causes hidden at times. Philosophers and scientists have been observing these phenomena in nature for centuries and trying to understand, explain, adapt and replicate the artificial systems. This paper presents an overview of significant advances made in the emerging field of nature-inspired computing (NIC) with a focus on the physics- and biology-based approaches and algorithms. In this research provides an empirical view of different technology in the nature-inspired algorithm. There are fifteen reviews are collected, studied and analyzed.

KEYWORDS

K-means, ant algorithm, bee algorithm, firefly algorithm**,** cuckoo search algorithm nature inspired algorithm.

1. INTRODUCTION

Nature inspired computing is the computing which has its foundation in the biological components of nature i.e., humans and animals. Nature has four powerful features which are basic building blocks are the self-optimization, self-healing, self-learning, and self-processing. Nature as the self-optimizer is that it can automatically manage its resources in an efficient manner to meet enterprise need. Nature as a self-healer is as the components of nature on seeing any problem finds a solution and come out of it. Self-learning and self-processing are two related terms. They go hand in hand and moved together. Nature and its components self-processes the changing conditions in the environment learn from the past and present conditions to evolve in the changed environment in natural evolution. as the individuals of nature have the capability to evolve according to the changing environment so in present scenario it is indeed required that computers and their intelligence to learn and involve as per changing conditions and solve highly complex problems as nature does to fulfill this desire, we want our algorithms to adopt the techniques and features from nature and become more effective as shown in the below figure:

FIG. 1: NATURE INSPIRED OF FLOW CYCLE

A convergence to an optimal solution usually depends on the starting solution. Most algorithms tend to get stuck to a locally optimal solution. An algorithm efficient in solving one class of optimization problem may not be efficient in solving others. Algorithms cannot be easily parallelized. Convergence to an optimal solution is designed to be independent of initial population. Nature inspired algorithm in search based algorithm. Population helps not to get stuck to a locally optimal solution can be applied to the wide class of problems without a major change in algorithm. Used can be easily parallelized. The algorithm used for nature optimal solution to the find the value based on the optimal solution in nature-inspired algorithm, efficient manner to meet enterprise need. Nature as a self-healer

is as the components of nature on seeing any problem finds a solution and come out of it. Self-learning and self-processing are two related terms. To an optimal solution is designed to be independent of initial population. Nature inspired algorithm in search based algorithm.

2. EVOLUTIONARY ALGORITHMS

In the origin of species, Charles Darwin stated the theory of natural evolution. Over many stages of life, biological organisms develop according to the principles of natural selection like survival of attaining some astounding form of accomplishment. The best example of natural evolution can be seen in the generation of human beings. So if it works so admirably in nature, it should be interesting to imitate natural evolution and try to procure a technique which may solve existing search and optimization problems. In computer science, evolutionary computation had its foundation in natural evolution. Evolution computing is the common term for a domain of problem-solving techniques based on principles of biological evolution. Evolutionary algorithms are well known and successful algorithms among nature-inspired algorithms. The algorithm nature evolutionary finds the optimization algorithm and problem to solve the efficient and effective the value.

- Genetic algorithms
- Genetic programming
- Evolutionary strategies

3. TERMINOLOGIES

- **Individual** - carrier of the genetic information (chromosome). It is characterized by the state in the search space, its fitness (objective function value).
- **Population** - a pool of individuals which allows the application of genetic operators.
- **Fitness function** - The term "fitness function" is often used as a synonym for objective function.
- **Generation** - (natural) time unit of the EA, an iteration step of an evolutionary algorithm.

FIG. 2: CLASSIFICATION OF NATURE INSPIRED ALGORITHM
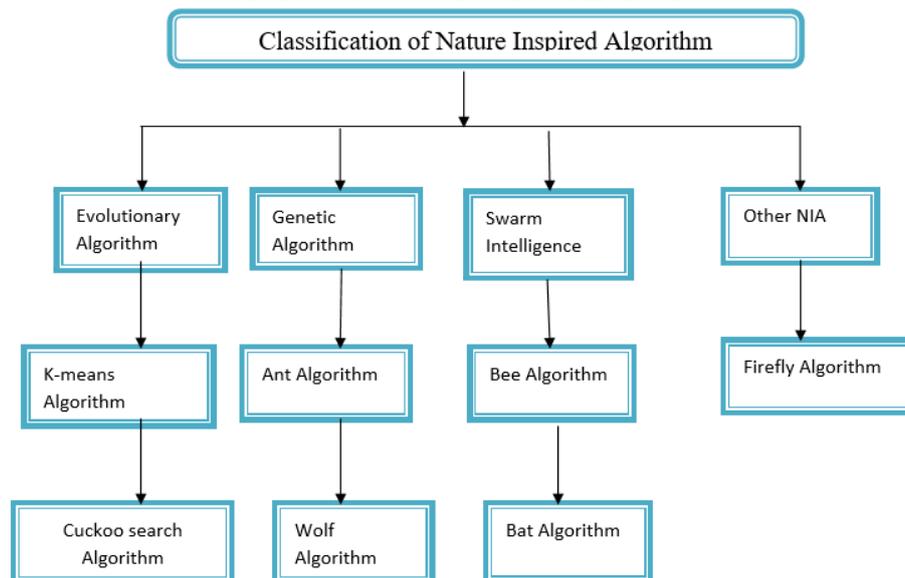
4. APPLICATIONS

Biologically inspired algorithms which exhibit the behavior of various social animals are widely used to solve various problems belonging to diverse domains. These algorithms can be used to solve various benchmark problems such as routing problems, np-hard problems, graph coloring problems, resource constrained and scheduling problems. also these nature inspired algorithms have been proposed in the field of medicine for detection of tumor, cancer or other diseases which gives better results in comparison to traditional methods. An algorithm which is inspired algorithm by the centroid point algorithm. In the algorithm anything objects taken from the values and the find attribute values used for the attribute values the randomly select the values and find value. Nature inspired algorithm which is inspired algorithm by the centroid point algorithm. In the algorithm anything objects taken from the value in the nature algorithm.

4.1 APPLICATIONS ON ALGORITHM INSPIRED BY K-MEANS ALGORITHM

An algorithm, which is, inspired algorithm by the centroid point algorithm. in the algorithm anything objects taken from the values and the find attribute values. Used for the attribute values the randomly select the values and find value. Subdivided point values input the values and next find the formula and find the values. The value finding processed by the attribute values. The centroid values and find experiment value. Last only for clustering is done and the new centroid is obtained. The probability of transition of a virtual and from the node I to the node k. experiment, we used the problem of in Slovakia. The final result differs from optimal. An algorithm which is inspired algorithm by the centroid point algorithm.

4.2 APPLICATIONS ON ALGORITHM INSPIRED BY ANT COLONY ALGORITHM

An ant algorithm which is inspired by the behavior of ants in colonies is used to solve various kinds of distributed control problems and difficult optimization. For the segmenting the ant colony optimization used for anything the image for detecting of a tumor. And solving the discrete optimization problems. For improving the efficiency of ant colony optimization an approach is proposed for getting better results in of brain. To optimizing the traveling salesman problem, ant system has been utilized, feature extraction from the mammogram images can be easily done by using the nature of ant colonies while searching for food. it can also be implemented for extraction of suspicious regions using an approach which is asymmetric. This algorithm can also be utilized for search procedure and for implementing feature subset selections. Example to solve problems in an efficient & effective manner. During the past few decades, the ant colony optimization is a problem to find the algorithm.

4.3 APPLICATIONS ON ALGORITHM INSPIRED BY BEE COLONY ALGORITHM

An algorithm is a path while providing robotic navigation to external vehicles. as the proposed algorithm is derived from the bee colony algorithm and it extracts the best path. This best path is used for retrieving best image from the pool of satellite images so this noisy images and also makes the process more efficient. These approaches are categorized to ant colony optimization particle swarm optimization (PSO), and artificial bee colony approaches for optimization and optimal features subsets. The hybridization of ABC and Quantum Evolutionary Algorithm (QEA) was proposed for solving continuous optimization problems. The experimental results demonstrated that the hybrid (QEA) based on ABC was suitable to solve the problem.

