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ESTIMATION OF THE GENERAL LINEAR AND NONLINEAR REGRESSION MODELS WITH AUTOCORRELATED ERRORS

S. Eakambaram[1], M. Salomi[2] and R. Elangovan[3]
[1]Department of Statistics, Periyar Arts College, Cuddalore
[2]Department of Community Medicine, Chettinad Hospital and Research Institute, Kelambakkam
[3]Department of Statistics, Annamalai University, Annamalai Nagar

ABSTRACT
For estimating the coefficient vector of a linear regression model with disturbances following a first order autoregressive scheme, several estimators have been analyzed with the help of empirical methods. Nowadays, nonlinear regression model building is new and very fascinating filed of research in Applied Statistics. In Mathematics, or in any other scientific discipline, a research worker is certainly facing the problem of formulation of a nonlinear model. A large number of nonlinear regression models have been specified in the literature and successfully applied to different situations in the real world relating to several research problems in the various fields of Statistics. For linear regression models refers to Kramer (1980), Maeshiro (1976),Park and Mitchell (1980) and Spitzer (1979). The main contributions in the field of nonlinear regression models have been made by Gallant,Rossi and Tauchen (1933),Levenberg (1944), Hartley (1965), Jenrich (1969) etc. In this paper it is proposed to discuss estimation of general linear and nonlinear regression models with autocorrelated errors have been discussed. The problem of autocorrelation can be studied with linear and nonlinear regression models with illustration.

Keywords: Linear Regression, Nonlinear Regression, Autocorrelation Errors, First Order Autoregressive Scheme.

1.1.1 INTRODUCTION

For estimating the coefficient vector of a linear regression model with disturbances following a first order autoregressive scheme, several estimators have been analyzed with the help of empirical methods. Refers to Kramer (1980), Maeshiro (1976), Park and Mitchell (1980) and Spitzer (1979). Rothenberg (1984) considered the case when the error covariance matrix depends on a finite number of parameters and derived the approximate expression for the distribution of the two-step Generalized Least Square (GLS) estimator. Magee (1985) also adopted a general method to derive expansions for iterative estimators and applied it to obtain the approximation dispersion matrices for the iterated Prais-Winsten and Maximum Likelihood Estimators. While several families of improved or shrinkage estimators with superior properties in terms of a quadratic loss function have been developed for the linear regression model with i.i.d disturbances refer to Judge and Bock (1978) and Vinod and ullah (1981). The development of many estimators of parameters of linear regression model is traceable to non-validity of the assumptions under which the model is formulated, especially when applied to real life situation. The notwithstanding, regression analysis may aim at prediction. Nowadays, nonlinear regression model building is new and very fascinating filed of research in Applied Statistics. In Mathematics, or in any other scientific discipline, a research worker is certainly facing the problem of formulation of a nonlinear model. A large number of nonlinear regression models have been specified in the literature and successfully applied to different situations in the real world relating to several research problems in the various fields of Statistics. However, there are a large number of situations, which have not yet been nonlinearly modeled because of the situation may be complex or they are mathematically or statistically intractable.

The main contributions in the field of nonlinear regression models have been made by Gallant, Rossi and Tauchen (1933), Levenberg (1944), Hartley (1965), Jenrich (1969), Goldfeld and Quandt (1970), Biggs (1971), Ross (1971), Chambers (1973), Gallant (1975a, 1975b). Bates and Watts (1980,2008),Dennis,Gay and Welsch (1981).Hiebert (1981), McCullagh (1983), Ratkowsky (1983),Taylor and Uhlig (1990), Ord, Koehler and Snyder (1997), Davindson and Mac Kinnon (1999), Popli (2000), Fox (2002), Smyth (2002), Vasilyev (2008), Fox and Wiesberg (2010), Potocky and Stehlik (2010), Grafarend and Awange (2012) and others.

When all these assumptions of the classical linear regression model are satisfied, the Ordinary Least Square (OLS) estimator given as

$$\hat{\beta} = (X'X)^{-1}X'Y \qquad \dots(1.1)$$

is known to possess some ideal or optimum properties of an estimator which include linearity, unbiasedness and efficiency. These had been summed together as Best Linear Unbiased Estimator (BLUE). However, these

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assumptions are not satisfied in some real life situation. Consequently, various methods of estimation of the model parameters have been developed.

The assumption of non-stochastic regressors is not always satisfied, especially in business, economic and social sciences because their regressors are often generated stochastic process beyond their control. Another important things to be pointed out that the violation of the assumption of independent regressors leads to multicollinearity. With strongly interrelated regressors, interpretation given to the regression coefficients may no longer be valid because the assumption under which the regression model is built has been violated. Although the estimates of the regression coefficient provided by the OLS estimator is still unbiased as long as multicollinearity is not perfect, the regression coefficient may have large sampling errors which affect both the inference and forecasting resulting from the model. Various methods have been developed by Hoerl and Hoerland Kennard. Estimator based on principal component regression suggested by Massy, Marquardt and Bock, Yancey and Judge, Naes and Martenand the method of partial Least Square developed by Hermon Wold in the 1960. Its biased estimator of regression coefficient due to principal component regression involves two stages. This two-stage procedure first reduces the predictor variables using principal component analysis and then uses the reduced variables in OLS regressions fit. While is often works well in practice, there is no general theoretical reason that the most informative linear function of the predictor variables should lie among the dominant prinicipal components of the multivariate distribution of the predictor variables. Estimation of the Genera Linear(GL) and Nonlinear (NL) regression models with auto correlated errors seems to be more important and its leads to much attraction by many researchers in the recent past. In this paper it is proposed to study the GL and NL models with the presence of multicollinearity and autocorrelation. The results are substantiated through simulation results .

1.1.2. SIMPLE LINEAR REGRESSION

The Simple Linear Regression (SLR) model is the simplest regression model in which we have only one predictor X. This model, which is common in practice

$$Y_t = \beta_0 + \beta_1 X_t + \epsilon_t, \qquad t = 1, \ldots, n \qquad \ldots (1.2)$$

Where Y_t, X_t are the values of the response and predictor variables in the t[th] trial, respectively β_0 *and* β_1 are unknown parameters and ϵ_t are usually assumed to be i. i. d from $N(0, \sigma^2{}_t)$ specially for inference purpose. The terms $\{\epsilon_t\}$ satisfying such condition are named in the time series context as the White Noise (WN) process (Wei, 2006). The variable X is usually assumed fixed and non-random. For several predictors, the SLR model generalizes is known as the multiple linear regression model. For estimation of the SLR model there are two common methods, the first is the ordinary least square method, which relies on minimizing the sum of square of errors $\sum \epsilon^2{}_t$. For the SLR model equ.(2) the OLS estimators of β_0 *and* β_1

$$\beta_0 = \bar{Y} - \hat{\beta}_1 \bar{X}$$

And

$$\hat{\beta}_1 = \frac{\sum_t (X_t - \bar{X})(Y_t - \bar{Y})}{\sum_t (X_t - \bar{X})^2} = \frac{S_{XY}}{S_{XX}}.$$

It is known that these estimators are unbiased and Best Linear Unbiased Estimators (BLUE). The second method is the maximum likelihood method, which under the assumptions of independence and normality of ϵ_t produces again $\tilde{\beta}_0$ *and* $\hat{\beta}_1$.