4.4 APPLICATIONS ON ALGORITHM INSPIRED BY FIREFLY ALGORITHM

Firefly algorithm is also a population-based algorithm that evaluates the exploratory behavior of fireflies for finding the optimum of target functions. This algorithm can be efficiently used in biometric technology for personal authentication and identification like dorsal hand vein recognition that gives better results when compared with other algorithms. An algorithm based on firefly uses least computation time in compressing the digital images. it produces consistent and more

accurate performance in terms of time and optimality for feature selection. for solving highly nonlinear, multimodal design firefly algorithm provides the best efficiency also have been applied for the optimum design of antenna and shows better performance than other artificial design algorithms. NP-hard problems, multi-objective load dispatch problems, scheduling problems etc. can be easily solved, has better performance and efficiency when solved with firefly algorithm. Also, Firefly algorithms solve the scheduling problems in permutation flow shops and traveling salesman problem in a very promising way. by optimizing the network parameters we can use the firefly algorithm to improve the performance of local linear wavelet neural network for classifying the breast cancer. The firefly used for significant the firefly used the network.

4.5 APPLICATIONS ON ALGORITHM INSPIRED BY CUCKOO SEARCH ALGORITHM

The nature in itself is the best example to solve problems in an efficient & effective manner. During the past few decades, researchers are trying methods that can help human to solve the problems. Applications and to show how traditional methods and nature optimizations the algorithms work in this area. In some of the other aspect, these algorithms have enhanced the performance of each image processing. Multi-objective load dispatch problems, scheduling problems etc. can be easily solved, has better performance and efficiency when solved with firefly algorithm. Also, Firefly algorithms solve the scheduling problems in permutation flow shops and cuckoo search algorithm to find the optimal solution.

5. LITERATURE REVIEW

TABLE 1

S.no	Application	Algorithm	Experiments	Authors
1	Comparative analysis of k-means and genetic Algorithm-based data clustering.	Data clustering, k-means, genetic algorithm.	A comparative study made on k-means and GA. data objects and 2 variables have been taken for the GA based data clustering, initially with k =2, 4 chromosomes are chosen randomly from the dataset. Clustering is done and the new centroid is obtained	Dash and Rasmita Dash
2	Integrating nature-inspired optimization algorithms to k-means clustering	k-means clustering algorithm, firefly optimization, cuckoo optimization, bat optimization, ant colony optimization	The purpose of the experiment is conducted. Six datasets downloaded from the UCI machine-learning repository. The experimental processed ten times to measure the average CPU time was taken and best objective function value best fitness values.	Rui Tang, Fong, Xin-She Yang, Suash Dab
3	Ant colony optimization algorithms for traveling salesman problem.	Ant colony optimization	The probability pi k of transition of a virtual ant from the node i to the node k. experiment, we used the problem of 32cities in Slovakia. The final result differs from optimal exact methods is that ACO algorithm provides relatively good results.	Vorigo M, Stutzle T.
4	Improving ant colony optimization for brain image segmentation and brain tumor diagnosis.	Ant colony optimization	The proposed algorithm has two main parts. In the first part, the pheromone matrix is made and the second part includes analyzing and converting this matrix to a binary image. Applying a median filter for eliminating also the too proposed algorithm.	Vincheh,
5	Ant colony system a co-operative learning approach to traveling salesman problem.	Ant colony optimization	The experiments on ATSP problems presented in this section have been executed while experiments on tsp problems using only a single processor due to the sequential implementation.	Dorigo m, Gambardella m.
6	Embedded feature selection using PSO-KNN: shape-based diagnosis of micro calcification clusters in mammography.	Particle swarm optimization algorithm	The proposed PSO- KNN feature selection scheme has been tested using clusters for the cluster extracted 27 malignant clusters and 30 are benign. This dataset clusters extracted from 20 digitized results mammograms from a mini-mias database [20] clusters that are obtained from 30 digital.	Imadzyouta, Ikhlas Abdel-Qaderb, Qhristina Jacob, et.al
7	Lion optimization algorithm (loa): a nature-inspired metaheuristic algorithm	Nature inspired algorithm, ant colony optimization.	To evaluate the performance of lion optimization algorithm, a comprehensive set of 30 benchmark optimization standard benchmark functions. Provide superior results in fast convergence and global optima achievement, and in all case comparable with other metaheuristics.	Maziar Yazdani & Fairborz Jolai.
8	Nature-inspired algorithms: state-of-art, Problems, and prospects.	Nature inspired algorithm, bat algorithm, ant colony algorithm, firefly algorithm, cuckoo search algorithm.	Various studies have been performed to estimate the efficiency of nature-inspired algorithms benchmark test problems in order to solve the "curse dimensionality" problem. Table that most of the basic in best experimental in the result.	Parul Agarwalshikha Mehta.
9	A review of nature-inspired algorithms for clustering	Cuckoo search, firefly algorithm, bat search algorithm.	The search of the solution space is started from a more proper area through cuckoo algorithms independent of initial solutions, and the clustering accuracy. Firefly is used for an algorithm in determines input parameters, ability to deal with noise and outliers.	Radha A. Pimpale, P.K. Butey.
10	A review on generation of automatic fuzzy rule base from numerical data using nature-inspired approach	Cuckoo search algorithm.	The fuzzy rule base from numerical data using nature-inspired approach can be improved algorithm. Fuzzy systems are gaining widespread acceptance in a large variety of fields. Automatic control strategy.	Aditi Mittal
11	Artificial bee colony algorithm, its variants, and applications.	Bee colony algorithms; nature-inspired algorithm.	The hybridization of ABC and quantum evolutionary algorithm (QEA) was proposed for solving continuous optimization problems. The experimental results demonstrated that the hybrid QEA based on ABC was suitable to solve the problem.	Arobolaji et al.
12	An efficient dorsal hand vein recognition based on firefly algorithm.	Firefly algorithm	In this experiment, the pictures of dorsal hand veins will be tested under the noise and light conditions method, on the other hand, consists of features extraction of dorsal intersections. The firefly clustering algorithm (fa) positions veins features in related class.	Zahra Honarpisheh, Karimfaez.
13	Energy-aware model for sensor network: A nature inspired algorithm approach	Ant colony optimization, bees colony optimization.	The authors implemented the proposed model using research lab dataset for the experiment purposes. This dataset consists of three tables namely location table aggregate connectivity strength table, and sensor data.	Dore swami and Srinivas Narasegouda.