In turn, the fitted SLR model is written as

$$\hat{Y}_t = \hat{\beta}_0 + \hat{\beta}_1 X_t$$

So that the estimated errors or residuals, denoted by e_t, are defined as $e_t = Y_t - \hat{Y}_t$, t = 1,…,n. Once, the regression model is fitted, important step in model building and diagnosis is to check for the assumption of the model namely independence, normality and constant variance of errors. The residuals of the fitted model play a primary role for this purpose. Several graphs and tests for residuals may be used to examine those assumptions. These techniques are usually known as residual analysis. In particular, to examine the independence of error terms we use the plot of residuals against time or order(usually named as the residual plot). Besides, an important test specifically designed for testing the lack of randomness in residuals is the

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Durbin-Watson test. For a detailed account on various methods for the assessment of the assumptions of regression models, see Kutner et al. (2005).

When the assumptions of the regression model are not valid there exist several remedial measures. In particular, when the error terms are correlated, in which case model (2)is named as generalized linear regression (GLR) model, a direct remedial measure is to work with a model that calls for correlated error terms (Kutner et al., 2005). A common model of errors in this case is the stationary zero-mean AR(1) model so that ϵ_t in (2) now satisfies.

$$\epsilon_t = \emptyset\epsilon_{t-1} + u_t \qquad \dots(1.3)$$

where *ut* are assumed iid N(0,$\sigma^2{}_u$) and $|\phi|$ <1. When ϕ = 0, this model reduces to the ordinarySLR model. Other possible models for errors can be selected from the wider class of mixed Auto Regressive Moving Average (ARMA) models (Box, Jenkins and Reinsel, 1994).In the literature, regression models with autocorrelated errors following some ARMA model have been widely studied (Mohammed and Ibazizen, 2008; Huitema and McKean,2007; Lee and Lund, 2004; Jeske, Butefisch, and Song, 1996; Zinde-Walsh and Galbraith,1991). More general results for regression models with correlated errors are consideredfor example by Grenander (1954), Choudhury, Hubata and Louis (1999), Yue and Koreisha (2004). In particular, Ohtani (1990) examined the small-sample properties of the Generalized Least Squares (GLS) estimators and tests of individual regression coefficients with autocorrelated errors.Lee and Lund (2004) considered the OLS and GLS estimation for the linear trend model

$$Y_t = \beta_1 + \beta_1 X_t + \epsilon_t \,. \qquad \dots(1.4)$$

They have derived explicit formulas for the variances of the OLS and the GLS estimates of $\beta_0 \; and \; \beta_1$ with errors following some selected ARMA models.

The GLS estimate of $\beta = (\beta_0, \beta_1)'$ under the SLR model is

$$\hat{\beta}_{GLS} = (X_n{}'\Gamma^{-1}{}_n X_n)^{-1} X_n{}'\Gamma^{-1}{}_n Y_n \qquad \dots (1.5)$$

Where $Y_n = (Y_1, \dots, Y_n)', X_n = (1_n, X_i)'$ is the design matrix where 1_n is a n-dimensional vector of ones and Γ_n is the auto-covariance matrix of the errors $\epsilon = (\epsilon_1, \dots, \epsilon_n)'$ written as

$$\Gamma = \begin{pmatrix} \gamma_0 & \gamma_1 & \cdots & \gamma_{n-1} \\ \gamma_1 & \gamma_0 & \cdots & \gamma_{n-2} \\ \vdots & \vdots & \ddots & \vdots \\ \gamma_{n-1} & \gamma_{n-2} & \cdots & \gamma_0 \end{pmatrix} \qquad \dots (1.6)$$

Where $\gamma_k = cov(\epsilon_t, \epsilon_{t-k}), k = 0,1, \dots$ Besides, the variance of $\hat{\beta}_{GLS}$ is given by

$$var(\hat{\beta}_{GLS}) = (X_n{}'\Gamma^{-1}{}_n X_n)^{-1} \qquad \dots \quad (1.7)$$

Granander (1954) showed that the OLS and GLS estimates are asymptotically equally efficient for SLR with stationary correlated errors. However, once the errors are correlated, the OLS estimates loses its minimum variance property. In this fact deficiency of OLS estimates carries over to the case of periodically correlated errors.

1.1.3. GENERAL LINEAR REGRESSION MODELS WITH AUTO CORRELATED ERRORS.

Assume that *{Yt}* (and possibly *{Xt}*) is a seasonal time series with period ω. Then, if theerrors in equ.(7.1) are correlated then they may inhibit some seasonality. In this case there are several approaches to handle this issue. The first is using seasonal ARMA models (seeBox et al., 1994) or one can add some extra regressors to equ.(1.2) to extract the seasonalityas for instance seasonal dummy variables or trigonometric functions. The later approachis useful when the seasonality in *{Yt}* is deterministic and the former is useful whenseasonality is stochastic but homogeneous.An alternative model that is suitable for modelling seasonality is the periodic ARMA(PARMA) models. Writing the time *t* in terms of the period ω as $k\omega + v$ where v =1, ω denotes the season and *k* denotes the year, the zero-mean PARMAω(p(v), q(v))model is written as:

$$\left(1 - \phi_1(v)B - .. - \phi_{p(v)}(v)B^{p(v)}\right)\epsilon_{k\omega+v} = \left(1 - \theta_1(v)B - .. - \theta_{q(v)}(v)B^{q(v)}\right)u_{k\omega+v} \qquad \dots (1.8)$$

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where $\{u_{k\omega+v}\}$is a zero-mean WN process with periodic variances $\sigma^2 u$ (v), $p(v)$ is the AR order for season v and $q(v)$ is the MA order for season v and $\phi_1(v), \ldots, \phi_{p(v)}(v)$ and $\theta_1(v), \ldots, \theta_{q(v)}(v)$ are the AR and MA parameters of season v, respectively (Franses and Paap, 2004). The Periodic Auto Regressive (PAR) model is a special case of the PARMA model. In equ.(1.8) setting $q(v) = 0$ for each $v = 1, \ldots, \omega$ we get the equation of the PAR$\omega(p(v))$ model. For instance, the zero-mean PAR$\omega(1)$ model can be written as

$$\epsilon_{k\omega+v} = \phi_1(v)\epsilon_{k\omega+v-1} + u_{k\omega+v}, \qquad v = 1,2,\ldots\omega \qquad \ldots(1.9)$$

In fact, this equation can be written as ω equations. For instance, the zero-mean PAR$_4$(1) model can be written as

$$\epsilon_{4k+1} = \phi_1(1)\epsilon_{4(k-1)+4} + u_{4k+1}$$

$$\epsilon_{4k+2} = \phi_1(2)\epsilon_{4k+1} + u_{4k+2}$$

$$\epsilon_{4k+3} = \phi_1(3)\epsilon_{4k+2} + u_{4k+3}$$

$$\epsilon_{4k+4} = \phi_1(4)\epsilon_{4k+3} + u_{4k+4.}$$

PARMA models are not stationary in the ordinary weak sense. They are rather examined for a weaker type of stationarity named as periodic stationarity. This means that the mean and the variance of the time series is constant for each season and periodic with period ω and the auto covariance function depends on the time lag and season only (Ula and Smadi, 1997). For example, the PAR4(1) model above is periodic stationary $if\ |\prod_{v=1}^{4}\phi_1\ (v)| < 1$ (Obeysekera and Salas, 1986). The essence of PARMA models is that it is suitable for modelling periodic correlations. The first motivations for those models started in hydrology then found any applications in economics and other areas (Obeysekera and Salas, 1986; Franses and Paap, 2004).

If the period $\omega = 1$, then the PARMA$\omega(p(v), q(v))$ and PAR$\omega(1)$ models reduce, respectively to the ordinary ARMA(p, q) and AR(1) models. For more details on PARMA models see for example Franses and Paap (2004). Therefore, the main idea in this research is to propose the idea of periodically correlated errors in SLR model through using the PAR(1) model, that is

$$Y_{k\omega} = \beta_0 + \beta_1 X_{k\omega+v} + \epsilon_{k\omega+v} \qquad \ldots(1.10)$$

In the next section the properties of the OLS estimates of $\beta 0$ and $\beta 1$ are to be investigated. Later on, the GLS estimates of βo and $\beta 1$ are also derived.

1.1.4. PROPERTIES OF OLS ESTIMATES WITH CORRELATED ERRORS

The method of moments is one of the most common methods of estimation in statistical inference. It is also common in the context of time series analysis. Assuming that $\{U_{k\omega+v}\}$ is a periodic stationary process, then the seasonal autocorrelation function depends on the time lag and season only and is defined as

$$\rho_j\ (v) = corr\left(U_{k\omega+v}, U_{k\omega+v-j}\right) = \frac{\gamma_j(v)}{\sqrt{\gamma_0(v)\gamma_0\ (v-j)}}\ , \quad j = 0,1,\ldots,$$

where $\gamma_j(v) = \text{cov}(U_{k\omega+v}, U_{k\omega+v-j})$ denotes the Seasonal AutoCo-Variance Function (SACVF) and $\gamma_0(v)$ denotes the variance of the process for season v and time lag j. Based on an observed realization $u_1, \ldots, u_{m\omega}$the moment estimator of $\rho_j(v)$ is

$$r_j(v) = \frac{C_j(v)}{\sqrt{C_0(V)C_0(v-j)}}\ , \qquad j = 0,1,\ldots,$$

Where $C_0(v) = \frac{1}{m-1}\sum_{i=0}^{m-1}(u_{i\omega+v} - \bar{u}_v)^2$

And $C_j(v) = \frac{1}{m-1}\sum_{i=0}^{m-1}(u_{i\omega+v} - \bar{u}_v)(u_{i\omega+v-j} - \bar{u}_{v-j}),$ $\qquad \ldots(1.11)$

Where $\bar{u}_v$ is the sample mean of data in season v and is the number of year of data. It can be shown that $\gamma_j(v)$ are asymptotically unbiased and consistent estimators of $\rho_j(v)$.As far as the PARω(1) is considered, it can be proved that the first lag autocorrelations are given by:

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$$\rho_1(v) = \phi_1(v)\frac{\sqrt{\gamma_0\,(v-1)}}{\gamma_0(v)} \qquad \dots\ (1.12)$$

for $v = 1, \dots, \omega$. Note that in this case the first order autocorrelation are not the same asAR parameters but a function of them unless all $\gamma_0(v)$ are equal. For a given PARω(1)model with known $\phi_1(v)$ and $\sigma_2 u\,(v)$, $v = 1, \dots, \omega$, then $\gamma_0(v)$ can be obtained, for all v,by solving the system of equations. Then $\rho_1(v)$ can be computed using (6).For the computation of $\gamma_j(v)$ for PARω(1) models the following theorem is useful.

1.1.5. THE RELATIVE EFFICIENCY FOR CORRELATED ERRORS

It is known that if $\hat{\theta}_1$ and $\hat{\theta}_2$ are two unbiased estimators of θ, then the relative efficiencyof $\hat{\theta}_1$ with respect to ^θ2 is (Rohatgi, 1984,).

$$RE\left(\hat{\theta}_1,\hat{\theta}_2\right) = \frac{MSE\left(\hat{\theta}_2\right)}{MSE\left(\hat{\theta}_1\right)} = \frac{var\ \left(\hat{\theta}_2\right)}{var\left(\hat{\theta}_1\right)} \qquad \dots\ (1.13)$$

Therefore, for the SLR model $\hat{\beta}_0$as $\hat{\beta}_1$ and are unbiased estimators for β_0 and β_1 for errors following WN, AR(1) and PAR(1) models, then we can compare the efficiency of these estimators using equ.(7.13). For simplicity, the comparison will be carried out with the WN model being the reference case. Those relative efficiencies are easily obtained from the results in the previous section and are explicitly given below.

The relative efficiency of $\hat{\beta}_0$ and$\hat{\beta}_1$ for errors following the AR(1) model with respect to the standard SLR model (i.e. WN errors) are

$$RE\left[\hat{\beta}_0(AR(1)),\hat{\beta}_0(WN)\right] = \frac{(1-\phi^2)\left(\frac{S_{XX}}{n}+\bar{X}^2\right)}{\frac{S_{XX}}{n}+\bar{X}^2+\ 2\sum_{i>j}^{n}K_{tj}\ \phi^{t-j}}$$

$$RE\left[\hat{\beta}_0(AR(1)),\hat{\beta}_0(WN)\right] = \frac{(1-\phi^2)}{1+2S_{XX}\sum_{i>j}^{n}M_{tj}\ \phi^{t-j}} \text{with } M_{tj} = (X_t-\bar{X})(X_j-\bar{X}\ )$$

And$K_{tj} = \frac{S_{XX}}{n^2} - \frac{\bar{x}}{n}\left((X_t-\bar{X})(X_j-\bar{X})\right) + \frac{\bar{x}^2}{S_{XX}}(X_t-\bar{X})(X_j-\bar{X}\ ).$

1.1.6. GENERAL NONLINEAR REGRESSION MODEL.

Suppose that there exists a nonlinear relationship between a dependent variables Y and a set of K independent variables $X_1, X_2, \dots, X_k$; p- parameters $\beta_1, \beta_2, \dots, \beta_p$ and error variable. For a sample of 'n' observation on each of these variables, one may specify a nonlinear regression model as

$$Y_i = f\left(X_{1i}, X_{2i}, \dots, X_{ki}\ ;\beta_1,\beta_2,\dots,\beta_p\right) + \varepsilon_i \qquad i = 1,2,\dots,n \qquad \dots(1.14\ )$$

Where f(.) is the known nonlinear function which is the expectation function relating E(Y) to the independent variables.