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14	A new population-based nature-inspired algorithm every month: is the current era coming to the end?	Nature-inspired algorithms, swarm intelligence.	The new population-Based nature-inspired algorithms are released every month and, basically, they have nothing special and no novel features for science. The newest population in counted by near feature.	iztokfisterjr., urošmlakar, Janez Brest, Iztokfister.
15	Nature inspired algorithm for reduction of co2 emission in thermal power station	Firefly algorithm.	The firefly algorithm has been applied for optimizing the economic dispatch problem for minimizing the emission level of the thermal power plants. The most simulations proposed firefly algorithm.	S.palaniyappan1, P. Anbalagan
16	A Reminiscent study of nature inspired computation	The nature-inspired algorithms, swarm intelligence, genetic algorithm.	The nature in itself is the best example to solve problems in an efficient & effective manner. During the past few decades, researchers are trying methods that can help human to solve the problems.	Shilpi V Gupta, Shweta Bhardwaj, Parul Kalra Bhatia
17	Nature inspired optimization algorithms: an insight to image processing applications	Swarm intelligence optimization algorithms	Applications and to show how traditional methods and nature optimizations the algorithms work in this area. In some of the other aspect, these algorithms have enhanced the performance of each image processing.	Manish Dixit Sanjay Silakari Nikita Upadhyay.
18	Analyses of nature-inspired intelligence in the domain of path planning and searching in cross country with consideration of various constrained parameters	Cuckoo search, firefly algorithm, bat algorithm.	The proposed best path while providing robotic navigation to external vehicles. As the proposed algorithm is derived from the Firefly and the cuckoo search algorithm and it extracts the best path. This best path is used for retrieving best image from the pool of satellite	Monica Sood, Dr. Ashish Kr Luhach Dr. Vinod Kr Panchal
19	Hybrid nature-inspired algorithms and rough set theory in feature selection for classification: a review	Nature-inspired algorithms, particle swarm optimization, ant colony optimization, bee colony algorithm.	These approaches are categorized to ant colony optimization particle swarm optimization (PSO), and artificial bee colony approaches for optimization and optimal features subsets.	Ahmed Alia, Adel Taweel

6. CONCLUSIONS

The difficult combinatorial optimization problems can be solved using several techniques, but these days, that algorithm that is inspired by the natural behavior gets special importance for their performance. The few of the things are solved in the above literature methods. We finally concluded that the literature review methods showcasing nature-inspired algorithms need improvement on efficiency.

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A COMPARATIVE STUDY OF AODV AND CROSS LAYERED AODV FOR MULTIPATH ROUTING IN MANET

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ABSTRACT

Ad hoc network is a multi-hop wireless network formed by a collections of mobile nodes without the intervention of fixed infrastructure. The mobile hosts are self-organized and can be deployed everywhere and at any time. multipath routing is the routing technique of using multiple alternative path through a network which can yield a variety of benefits such as fault tolerance, increased bandwidth, or improved security. The proposed protocol as the critical feature to adapt cross-layer interface in multipath mobile ad-hoc network.In this article show case improved method for existing system.

KEYWORDS
MANET, AODV, CSSOR, energy, ad-hoc.

1. INTRODUCTION

Mobile Ad hoc Networks (MANETs) have been fundamentally utilized as a part of strategic network related applications to enhance war zone communications. Early ad-hoc network can be followed back to DARPA Packet Radio Network Project (PRNET) in 1970s. The PRNET project utilized ALOHA [1] and in this manner utilized CSMA ways to deal with help the dynamic sharing of the radio resources, and included multi-hop communication among nodes by presenting a few separation distance vector routing protocols. In the early 1990, the U.S. Bureau of Defense kept on supporting exploration projects, for example, Global Mobile Information Systems (GLOMO) and the Near-Term Digital Radio program (NTDR).

The current advances in scaling down, and the proposition of open guidelines (Bluetooth, IEEE 802.11, RFID) for wireless communication, have incredibly encouraged the sending of ad hoc network and support for further developed capacities. This enables a node to go about as a wireless terminal and additionally a repeater and still be sufficiently minimized to be mobile. A self arranging mobile gathering of such gadgets associated with wireless connections is said to be an Ad-hoc network. A wireless network is ordinarily a decentralized network[2].

Wireless mobile ad-hoc networks are self-arranging, dynamic network in which node are allowed to move. Wireless network do not have the complexities of foundation setup and organization, empowering gadgets to make and join network "on the fly" – anyplace, whenever.

In Multipath routing is the network of utilizing various option paths through a network, which can yield an assortment of advantages, for example, adaptation to non-critical failure, expanded transfer speed, or enhanced security. In Multipath routing is the strategy of utilizing various option paths through a network, which can yield an assortment of advantages, for example, fault tolerance, increased bandwidth, or improved security.

Multipath routing is the spreading of activity from a source node to a destination node over various paths through the network. The web is a critical piece of the worldwide communication. Qos, throughput, and delay are troublesome issues with current single path routing design. multipath routing gives much better general network execution by permitting better sharing of the accessible network assets.

2. LITERATURE REVIEW

S.Palanisamy et.al (2016) depicts the path association builds up the connection from source to destination by means of middle of the road nodes. In mobile Ad hoc arrange the path is temperamental because of portability of nodes. The multipath routing protocol gives adaptation to non-critical failure and load adjusting. This adaptation to internal failure is utilized to rapidly recoup from course failures. [3]

SeemaTiwari1 et.al (2016) Analysis An Energy Saving Multipath AODV routing protocol, which in light of node remaining energy and Threshold esteem based plan for choosing just two paths that have most extreme energy value. Pick one way from two of them that have most extreme vitality for communication and second way is hold for later use as backup route of action. In this path, when fundamental route is never again being used because of connection disappointment, vitality fatigue second route is utilized for information transmission which ration vitality devoured in reroute start process. Reenactment comes about demonstrates that it indicates better execution as far as Packet Delivery Ratio and End-to-End defer in contrast with AODV routing protocol.[4]

D.Srinivasa Rao et.al (2016) thought about a protocol, called Poly-Meshed routing protocol (PMRP) which cluster based routing protocol and conveys the idea of work tree. It lessens routing overhead and enhance the steering disclosure by coordinating the between cluster on-demand and intra-cluster table-driven routing, which can expand the execution in the Throughput, Packet Delivery Ratio, Routing Overhead, End to End delay, and Energy Consumption when contrasted and AODV (Ad hoc On demand Distance Vector) protocol.[5]

Ranjeet Kaur et.al (2013) compared an essential route neglects to convey the packets, the auxiliary route can be utilized. The multipath routing gives a superior adaptation to internal failure in the feeling of speedier and productive recuperation from route failure. This additionally gives better Load Balancing. This paper tends to issues and difficulties of the different multipath routing protocols in MANETs.[6]

Shiva prakash et.al (2010) describes the routing and power administration end up noticeably basic issue. In this generally utilized field, considering the two protocols and investigative systems for energy efficient routing. The principle concentrate on inspiration, look into challenges, late advancement and alterations in existing straight routing protocols to make them as energy efficient. [7]

Rashmi Gupta et.al (2016) Analysis the primary concentrate is on the energy of the sensor nodes and security of the sensor nodes. As AODV is conventional calculation for portable Ad hoc network, the idea of AODV is utilized as a part of changed design to get the various paths in single route discovery stage for least vitality utilization. Furthermore, for security reason we utilize the two surely understood cryptographic calculations RSA and Diffie Hellman one by one discover which gives best execution regarding time taken. [8]

P.Periyasamy et.al (2013) describes a Multipath routing protocols build up different courses between nodes. The development of different route ought to be finished with least overhead and bandwidth consumption. The motivation behind this article is to examine the attributes and usefulness of different multipath routing protocols and to do the execution correlation between these multipath routing protocols to pick the best among them to use in large networks. [9]

Rohit Jain et.al(2013) Compare An assortment of routing protocols have been proposed and a few of them have been widely reproduced or actualized too. The normal conviction is that the same is valid for specially ad-hoc networks, i.e., multi-path routing adjusts the heap altogether superior to anything single-path routing. Our Protocol, called MPOLSR and MDART is a multipath routing protocol for MANET. [10]

3. MULTIPATH ROUTING PROTOCOL

The Multipath routing successfully diminishes the recurrence of route discovery in this manner the inertness for finding another route is decreased when at present utilized route is broken. The multipath routing has all the earmarks of being a promising method for specially appointed routing protocol. giving different route is useful in communication, especially in the MANETs where route wind up noticeably old as often as possible in light of mobility and poor remote connection quality. various paths can be helpful in enhancing the successful transfer speed of communication, reacting to clog and overwhelming activity, and expanding conveyance unwavering quality.

Single path routing may bring about clog influencing the network as far as bandwidth, throughput and delay. To defeat the issues of single path routing, we are wanting to outline multipath and cross-layered routing protocol for MANET.