By expressing $Y = \begin{bmatrix} Y_1 \\ Y_2 \\ \cdot \\ \cdot \\ Y_n \end{bmatrix}_{n\times 1}$, $X = \begin{bmatrix} X_{11} & X_{21} & \cdot & \cdot & X_{K1} \\ X_{12} & X_{22} & \cdot & \cdot & X_{k2} \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ X_{1n} & X_{2n} & \cdot & \cdot & X_{kn} \end{bmatrix}_{n\times k}$

$$\beta = \begin{bmatrix} \beta_1 \\ \beta_2 \\ \cdot \\ \cdot \\ \beta_p \end{bmatrix}_{p\times 1} ,\ \varepsilon = \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \cdot \\ \cdot \\ \varepsilon_n \end{bmatrix}_{n\times 1}$$

And $f(X,\beta) = \begin{bmatrix} f(X_{q1},\beta) \\ f(X_{q2},\beta \\ \cdot \\ \cdot \\ f(X_{qn},\beta \end{bmatrix}_{n\times 1}$, $q = 1,2,\dots,k$

One may write the general nonlinear regression model in the matrix notation as

$$Y_{n\times1} = f_{n\times1}(X_{n\times k}, \beta_{p\times1}) + \varepsilon_{n\times1} \qquad \text{... (1.15)}$$

Where Y is $n \times 1;\ f(X,\beta)\ is\ n\times 1, X\ is\ n \times k, is\ p \times 1\ and\ \varepsilon\ is\ n \times 1$ matrices.

The general Nonlinear regression models in equ. (1.15) is of exactly the same form as the general linear regression model except that the E(Y)'s are Nonlinear function of the parameters.

1.1.7. NONLINEAR LEAST SQUARE ESTIMATOR

For a sample of n observation on the dependent variable, consider the general nonlinear regression model in vector notation as:

$$Y_{n\times1} = f_{n\times1}(X_{n\times k}, \beta_{p\times1}) + \varepsilon_{n\times1}$$

$$Y = \begin{bmatrix} Y_1 \\ Y_2 \\ \cdot \\ \cdot \\ Y_n \end{bmatrix}, \qquad f(X,\beta) = \begin{bmatrix} f(X_1,\beta) \\ f(X_2,\beta \\ \cdot \\ \cdot \\ f(X_n,\beta \end{bmatrix}, \qquad \varepsilon = \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \cdot \\ \cdot \\ \varepsilon_n \end{bmatrix}$$

Here, $Y, f(X,\beta)$ and $\varepsilon\ are\ n \times 1$ vectors;

$\beta\ is\ p \times 1$vector of unknown parameters.

X_i is $k \times 1$ vector

Assume that $\varepsilon_i' s$ are independently identically distribution with

$$E(\varepsilon) = 0, \forall\ i = 1,2, \dots, n$$

$$E(\varepsilon_i, \varepsilon_j) = \sigma^2, \forall\ i = j = 1,2, \dots, n$$

$= 0, \forall i \neq j$ or $\varepsilon \overset{i.i.d}{\sim} (0, \sigma^2 I_n)$.

The exact form of distribution of ε is unknown .Under nonlinear least square method of estimation, Suppose that one may choose the vector $\beta^*\ for\ \beta$ that minimizes the residuals sum of squares.

Write the residual sum of square function for the minimization as.

$$\phi(\beta^*) = [Y - f(X,\beta^*)]'[Y - f(X,\beta^*)] \qquad \text{... (1.16)}$$

$$\phi(\beta^*) = \sum_{i=1}^{n} [Y - f(X,\beta^*)]^2 \qquad \text{... (1.17)}$$

By minimizing $\phi(\beta^*)$ with respect to β^*, the first order conditions gives the following p-nonlinear normal equations.

$$\frac{\partial\phi(\beta^*)}{\partial\beta^*} = 0 \qquad \text{... (1.18)}$$

$$\left.\begin{array}{l} \dfrac{\partial\phi(\beta^*)}{\partial{\beta_1}^*} = 0 \quad -2\displaystyle\sum_{i=1}^{n}[Y_i - f(X_i,\beta^*)]\frac{\partial f(X,\beta^*)}{\partial{\beta_1}^*} = 0 \\ .. \\ .. \\ .. \\ \dfrac{\partial\phi(\beta^*)}{\partial{\beta_p}^*} = 0 \quad -2\displaystyle\sum_{i=1}^{n}[Y_i - f(X_i,\beta^*)]\frac{\partial f(X,\beta^*)}{\partial{\beta_p}^*} = 0 \end{array}\right\} \qquad \text{..(1.19)}$$

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Where $\frac{\partial\phi(\beta^*)}{\partial\beta^*}$ is the partial derivative of $\phi(\beta^*)$with respect to β^* evaluated at $\hat{\beta}$ .Given $f(X_i,\beta)$ is nonlinear function in $\beta_j{}'s, j = 1,2,\dots,p,$ the nonlinear normal equation are nonlinear both in variables $X_i's$ and parameter $\beta^*{}_j{}'s$.

Here , $\hat{\beta}$ will not be a linear function of Y and in general ,it is difficult or impossible to derive its small sample properties .One may shows that the nonlinear least square estimator β^* will not be the best linear unbiased estimator (BLUE) for β.Under certain regularity condition to be stated , it can be shown that the nonlinear least square estimator β^* will be consistent and asymptotically normally distributed.

A reasonable estimator for unknown error variance σ^2 is given by

$$\sigma^2 = \frac{\phi(\beta^*)}{n-p} \qquad \dots(1.20)$$

1.1.8. MAXIMUM LIKELIHOOD ESTIMATOR

By introducing the assumption that $\varepsilon_i{}'s$ are independently identically normally distributed such that ε follows multivariate normal distribution with zero mean vector and variance –covariance matrix Ω, one may apply the maximum likelihood method of estimation to estimate β and error covariance matrix Ω, in the nonlinear regression model :

$$Y_{n\times1} = f_{n\times1}(X_{n\times k}, \beta_{p\times1}) + \varepsilon_{n\times1} \qquad \dots(1.21)$$

And $\varepsilon \sim N(0,\Sigma)$

For a random sample of n observation , the likelihood function of the observation vector Y may be written .

$$L(\beta,\Sigma) = \frac{1}{(2\pi)^{\frac{n}{2}}|\Sigma|^{\frac{n}{2}}}\exp\left\{-\frac{1}{2}[Y-f(X,\beta)]'\Sigma^{-1}[Y-f(X,\beta)]\right\}$$

Or

$$\text{Ln } L(\beta,\Sigma) = \frac{-n}{2}\text{ Ln } 2\pi - \frac{n}{2}\text{ Ln }|\Sigma| - \frac{1}{2}[Y-f(X,\beta)]'\Sigma^{-1}[Y-f(X,\beta)] \qquad \dots(1.22)$$

Under the maximum likelihood method of estimation, the maximum likelihood estimators $\hat{\beta}$ of β and $\hat{\Sigma}$ of Σ can be obtained by maximizing the $\text{Ln } L(\beta,\Sigma)$ with respect to $\hat{\beta}$ and $\hat{\Sigma}$.

The first order conditions for a minimum of $R^* = \text{Ln } L(\beta,\Sigma)$ with respect to $\hat{\beta}$ and $\hat{\Sigma}^{-1}$ yield the following maximum likelihood equations:

$$\left.\begin{aligned} &\frac{\partial R^*}{\partial\hat{\beta}_1} = 0 \\ &\frac{\partial R^*}{\partial\hat{\beta}_2} = 0 \\ &\quad\vdots \\ &\frac{\partial R^*}{\partial\hat{\beta}_p} = 0 \end{aligned}\right\} \qquad \dots(1.23)$$

$$\frac{\partial R^*}{\partial\hat{\Sigma}^{-1}} = 0 \qquad \dots(1.24)$$

The solution of first p-maximum likelihood equ. (1.24) give the vector of maximum likelihood estimators $\hat{\beta}$ equals the nonlinear least square estimator β^* for β .

Equ. (1.24) implies

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$$\frac{n}{2}(\hat{\Sigma}) - \frac{1}{2}[Y - f(X,\hat{\beta})][Y - f(X,\hat{\beta})]' = 0$$

Or $\frac{n}{2}(\hat{\Sigma}) - \frac{1}{2}\sum_{i=1}^{n}[Y_i - f(X,\hat{\beta})]\,[Y_i - f(X,\hat{\beta})]' = 0$

Or the maximum likelihood estimator of error covariance matrix Σ is given by

$$\hat{\Sigma} = \frac{[Y - f(X,\hat{\beta})][Y - f(X,\hat{\beta})]'}{n}$$

Or $\hat{\Sigma} = \frac{1}{2}\sum_{i=1}^{n}[Y_i - f(X,\hat{\beta})]\,[Y_i - f(X,\hat{\beta})]'$

Its known that under general regularity conditions the maximum likelihood estimators are asymptotically optimal in the sense that they are consistent and have the asymptotic distribution with smallest variance. Further these properties do not depend on the linearity of the model. Thus, if the model error's are independently, identically normal distribution such that $\mathcal{E}$ follows $N(\mathbf{0},\hat{\Sigma})$ then the maximum likelihood estimators $\hat{\beta}$ and $\hat{\Sigma}$ are consistent,sufficient,asymptotically efficient and follow asymptotic normal distribution .From the asymptotic theory, it can be shown that maximum likelihood estimator $\hat{\beta}$ has multivariate normal distribution with Mean vector $E(\hat{\beta}) = \beta$ and variance covariance matrix

$$\mathrm{Var}(\hat{\beta}) = \left[z(\hat{\beta})'\hat{\Sigma}^{-1}\,z(\hat{\beta})\right]^{-1}$$

where

$$\begin{matrix} \frac{\partial f(X_1,\hat{\beta})}{\partial \hat{\beta}_1} & \cdots & \frac{\partial f(X_1,\hat{\beta})}{\partial \hat{\beta}_p} \\ \vdots & . & \vdots \\ \frac{\partial f(X_n,\hat{\beta})}{\partial \hat{\beta}_1} & \cdots & \frac{\partial f(X_n,\hat{\beta})}{\partial \hat{\beta}_p} \end{matrix}$$

1.1.9. LOG-NORMAL DISTRIBUTION

A random positive variable x is log-normally distributed if the logarithm of x is normally distributed, corresponding probability density function.

$$N(In_x,\mu,\sigma) = \frac{1}{\sigma\sqrt{2\pi}}\exp\left[-\frac{(In_x-\mu)^2}{2\sigma^2}\right] \quad x > 0 \qquad \ldots(1.25)$$

1.1.10. CAUCHY DISTRIBUTION

The Cauchy distribution has the probability density function

$$f(x;\,x_0,\gamma) = \frac{1}{\pi\gamma\left[1+\left(\frac{x-x_0}{\gamma}\right)^2\right]}$$

$$= \frac{1}{\pi\gamma}\left[\frac{\gamma^2}{(x-x_0)^2+\gamma^2}\right]$$

Where x_0 is the location parameter, specifying the location of the peak of the distribution, and γ is the scale parameter which specifies the Half-Width at Half Maximum (HWHM), alternatively 2γ is Full Width At Half Maximum (FWHM). $\gamma$is also equal to half the inter-quartile range and is sometimes called the probable error.

1.1.11. LEAST SQUARE ANALYSIS OF LINEAR REGRESSION

Consider the model

$$Y = X\beta + e \qquad e \sim N(0,\sigma^2 I) \qquad \ldots(1.26)$$

Y is a $n \times 1$ vector of observed values of dependent matrix.

X is a $n \times k$ values of independent variables

e is the vector of random variable assumed to have a $N(0, \sigma^2 I)$ distribution .

Under LS $\hat{\beta}$ is the estimate which minimize and $\hat{\beta}_H$ is the estimate which minimizes .

$(Y - X\beta)'(YX\beta) \qquad under\ H$

Let $B' = \left(Y - X\hat{\beta}\right)'\left(Y - X\hat{\beta}\right)$ … (1.28)

$A' = \left(Y - X\hat{\beta}_H\right)'\left(Y - X\hat{\beta}_H\right)$ … (1.29)

Then $C' = \left[\frac{A' - B'}{B'}\right]$

has a Snedcor's F under the hypothesis $\beta = 0$ where C' is a proper constant .

1.1.12. LEAST ABSOLUTE DEVIATIONS ANALYSIS OF NONLINEAR REGRESSION

If the assumption that error are normally distributed appears to be violet, and if any prior knowledge is available about error distribution, the maximum likelihood argument could be used to obtain estimates based on the criterion other than least Square, namely minimization of the sum of absolute error.

$\sum_{i=0}^{n} |e_i|$ where $e_i's$ are component of $e = Y - X\beta$.

Let $\tilde{\beta}$ denote the estimate obtained through LAV method by minimizing $\sum |e_i|$ .Let B=$\sum |e_i|$, where $e_i's$ are the components of $\left(Y - X\tilde{\beta}\right)$ .Let $\tilde{\beta}_H$ be the LAV method by minimizing $\sum |e_i|$ $subject\ to\ H$

A = $\sum |e_{iH}|$ where $e_i's$ are the Component of $(Y - X\beta)$,$C = \left[\frac{A-B}{A}\right]$

RESULTS

Sample data are generated linear regression using the following model.

$Y_{ij} = \mu + \tau_i + e_{ij}\ , i = 1,2, \dots, n; j = 1,2,3,4.$

e_{ij} 's are identically independent random variable having Normally distributed with mean 0 and variance σ^2.Two set of value for $\tau\ 's$ were taken.