The most path issue is that it is regularly the focal way of the network and typically constantly congested as each node tries to do information transmission by means of this focal path.Single way protocols are fault tolerant and don't have the ability to appropriate the heap. To defeat the burden of single path routing, scientists concentrate on the possibility of multipath routing. It is acquired from the conventional circuit exchanged network where call blockages are stayed away from by redirecting call to some other route [11]. When all ways are known to sender, most vital issues are about how to choose among every accessible paths and how to convey stack among nodes.

To adapt to the advanced difficulties, for example, application decent variety and progression changes, setting up path for various application is very bulky. MANET design likewise represents some imperative constraints, for instance, limited bandwidth and energy sparing. Analyst tries to locate the best way among every single accessible course to fulfill the need. Developing from single path to two paths which goes about as a reinforcement route on the off chance that that essential path comes up short demonstrates better. This approach likewise includes the blame tolerant element where one way breaks while the other one assumes control. With the progression of time, these methodologies were not adequate for the client prerequisite and consumer loyalty. Multipath routing strategy was utilized to accomplish more productivity and load dispersion among paths [12]. Multipath approaches are essentially separated into two classifications, that is, interface disjoint and hub disjoint multi-paths. Shared medium constantly has a tendency to be congested and furthermore lessens the execution of the network because of parcels misfortune and delay. Multi-hop communication additionally needs the common collaboration required between physical, MAC, and steering layer. Likewise, versatility additionally represents the requirement for foundation of new route over and over Shadowing condition include RSS (Received Signal Strength) is utilized for balancing out the connection.

One of the significant difficulties is likewise on choosing that what number of quantities of paths ought to be utilized. Utilizing more ways likewise includes the extreme over-burden with exceptionally minor change in the throughput. Greater part approaches utilized a few ways for multipath conspire. A portion of the upsides and downsides of the multipath routing protocol.

3.1 MULTIPATH ROUTING ADVANTAGES AND DISADVANTAGES

For reproduction work, we utilize AODV (ad-hoc on-demand distance vector) [DSR (Dynamic Source Routing), OLSR (Optimized Link State Routing), PLQBR (Predictive Location-Based QOS, Routing in Ad Hoc Networks), QAODV (Quality of Service for Ad Hoc On-Demand Distance Vector Routing), CEDAR (Core Extraction Distributed Ad Hoc Routing), SAODV (secure impromptu on-request separate vector), and CSROR (Cross-Layer Secure and Resource-Aware On-Demand Routing). AODV chips away at the theory of DSDV by enhancing the on-request conspire. This aides in finding the progressive courses, additionally by lessening the route support stage. Just the dynamic nodes will trade and keep up the control data. Goal grouping number is utilized by source hub to abstain from circling and freshness of the route [13]. Like DSR, AODV communicate RREQ to its neighbors, however not at all like DSR source routing isn't utilized. Here, source node and middle of the road hubs will store the following jump steering data in its routing table and RREQ will be rebroadcasted. Once the RREQ achieves the last goal, it answers with the RREP to the turnaround way where sections are made at the middle of the road nodes. In the event that middle of the road nodes know the goal, they may be permitted to send RREP if their grouping number is equivalent or more noteworthy to the succession number said in the RREQ. In the event that any mistake happens, RERR (Route ERROR) will be created and transmitted to both end nodes. RERR additionally makes the end nodes evacuate the relating route sections. The principle inconvenience of AODV is that if succession number of source hub is little, at that point the number is utilized by middle of the road nodes and can prompt stale route too causing the RERR every now and again.

4. PROPOSED AND OBJECTIVE METHOD

In MANET, there are numerous applications and might be an assortment of situations. A single route determination component may perform well in one situation yet may not in another. For instance, AODV routing protocol may perform well for basic applications yet isn't appropriate for multimedia or such applications which require security. Likewise, CSROR may function admirably to guarantee some kind of security; be that as it may, it isn't reasonable for basic applications, which needn't bother with security. Keeping in see extensive variety of uses and situations related with MANETs, we propose an adaptive mechanism which chooses multipath routes from source to destination by considering the type of application.

The proposed protocol dependably chooses at least two than two ideal route relying upon sort of use. The route choice process is versatile and nearly coordinates the application prerequisites. Diverse sorts of utilizations have distinctive requirements. An ideal route is constantly chosen as a matter of route; be that as it may, different applications can pass on their individual requirements to the proposed protocol utilizing couple of parameters, for example, bandwidth, delay, and security. The default route is utilized for those applications, which are non-delicate and need not bother with more bandwidth. Default course route the briefest way from source to goal like AODV.

Multimedia applications need such route, which has more bandwidth and least end-to-end delay. For such application, the proposed routing protocol chooses at least two than two route which are bandwidth rich having least delay from source to destination.

Secure route is chosen when some kind of touchy application is sent from source to destination. The routing protocol deals with organize layer related security assaults.

In the proposed routing protocol, some imperative highlights are as per the following:

(iv)   The sort of use is characterized by application layer.

(v)   Security module is working at network layer.

(vi)   Bandwidth and end-to-end delay parameters are taken from medium access layer.

5. RESULT AND DISCUSSION

Reproduction Parameters. With a specific end goal to assess the performance of our proposed protocol, we routing reenactments in modeler.

NS2 Simulation Result of Comparing with Each Other. As a matter of first importance, we looked at the changed variations, that is, default, mixed media, and secure proposed routing protocol.

Media get to defer is given in Figure 1. For this situation, the default variation beats the other two, by having beneath 0.001 sec media get to defer within the media access of 50 nodes.

TABLE 1: MEDIA ACCESS DELAY FOR DEFAULT, SECURE PROTOCOLS

| Number of node	Default protocol	Secure protocol
10	0.001	0.003
20	0.0015	0.005
30	0.0014	0.0045
40	0.0013	0.0055
50	0.0014	0.0049

FIGURE 1: MEDIA ACCESS DELAY
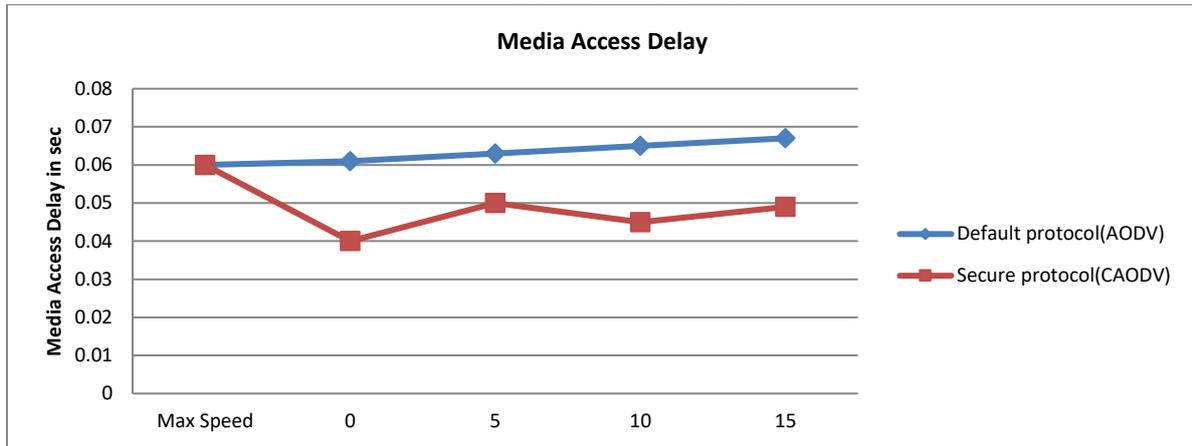
It demonstrates the packet delivery ratio at most extreme speed between AODV, CAODV, and proposed mechanism. AODV delivery is diminished with the expansion in speed. CAODV likewise demonstrates the 77% delivery rate, while our proposed mechanism indicates 88% delivery rate at all speeds.