First set $\tau_1 = 20,\ \ \tau_2 = 150,\ \tau_3 = 125,\ \ \tau_4 = 140$

Second set $\tau_1 = 10,\ \ \tau_2 = 12,\ \tau_3 = 5,\ \ \tau_4 = 8$

Different values for σ were used and the data were generated for each case atleast 200 sets were generated and the test were performed .The values for σ were so chosen that the value of the ratio between the maximum difference in τ values and σ range between 0 to 15 .The hypothesis used $H_0 : \tau_1 = \tau_2 = \tau_3 = \tau_4$ is tested and the final result given below in Table 1 and shown in figure

Table-1.1: Percentage of current decision for LAD Regression Linear versus Non-linear

Sl.No	Ratio of maximum difference of τ's and σ	Percentage of correct decision Least Absolute Deviation (LAD).			
		Linear Regression		Nonlinear Regression	
		Under F	Under χ^2	Under F	Under χ^2
1	0.4	1	96	2	91
2	0.5	3	97	3	98
3	0.6	2	98	19	97
4	0.8	3	89	40	98
5	1.0	18	91	56	96
6	1.4	39	98	52	98

7	2.0	57	99	58	98
8	3.0	84	100	82	100
9	3.5	94	100	94	100
10	4.0	98	100	96	100
11	5.0	99	100	98	100
12	8.0	100	100	99	100
13	9.0	100	100	100	100
14	10.0	100	100	100	100

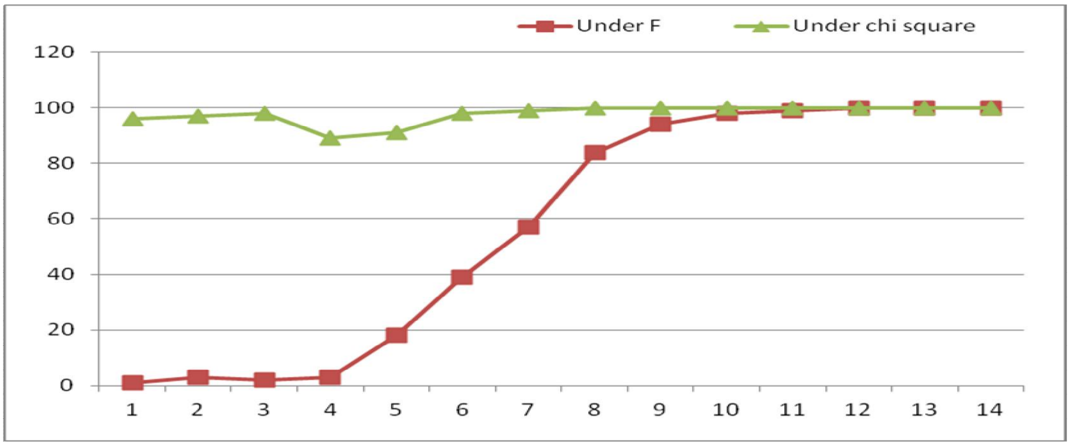

Figure-1.1: Performance of Fand chi-square for Linear Regression

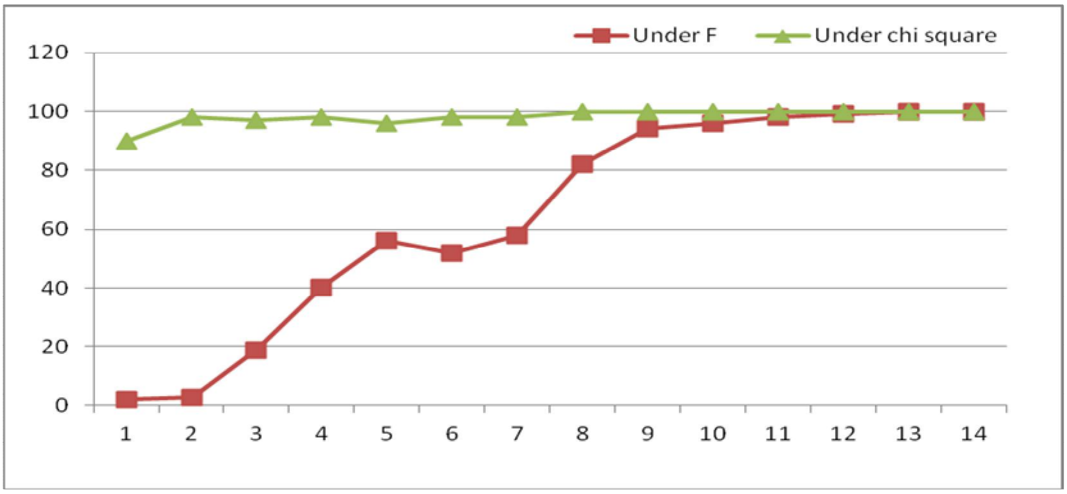

Figure-1.2: Performance of F and chi-square statistics for Nonlinear Regression

Using the numerical computation, according to Table 1.2 when n= 20,40 the average adjusted co-efficient of determination is normally distributed regressor.

Table-1.2: Average Adjusted co-efficient of determination for Linear and Nonlinear regression n=20,40.

n= 20					
ρ	β Linear Regression				Nonlinear Regression
	γ	OLS	PC1	CORC	ML
0.7	0.9	24	9	33	23
	0.95	25	8	36	26
	0.99	23	10	34	24
0.8	0.9	29	9	35	24
	0.95	28	8	34	23
	0.99	26	8	36	26
0.9	0.9	27	9	36	29
	0.95	26	8	35	27
	0.99	30	8	34	23
	0.9	30	9	35	27

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0.99	0.95 0.99	28 27	9 8	36 35	28 29
n= 40					
	β Linear Regression				Nonlinear Regression
ρ	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	30 25 32	9 6 22	8 6 24	15 21 24
0.8	0.9 0.95 0.99	29 28 28	24 8 9	25 9 16	24 23 13
0.9	0.9 0.95 0.99	29 32 34	16 8 20	25 29 30	19 20 23
0.99	0.9 0.95 0.99	34 35 29	24 25 19	20 29 32	15 19 25

Table-1.3: The best estimator for prediction at different level for prediction at different level of mullticollinerity and autocorrelation when n=60,80.(Normally distributed)

n= 60					
	β Linear Regression				Nonlinear Regression
ρ	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	32 28 35	10 9 24	11 9 31	10 21 8
0.8	0.9 0.95 0.99	28 36 26	21 11 9	25 10 26	21 13 23
0.9	0.9 0.95 0.99	27 32 36	19 18 25	25 19 32	9 20 13
0.99	0.9 0.95 0.99	34 28 35	24 25 10	26 26 32	22 16 24
n= 80					
	β Linear Regression				Nonlinear Regression
ρ	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	33 34 35	8 7 24	15 22 23	16 21 28
0.8	0.9 0.95 0.99	35 36 31	21 25 15	25 22 26	24 23 28
0.9	0.9 0.95 0.99	34 32 35	19 20 25	17 19 28	19 20 27
0.99	0.9 0.95 0.99	34 30 34	14 25 27	26 24 27	22 26 25

Table-1.4: The average adjusted co-efficient of determination n=20 (Uniformly Distributed Regressor)

n=20					
	β Linear Regression				Nonlinear Regression
ρ	γ	OLS	PC1	CORC	ML
	0.9	25	8	35	23

0.7	0.95 0.99	25 24	8 10	35 36	29 28
0.8	0.9 0.95 0.99	28 28 29	9 9 8	35 36 35	26 26 29
0.9	0.9 0.95 0.99	30 32 30	10 9 8	36 35 35	23 27 26
0.99	0.9 0.95 0.99	32 31 32	9 9 10	35 36 36	25 23 23
n=40					
ρ	β Linear Regression				Nonlinear Regression
	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	25 24 24	8 9 10	32 15 36	24 29 28
0.8	0.9 0.95 0.99	28 29 29	9 9 8	35 21 35	29 26 29
0.9	0.9 0.95 0.99	31 32 30	10 8 8	26 35 25	23 28 26
0.99	0.9 0.95 0.99	32 31 30	10 9 10	19 26 35	26 23 23

Table-1.5: The best estimator for prediction at different level for prediction at different level of mullticollinerity and autocorrelated errors when n=60,80.

n=60					
ρ	β Linear Regression				Nonlinear Regression
	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	35 34 34	25 9 24	32 15 36	24 11 25
0.8	0.9 0.95 0.99	34 35 30	7 9 21	35 21 35	25 21 32
0.9	0.9 0.95 0.99	31 32 30	19 19 9	26 35 25	28 28 30
0.99	0.9 0.95 0.99	34 31 30	23 24 15	19 26 35	25 29 30
n=80					
ρ	β Linear Regression				Nonlinear Regression
	γ	OLS	PC1	CORC	ML
0.7	0.9 0.95 0.99	30 36 36	27 18 22	15 19 19	21 21 24
0.8	0.9 0.95 0.99	36 36 36	11 7 20	22 26 14	25 19 27
0.9	0.9 0.95	32 36	12 7	20 26	28 15

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	0.99	36	21	20	22
0.99	0.9	32	18	22	24
	0.95	36	24	26	18
	0.99	35	22	17	18

Table-1.6: Estimation of the parameter at different levels of apply the Mean Square error of the estimator of the parameter at different levels of multicollinearity with autocorrelation when n=20 and $\rho = 0.9$

Error Distribution	**Estimator**					
	MSE	**γ**	**OLS**	**PC1**	**CORC**	**ML**
Log-Normal distribution	β_0	0.9	2.74	2.81	1.7E5	2.58
		0.95	2.74	2.81	1.7E5	2.56
		0.99	2.74	2.81	1.7E5	2.58
	β_1	0.9	0.77	0.78	0.24	0.22
		0.95	1.91	0.78	0.49	0.45
		0.99	12.12	0.78	2.69	2.44
	β_2	0.9	1.57	0.05	0.27	0.61
		0.95	3.08	0.05	0.53	3.02
		0.99	15.1	0.04	2.65	0.27
	β_3	0.9	0.74	0.78	0.89	0.53
		0.95	1.45	0.79	0.94	2.64
		0.99	7.14	0.90	1.00	2.59
Error Distribution	Estimator					
	MSE	γ	OLS	PC1	CORC	ML
Cauchy Distribution	β_0	0.9	2.75	2.71	1.7E5	2.56
		0.95	2.74	2.70	1.8E5	2.56
		0.99	2.72	2.67	1.8E5	2.53
	β_1	0.9	7.40	1.04	2.49	2.18
		0.95	17.8	1.00	4.96	4.33
		0.99	101.7	0.96	25.0	22.4
	β_2	0.9	14.7	0.34	3.54	3.32
		0.95	28.8	0.27	7.01	6.51
		0.99	147.5	0.23	35.0	32.1
	β_3	0.9	6.05	1.14	2.53	2.50
		0.95	12.2	1.16	4.72	4.70
		0.99	63.3	1.25	20,3	22.0

CONCLUSION

It is clear from table 1.1 the percentage of correct decision based on linear and nonlinear. The nonlinear regression seems to be better results when compared to linear regression and the statistics suggested by Rao is more sensitive in the case of LAD regression model. Its also observed the Table 1.2 the estimates gives better result in the case of nonlinear regression when compared with linear regression model same result is also exhibited from Table 1.3.Its clear from table 1.4 and 1.5 the multicollinearity and autocorrelated errors are sufficiently gives better result when sample size is large. It is further evident that the estimate the parameter at different levels gives better result in the case of normal distribution.The result shown in the chapter gives better estimate for the nonlinear regression models when autocorrelated errors are considered.

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'LOST HIGHWAY' (1997): A BIZARRE JUXTAPOSITION OF REALISM AND SURREALISM

Sunayan Bhattacharjee
Assistant Professor, School of Media, Pearl Academy, Delhi

ABSTRACT

"David Lynch's "Lost Highway" is like kissing a mirror: You like what you see, but it's not much fun, and kind of cold" (Ebert, 1997). Albeit disappointing, that is exactly how renowned film critic Roger Ebert describes 'Lost Highway' (1997). All said and done, the fact remains that one might love the movie, one might hate the movie as well, but there is very little possibility that one will ignore the movie after watching it. Call it a crazy ride, call it a symphonic mixture of dreams and reality, call it a cryptic stream of consciousness on celluloid or simply call it a bad film; 'Lost Highway' will invariably twist your brain and you shall never be the same again. This paper would look carefully at the cinematic text of 'Lost Highway' and try to find out if there is a method in the ingrained madness. While David Lynch never really bothers about how the audience might react to his movies, there is very little doubt about his obvious qualities as one of the most influential filmmakers of all time. 'Lost Highway' could be analyzed over and over again and one still cannot be sure about what it tries to convey. Instead of trying to find out a definite explainer, this paper tries to plug that very gap and argues that meaning is not what the movie intends to concoct.

Keywords: David Lynch, Lost Highway, Realism, Surrealism, Surrealist Cinema

INTRODUCTION

Just in case you are one of those people who like a nice little story in the form of a movie, do not indulge in 'Lost Highway'. Like all other Lynchian movies, 'Lost Highway' is more of a surreal statement than a movie.

In this context, we need to remember that surrealism disowns madness. However, now that we use the word cinematic text, it might be of some use to remember that 'Lost Highway' might just be a heap of jumbled content with no definite meaning coming out of it. Lynch has successfully redrawn the definition of popular cinema. Nobody could ever imagine that a movie like 'Lost Highway' could actually turn out to be a cult classic. Lynch never made movies to establish populism. It is another thing though that most of his movies eventually became popular. Like automatism, Lynch's audiovisual text flows just as our feelings flow. Sometimes, the flow is coherent and sometimes the flow is not coherent.

Let us accept it! 'Lost Highway' is a rather difficult film to watch, because not only is it senseless but also because it paints a world so bleak that it almost creates a horrific effect. Violence, gore, uncanny horror, the dark sides of humanity and the corrupt side of love are some of the recurring motifs in the movie. While there are definite noirish elements throughout, the movie is also beset with a peculiar chain of mystery that irreparably breaks at multiple points (Runyon, 2013). However, Lynch uses these breakages as definite plot points. Although the story traverses a full circle at the end of the movie, there are very little clues to piece the mystery together in order to weave a coherent narrative. 'Lost Highway' interestingly makes the façade of being a coherent movie without being one. This is exactly where the beauty of the movie lies.

It might as well be remembered that any attempt to scan through the layers of the movie might prove futile, as the film's collated audio-visual narrative is not meant to tell a story. For Lynch, the narrative and the diegesis are always essentially different. The narratives often meet dead ends in Lynchian ventures. It might not be an overstatement if it were to be said that this movie is more about the celebration of style and themes than a plotline (Runyon, 2013). Lynch makes statements through the styles used in most of his movies. When the film was released, many critics abhorred it for its absolute disdain for human rationality (GILMORE, 1997). Some critics went to the extent of calling it a meaningless piece. However, that is also the reason why it scored. It is meaningless and hence it is meaningful. In the clamour for creating meaning, the contemporary filmmakers often forget the primary purpose of making a movie – to stir the collective conscience of the viewers. 'Lost Highway; successfully makes us sit up and take notice. It violently shakes us just as Fred goes through a violent shaking towards the end of the movie.