TABLE 2: PACKET DELIVERY RATIO

Max Speed	Default protocol(AODV)	Secure protocol(CAODV)
0	0.001	0.001
5	0.002	0.0012
10	0.004	0.0015
15	0.005	0.0017
20	0.007	0.0018
25	0.008	0.0019
30	0.009	0.0021

FIGURE 2: PACKET DELIVERY RATIO
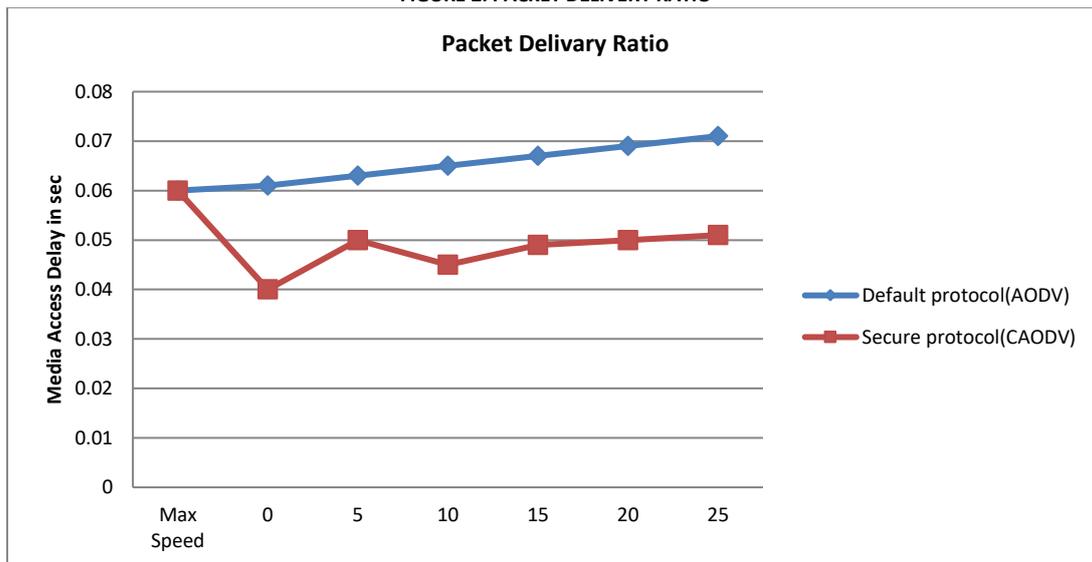
Routing overhead is cited in suggests that through increasing mobility the overhead will also be increased. However, proposed mechanism tends to show the overheard becomes stable after someday showing no main variation.

TABLE 3: ROUTING OVERHEAD

| Time in sec	Default protocol (AODV)	Secure protocol (CAODV)
0	14000	8400
300	13700	7900
600	12600	8100
900	11450	8300
1200	11900	8400

FIGURE 3: ROUTING OVERHEAD

Routing Overhead
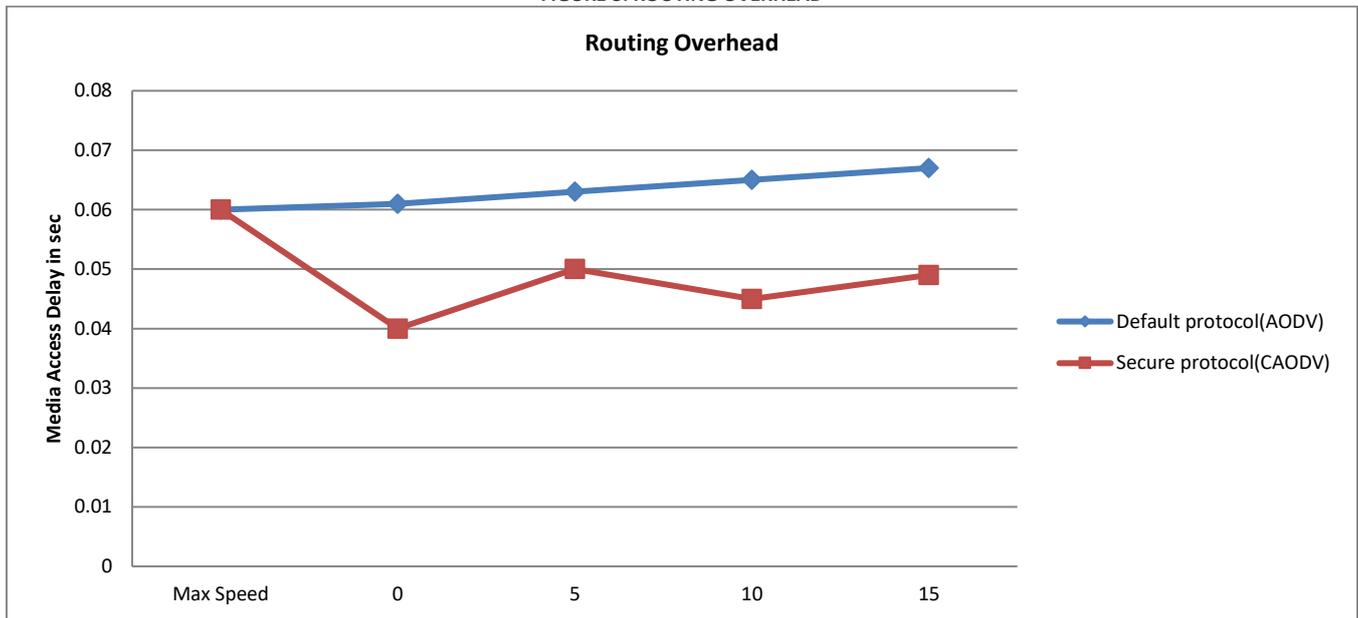
The average end-to-end delay for a network in presence of malicious nodes is proven in smallest end-to-end delay is located in case of CAODV. AODV that has barely greater end-to-end delay compared to CAODV and proposed mechanism due to involvement of cryptographic operations in route discovery.

TABLE 4: AVERAGE DELAY AT MAXIMUM SPEED

Max Speed	Default protocol(AODV)	Secure protocol(CAODV)
0	0.06	0.06
5	0.061	0.04
10	0.063	0.05
15	0.065	0.045
20	0.067	0.049
25	0.069	0.05
30	0.071	0.051

FIGURE 4: AVERAGE DELAY AT MAXIMUM SPEED

Average delay at maximum speed
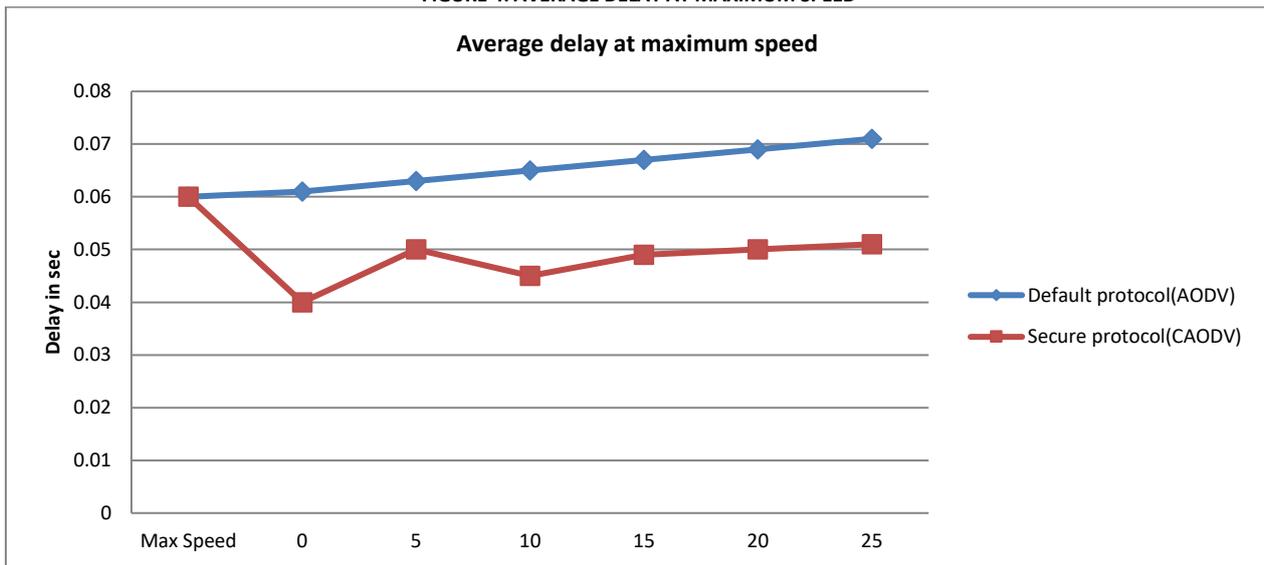
6. CONCLUSION

In this studies work we supplied cross-layer multipath routing protocol for MANET. The proposed protocol has critical features, this is, security and adaptive nature. these critical capabilities are completed with the aid of multipath framework using cross-layer interface. The comparison covers maximum of the scenarios together with the packet delivery ratio, average delay, and routing overheads with and without malicious nodes. The proposed protocol may be very powerful in maximum of the eventualities that we examined. In future, we're planning to further strengthen the security of proposed routing scheme by introducing packet encryption and key exchange mechanism. Moreover, we may remember to test and put into effect it in real scenarios.

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AN EMPIRICAL STUDY ON THE DETRIMENTAL EFFECTS OF EMPLOYEE SURVEILLANCE IN INDIA

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BELGIUM

ABSTRACT

The excessive use of Information Technology (IT) devices in the organizational workplace, among many other impacts, paves a path to multiple forms of surveillance on both the individual and the social level with its desirable and undesirable consequences that makes a fundamental change in how work is done. The literature on electronic surveillance in the workplace in Indian context is, if any, dominated by theoretical discussions with very minimal empirical study and that not definitively from employees' perspectives and with ethical frameworks. This empirical study with an explorative approach fills this lacuna qualitatively and contributes to the broad research scholarship by exploring the impact of the implementation of electronic monitoring technologies and systems on employees. It discovers, from employees' perspectives, the adverse effects of electronic monitoring on their attitude, job commitment and satisfaction, and their morale and behaviour. From employees' real-time experience analysis, this research shows that the negative impacts of workplace surveillance often surpass the expected benefits of surveillance.

KEYWORDS

surveillance, privacy, ethics, control, freedom.

INTRODUCTION

The term surveillance, though once was reserved for police activities and intelligence gathering, now seems as a customary and as an unavoidable feature of everyday reality. For, it happens to us all, every moment, as we walk beneath street cameras, swipe cards for commercial or non-commercial activities and surf the Net at home and work (Lyon, 2003). The workplace is a major locus of human life, where possibilities for human interaction and growth are generated and endorsed. The excessive use of Information Technology (IT) devices and techniques begin to make possible now to measure and monitor employees as never before, with the promise of a fundamental change in how work is done – along with raising other individual and social concerns in the workplace. Moreover, the information age offers inexpensive and user-friendly devices and methods in the workplace to control, monitor, and process information pertaining to an individual and expose it to the public. A qualitative study on electronic surveillance in the workplace was conducted in Indian context, because, the literature on electronic surveillance in the workplace in Indian context is, if any, dominated by theoretical discussions with very minimal empirical study and that not definitively from employees' perspectives and with ethical frameworks. The present study fills this lacuna and contributes to the broad research scholarship in this matter. The socio-cultural and economic backgrounds and the present scenario of IT, ITeS, BPO affluence in Indian work culture, extend the significance and urgency of this investigative exploration.

OBJECTIVES OF THE STUDY

The irony of electronic surveillance in the workplace is that it is much used and little understood (Vorvoreanu and Baton, 2000). The reason behind this concern is its individual and social impacts, which have not yet been sufficiently mapped in the researches. For instance, supporters of surveillance intensively and exclusively focus on its potential results and benefits, whereas the critics principally target the potential abuses of the process and techniques used for surveillance (Alder, 2001). It is therefore equally and critically important to balance the legitimate requirements to safeguard the organizational interests and the genuine human concerns of the employees. For, the issue is often a matter of conflicting rights and interests: employers have legitimate interests in increased productivity, efficiency and profit, direct and vicarious liability alleviation, guard against theft and fraud, etc., while employees have their own individual and social interests and rights to privacy, dignity, autonomy social status and justice, and self-actualization. Therefore, the aim of this study is to explore and examine the impact of the implementation of electronic monitoring technologies and systems in the organizational workplaces on employees. It tries to discover from employees' perspectives the adverse effects of electronic monitoring on their attitude, job commitment and satisfaction, and finally their morale and behaviour.

REVIEW OF LITERATURE

The workplace surveillance is a global phenomenon, not restricted to an organization, sector, society, region, or country, albite it has boundless ramifications, in both micro (motivation, competence, motivation) and macro (organizations or sectors) levels, on the cultural or environmental backgrounds and contexts of a given time and space (Cantor, 2016; Pitesa, 2012). Surveillance is regarded as a management technique useful in ensuring quality service and increased productivity (Sewell & Barker, 2006) and guaranteeing protection from theft, legal liabilities and over expenditures due to fraud, dishonesty, or misconduct (Allen et al., 2007; Findlay & McKinlay, 2003). It also obstructs external encroachment by way of data transactions and blocks the sensitive, confidential and sometimes dangerous information being received or sent outside of the company (Mujtaba, 2003). Electronic monitoring systems thus allow businesses to have good transactions, avoid mortgages and liabilities, conduct needed investigations and interactions, and help to ensure their success in a competitive global environment.

Though the specific parameters of surveillance vary both in quantitative and qualitative level in relation to the organizational differences, the performative and behavioural monitoring and the ubiquitous nature of its applications are largely increasing in the Indian workplaces and particularly in those enabled with ICT (Noronha & D'Cruz, 2009) and are extensively mounting in its challenges. According to a study done by the American Management Association (AMA, 2008) nearly 80 % of major companies monitor their workers, especially employees' use of email, internet or phone. They also have found that some industries, like the financial industry, are especially vigilant and over 90 % of these firms confirm some type of surveillance in their companies. Surveillance technologies and methods used in the workplace include video and audio surveillance (CCTV, phone taping); heat, light, motion, sound and olfactory sensors; night vision goggles; electronic tagging and biometric access devices; drug testing, DNA analysis; computer monitoring including email and web usage and the use of computer techniques such as expert systems, matching and profiling, data mining, mapping, and network analysis and simulation, etc. (Marx, 2007).

In India, new forms of labour challenges or employee setbacks emerge due to the volatile requirements of global standard business and its subsequent functional practice of direct or 'panoptical' control over the workers and the work process (Upadhya & Vasavi, 2006). This practice is called 'electronic panopticon' by Graham Sewell and Barry Wilkinson, "where a disembodied eye can overcome the constrains of architecture and space to bring its disciplinary gaze to bear at the very heart of the labour process" (Sewell & Wilkinson, 1992). It has a drilling effect on employees and becomes a contemporary challenge of Indian organizational workplaces. According to Babu P. Ramesh (2004, 495), "the degree of surveillance required at work is even comparable with the situation of 19th century prisons or Roman slave ships." For, when employees become subjects of incessant monitoring and all workplace interactions and behaviours are recorded and thus get the feeling of being constantly observed and scrutinized, also turns out to be a psychological torture for many (Remesh, 2008). To the same angle, the Foucauldian concept of 'panoptic gaze' in relation to workplace surveillance brings further implications such as, "the institutionalized acceptance of management prerogatives, [...] an inevitable extension of the managerially imposed control system, [...] the intensification of labour process" (Bain & Taylor, 2000: 4) and goes beyond the limit of disciplinary control. Thus, the work processes and behaviours that are closely monitored emerge to conflict with openness, individual initiative, loyalty, trust and informality (Upadhya & Vasavi, 2006), and causes for unequal power relationships, such as bestowing power on the monitoring agent over the monitored (Richards, 2013).

In the same vein, the rigid and panoptical systems and techniques of monitoring fasten the individual employee sturdily to the machine (Upadhya & Vasavi, 2006). It makes employees feel insecure and causes a dent in their morale and thus a gradual decline in the quality and duration of relationship. Likewise, along with disrupting employees' "right to work at their own pace, [surveillance] guided by their own moral compass, [...] fosters mistrust" (Iyer, 2012) and becomes detrimental to productivity and overall performance of organizations. Some studies reveal that the decrease in monitoring causes to reduce the quit-rates in the organizations – high monitoring leads to high quit rates (Batt, et al., 2005). That means, extensive and repetitive monitoring along with high performance targets is said to have increased the attrition rates in the Indian organizational workplace (Deery, 2013). Several researchers observe in the same way that surveillance leads to high stress, towering depression, and emotional exhaustion and burnout (Batt, et al., 2005; Holman, 2004). Similarly, surveillance becomes detrimental to the normal expectations and concerns of an Indian employee regarding work, namely, freedom in job, creative performance, trust from employer and colleague, commitment, importance of data security, efficiency in work, and understanding and appreciation, etc. For, extensive monitoring reinforces the employees to work in a stereotypical way – like a robotic image or in a mechanized form – who are, as George Ritzer and Craig D. Liar (2009) present, overly regimented, dependent and overwhelmed by this practice of control, and thus becomes devoid of any autonomy and fails to bring their 'selves' to work.

RESEARCH QUESTION AND METHODOLOGY

A qualitative research methodology is employed in this study in view of getting a comprehensive understanding of the real-time experience of employees who are in the field. Though exploratory in nature, of the manifold methods, such as analytical induction and interpretive phenomenological analysis available in qualitative research, this study takes phenomenography (Akerlind, 2012; Marton, 1986), which explores the diverse ways in which different people experience a reality differently or even contrarily, as its general-background approach in conducting the research and describing the data. Phenomenography enables a researcher to generate an integral meaning of the phenomenon under discussion by contextually interpreting the collected data. The primary research question around which this whole study revolves is: as an employee, describe your feelings about working under 24/7 electronic surveillance/monitoring at work. This study, thus, presents an overview of employee perspectives in Indian context, methodologically reviews literature to substantiate the employee experiences, and thus describes a heuristic framework that organizes research on employee reactions to electronic monitoring.

DATA COLLECTION AND ANALYSIS

Of the manifold forms of sample collection such as surveys, interviews, focus groups discussion, observation extraction, and secondary data sources, for this study, survey research is used. The data is collected online through a narrative inquiry (narrative response collection through emails and social networks), which enables the researcher to achieve deeper understanding of the many ways and means that both an individual and group of individuals organize and derive meaning from an event. Among the broad range of companies situated in various parts of India, for this study, data are collected from business executives and professionals belonged to IT, ITeS, BPO sectors in South India and thus ensured the precision and accuracy of the data and of the study. Sample size taken for this study is 134. All responses are combined by the researcher and few examples of both positive and negative responses are given in table 1.

TABLE 1: EMPLOYEE RESPONSES

Employee Concerns (Positive)	Employee Concerns (Negative)
It is a good measure for security.	Please don't even ask about CCTV modern slaverism.
I actually don't bother having it at my workplace, as long as it is used mostly for security. But to be productive, no need of monitoring, but is need for security purpose and even to find the lost thing.	I feel being spied on and untrusted and [I] loses trust to the management. It also affects my health and diminishes my self-confidence.
CCTV ensures security. Also sees to it that people follow the rules and agreement as agreed upon with the clients. Thus, increases the trust of Clients resulting in company's and in turn employer benefit.	I am not a slave to work like this. It takes away my privacy and work-satisfaction. It also affects my health and diminishes my self-confidence.
I feel it is good. If in case of any problems tracking becomes easy. I actually don't bother having it at my workplace, as long as it is used mostly for security.	Our personal privacy is sometimes compromised, when we are aware that, we are being monitored then we tend to be more conscious unsettled.
It is good in a responsible work environment. Most of the times I don't care much about it, for me it makes no difference whether if it is under electronic surveillance or not.	I feel always being looked with suspicion and is stressful. I change my behaviour to please the authority. Feeling exhausted, think to quit the job.
Monitoring can make a worker more productive on the job by cutting down the mistakes made while also allowing for greater, efficient use of one's time. This practice could make the workplace safer.	Sometimes it's really irritating, staffs mend to hide their faces and work. Privacy is getting monitored.
It helps the management to know how faithfully the employees spend the work time and accordingly measure the employee productivity and take other decisions.	Do they not trust us? Surveillance inhibits freedom at work. The more we are restricted the more rage with others we become.

Among the participants 35.3% positively responded to workplace surveillance denoting mostly to security, keeping rules and moral check, increasing productivity, and a good substitute for supervisor. Few of the respondents don't bother about any surveillance, if it leads to security. However, along with these positive notes, several of them unfailingly express other concerns like privacy invasion, lack of freedom, trust, self-responsibility, manipulation of data like CCTV footages and other personal and work life details, and increased stress and health issues. The other 64.7% feel totally negatively or rather skeptic about the intentions of surveillance systems used in their workplaces. The more recurrent issues expressed by employees are related to privacy, freedom and lack of trust. Few of the respondents were concerned about health-related hazards as they feel more stressful and exhausted being under highly monitored working situations, which in turn generate fear of camera. They doubt about the fear tactic used by the employers who spy on employees with suspicion. This make them feel being treated as robots and prisoners and reduces their self-confidence. Moreover, surveillance is perceived as modern slavarism and increases job-attrition and job-absenteeism.

Other important and often neglected views are related to the behavioural alterations resulted from the post-surveilled working conditions. Staffs tend to hide their face from CCTV cameras and try to express themselves in a way that satisfies the desires and interests of the authority and thus creates an artificial professional behaviour. For, technically talented and trained persons can escape from being caught. There is an increasing opinion that it is unprofessional to have surveillance disregarding the individual differences in a working condition and there is no need of external monitoring to be productive. It has become significantly important to consider the risks and rights of both employer and employee, but seems more interference with 'personal space' in each situation. Few of the respondents say that it is just for formality and do not work under open data commons and it increases the initial expense and extra maintenance costs. Though employees sometimes accept the monitoring for security reasons, they feel insecure since monitoring is now on employees rather than on their work or performance. Thus, they feel lack of respect to their needs and wants as human being and perceive it as an insult to human dignity. It is a common experience in the organizational workplace that the more restricted, the more rage with others. All these experiences, views and observations of the employees must be discussed in detail to derive and offer a conclusive ethical response.

RESULT DISCUSSION AND IMPLICATIONS

This study has explored employees' real-time experiences and reactions to the ongoing surveillance practices using electronic apparatus. The implementation and use of these technologies and methods are on the rise and now has become a routine in Indian organizational workplaces. The socio-cultural and economic situations, including commerce and trade, in India significantly support this scenario. This study also proves that the active monitoring systems in the workplaces

are increasing and the performance and communications of employees are under strict scrutiny and investigation. The purpose and the objective of the discussion section is to provide an interpretation of study results and substantiating it with evidences from further literature to make reasonable and convincing conclusions (Kaura, 2013). The managements of business organizations and corporations claim to have dramatically improved employee performance and thus increased level of productivity in the post implementation of electronic monitoring techniques. Few studies have conducted in this perspective (Al-Rjoub, Zabian & Qawasmeh, 2008; Nouwt, de Vries & Loermans, 2005; Bloom, Schachter & Steelman, 2003). However, this present study shows that employees feel otherwise, as they try to adhere with the organization's standard, compromising many of their personal and work-related desires and satisfaction. There are few studies conducted in this regard and back-ups this study (Karyda & Mitrou, 2008; Mitrou & Karyda, 2006; Martin & Freeman, 2003; Solove, 2006). The increasing level of distrust to the organization and among themselves directly causes employees feel job dissatisfaction.

Even while several employees further view workplace monitoring as a necessary security tool and try to understand and accept it in this way, they do not appreciate at the core being monitored, and don't want to work under 24/7 surveilled environment and exhibit the behavioural alterations to indicate the same. Though meant to function as a 'good watchdog' in general, these systems familiarize several negative feelings among the workers affecting their productivity and well-being. Several of the respondents who accept these systems as part of security, still express their concerns in terms of a sense of discomfort as they expose often their susceptibility and vulnerability. It also gives evidence that employees value his or her privacy, autonomy, freedom, fairness, etc. within the work life as it becomes the major channel to express the relationality and sociability. Continuous observation by implementing various technologies seem to reduce employees' motivation to commit extra in-role responsibilities. Many are concerned about and further commented on the cynical and pessimistic approach adopted by their employer, which increases detrimental relationship with the employers and with peer workers.

As Devasheesh P. Bhave (2014) expressed in his work on the electronic performance monitoring and employee job performance, this study also shows that the surveillance, no matter in excessive or non-excessive levels, becomes detrimental to employee performance. For instance, electronic monitoring inhibits freedom at work. Freedom at work is vital to construct a freedom centred approach leading to a freedom centred enterprise and authority. In the same manner, the arguments of crime prevention and liability alleviation are not always in consistent with the employee security argument. For instance, as one of the respondent opines, "… *it is implemented as part of security, but I feel insecure working under it, and it also restricts my freedom and privacy. Now-a-days, monitoring is on ourselves [employees], not on our work or performance*." These specific monitoring technologies are now targeted at employees rather than at work. There is a shift happening from monitoring work performance towards monitoring employees themselves and from employees' work lives to their private or personal lives. Besides, the ensuing imposed power over employees by employers now goes virtually unrestricted and unchallenged. In the same way, it must be noted, employees generally admit that stress, anxiety and other detrimental outcomes of surveillance lead also to aggressive behaviours and occupational violence.

Another significant recognition of this study is the necessity of the "personal space," which is highly demanded by employees. A female respondent expresses her concern in this regard, "*For the management, it may act as a moral check on the employees, but I am too much stressed and feel very uncomfortable to work being under monitoring. Not allowing us to have or enjoy a bit of own space is like a crime done to our human self and shows the lack of respect to our needs and wants.*" Besides, the apparent necessity of personal space in the workplace is already discussed by few researchers like Philip Brey (2005). Similarly, employees feel and become overwhelmed when they are aware that disregarding their own personal space and time, every word they utter, every keystroke they make, every movement they take, every document they analyse are recorded and could be retrieved after a long time. According to this study, close to half of the respondents reported excessive pressure at work. Almost all of them pinned the blame on overwhelming productivity and performance strains demanded from employers through monitoring.

This study shows that the electronic surveillance, from an employee perspective and experiences, is a poor solution to workplace concerns. There are many more concerns expressed by employees to confirm this argument. Employees openly speak about their privacy issues that "*our personal privacy is sometimes compromised, when we are aware that, we are being monitored then we tend to be more conscious, unsettled*." It leads also to unnecessary fear, as one employee rightly noted, "… *much like public speaking, as soon as we step in front of the camera, our knees and hands start to tremble, our voice get soft, it feels like someone looking straight into your eyes and judging you*." Few female employees very harshly responded to it. For instance, one says, "*it limits my freedom, when there is no freedom there is no creativity. We are not robots to monitor all-time during the work. It makes me exhausted at work and feel the same when I am back home.*" Another one exclaims, "*do they not trust us? Surveillance inhibits freedom at work. The more we are restricted the more rage with others we become*." Yet another female employee asks, "*am I a prisoner to be always watched over? Workplace should not be equated with prisons. Why should a stranger observe women's privacy in the name of surveillance?*" These are the real experiences and concerns of employees who are in the field and become the direct subjects of the gaze of a Big Brother.

In equal worth, few female employees also speak about distrust, power control and related stress, that: "*I feel the element of distrust is the key here. It [surveillance] also leads to the creation of artificial professional behaviour. It is the indication from the management that they do suspect us. It is used because, with a fear tactic, the management wants to get full control over us. For me it creates an atmosphere of mistrust at work.*" The end-result of this phenomenon is the cavernous feeling of alienation, which is reflected in the workplace in the form of absenteeism, presenteeism and high level of employee attrition. Employees are concerned also about totally private and personal things that cannot be publicized. So, this forced intrusion into one's private sphere leads to the violation of human dignity. Therefore, analysing all these responses it seems that, 'on/off the job' surveillance, from employees' perspectives, is not an easy or readymade resolution for employers that can fix all the problems arising in the workplace.

What, then, the employees themselves seek and stand for? When employees strongly uphold and express that "*I am sure that in order to be productive and responsible I do not need an external monitoring*," a self-emerging employee need and ability of being self-disciplined in the workplace is revealed. Moreover, majority of the respondents prefers to work without being monitored and feel uncomfortable with surveillance practices in the workplace. It is expressed as they opine "*it [surveillance] takes away my work satisfaction*" and "*I am not a slave to work like this,*" and "*I feel I have the dedication and commitment towards the work which I'm doing. My responsibility does not change according to the level of external monitoring,*" etc. These employees are ready to take any responsibility without outward force or constrains of external monitoring, as they feel these surveillance practices as behavioural bondage in the workplace.

To sum up, the compiled responses of employees show that the electronic surveillance conveys a reduced sense of privacy, self-esteem, workplace communication and increased uncertainty, employee vulnerability and behavioural alterations. It directly and indirectly envisages reduced job performance and negative job attitudes with lower job satisfaction and effective commitment through decreased perceived power control among employees. This also fosters employee turnover and reduced organizational citizenship behaviours. It adversely affects employees triggering increased stress and bondage of suspicion and distrust. Reducing the intensity of surveillance does not deteriorate employee performance; rather improve innovation, creativity and freedom, and thus bigger life-chances and enhanced quality of life. Therefore, it is critically important to balance the legitimate requirements to safeguard the organizational interests and the genuine human concerns of employee regarding privacy, dignity and social status.

LIMITATIONS OF THE STUDY

The job nature and the position of survey respondents would seem to limit the generalizability of the results. Errors that occur in the data from incorrect or manipulated responses due to the fear of being mistreated or even punished by the authority. In the same way, the individual response may not always represent the self, rather bias answering. As in every narrative-response study, it is difficult to analyse or compare the open-ended questions. So, respondents' point of view is focused than making any generalization about individual attitude, job commitment and interpersonal behaviours in the workplace.

CONCLUSION

The present study qualitatively demonstrates and affirms the adverse effects of employee surveillance and the complexity and limitations to understand the same. From employees' real-time experience analysis, this research shows that the negative impacts of workplace surveillance often surpass the expected benefits of surveillance. Though the researches in this area draw mostly on administrative and legal perspectives, this study recognizes an explicit need for a socio-ethical perspective. Employees possess totally different attitudinal and behavioural positions when they are being covered and not being covered under surveillance.

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Workplace monitoring owns a significant hold on the concerns of employee's morale, job attitude, workplace behaviour, trust and faith in employer and the commitment towards the job and life. Workers resist or express discontent in various forms about such workplace systems and strategies. Employees consider factors such as privacy and data security, freedom in job, trust from employer and impartial treatment in the workplace to be of immense importance. Any external monitoring or control is not recognized as a significant factor to be productive and efficient in the work. Therefore, from employees' perspectives, electronic monitoring is not a viable solution for workplace problems.

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