Lynch has such contempt for the rule of law that the absence of law becomes a law and the absence of clues becomes one of the primary clues. Whatever it is, 'Lost Highway' is also a clash between reality and imagination, between actuality and dreams and finally between desire and fantasy (McGowan, 2000). 'Lost Highway', as the very name suggests, is an attempt to be lost somewhere. The characters in the movie seem lost through one perspective or the other. A careful look at the movie makes it clear that it could very well be likened to a journey, a journey along an uneven path. However, the striking factor about it is that it leads us

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nowhere. There are two different storylines in the movie, interconnected by the presence of characters and plot points. Whether or not the two storylines paint a uniform narrative absolutely depends on the interpretation of the viewer. Interpretation is often an overrated term for it takes out the objectivity out of all art forms. This is precisely the reason why even interpretations need to be looked at with the help of existing parameters. This discourse does exactly that while trying to dissect ‘Lost Highway’ critically.

It is a little difficult though, identifying which storyline depicts the reality and which one is simply a fanciful figment of imagination. When Fred Madison, the protagonist of the first storyline, morphs into another individual inside a prison cell, it happens realistically and verifiably with the prison guards standing testimony to it. Had it been a secluded or an individual affair, it could have been possible to arrive at a simpler conclusion differentiating between the real world and the world of dreams. This is where the bizarreness lies and this is exactly the confusion that Lynch creates through this unique cinematic piece. Another plot point that confirms the dual nature of both realities and dreams in the movie is the presence of the Mystery Man. While multiple scholarly discourses have differently labelled the Mystery Man as the personification of jealousy (Leong, 1997) and an imagined entity, his presence probably constitutes the connecting thread. The Mystery Man represents more of a quality than a living entity. Every time, he makes his appearance, it becomes more than clear that his presence is indicative of something more ominous. It is another thing though that the Mystery Man contributes to the twists in the plotline. In other words, ‘Lost Highway’ cannot possibly be imagined without the Mystery Man.

FRED MADISON AND HIS DARKLY MELANCHOLY WORLD

Fred Madison, a saxophonist in the city of Los Angeles, lives a dry and almost loveless life with his wife Renée at a house that seems intriguing and cold if not intimidating. They do not converse, they do not smile, they do not engage in any of the acts that a normal couple would. It is clear from the word go that there is more to their relationship than what meets the eye. Fred’s encounters, sexual and otherwise, with his wife clearly indicate a lack of trust. Suddenly the couple starts receiving VHS tapes progressively showing the different parts of their house.

Interestingly, though, this cinematic device of characters receiving VHS tapes have been used many times since in other movies. While at a party, Fred gets involved in a tête-à-tête with the Mystery Man who says that he is at once at the party and at Fred’s house. One of the most important takeaways from the conversation is an affirmation by the Mystery Man that he visits someone only when invited. The Mystery Man shows remarkable clarity in what he says. The sarcastic smile that he wears all throughout the discussion represents something that is very cold, something that puts humanity to the backburner. Subsequently, Fred sees a videotape alone that shows him looking over the murdered and badly mutilated body of Renée. This is the most interesting part of the movie. We do not get to know how she is murdered. We also do not know the identity of the person who murders her. Therefore, there is an intentional question mark here. Lynch uses this ambiguity to take the plotline forward.

However, Fred is then caught and sentenced to death for having murdered his wife. While being in the death row, he undergoes the transition mentioned earlier. Before the transition, Fred has to endure strange visions and a severe headache. Now, could we safely presume that the transition is a psychological construct of the guilty in order to create a parallel narrative? Well, it could be! However, we cannot be sure because the transition seems to be rooted in reality although the term is a little hazardous in the world created by Lynch. Lynch takes many cinematic liberties when he constructs his narratives. While other surrealist filmmakers keep things abstract, Lynch uses rational considerations to advocate the cause of the irrational events.

Some obvious questions raise their heads at the end of the first storyline. Who calls up Fred towards the beginning of the movie about the death of a certain Dick Laurent? Who is Dick Laurent and why should Fred know about him? Who is the Mystery Man? What does he represent? Did Fred really murder his wife? Why does he go through the character transition? Is the transition real? It is important to remember that one might or might not find the answers to these questions even if one were to scan through the second storyline. It does prove a couple of things though. There is a strong influence of fantasy and dreams over the seemingly real world created by Lynch and there is no visible effort on the part of the director to differentiate the worlds.

While we see the movie, it becomes clear that the perspective that is being forwarded is essentially a male perspective. The presence of Renée is just incidental. She is used just to take the story forward. However, her contribution to the storyline is minimal.

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PETE DAYTON AND HIS MAKE-BELIEVE WORLD OF INNOCENCE AND CONCEIT

When Fred morphs into another individual, he morphs into Pete Dayton, a young auto mechanic. This transition signals the beginning of the second storyline. There are specific points in the movie that hint towards the fact that Fred and Pete probably represent the same entity (Leong, 1997). However, then again, one cannot be sure for Lynch successfully creates a unique blend of belief and disbelief. In fact, the two storylines are so different that it seems that the two characters represent two different timelines.

While Dayton gets romantically involved with Alice, the mistress of a gangster, the narrative takes a bizarre turn as it turns out that the gangster is Dick Laurent, someone who gets mentioned a couple of times in the first storyline as well. It needs to be mentioned here that Alice coincidentally looks like Renée. These are the definite plot points that Lynch uses to maintain the linkage between the two contrasting narratives.

As the story progresses, we find more and more cryptic references linking the second storyline to the first. It could be argued that Pete is the fanciful imagination of Fred, an escape from the unpardonable crime that he committed by murdering his wife. It could also be pointed out that Pete might also be the recourse for Fred to find a justification for the murder. Under the given circumstances, Alice could be described as the twin entity of Renée. Whatever it is, romance is imparted a rather twisted angle in the movie.

The second storyline depicts Alice as an opportunistic woman who uses Pete to free herself of Dick Laurent. In a scene that is deeply reminiscent of Lynch's earlier rendezvous 'Blue Velvet' (1986), Alice is instructed by Laurent to strip before an entire audience for the making of a porn movie. Somewhere along the way, the concept of abuse appears. The affair between Pete and Alice is cut short in the feverish desert cabin shot where Alice unequivocally retorts that Pete cannot have her. This is exactly the point where the Mystery Man makes his second appearance with the video camera as Pete morphs back into Fred. The Mystery Man could be considered the catalyst for the imminent change in Pete. This might be suggestive of the fact that Fred all along had been dreaming up the alternate existence of Pete to account for his guilt and sin.

However, the film is not as simple as one might make out for there are too many disruptions throughout the plotline for anyone to come to a convenient conclusion. The creation of one conclusion can essentially throw up some more questions, which might again complicate the interpretation. It might very well be the case that Fred is the construct of Pete and the first storyline represents some sort of a lustful dreaming where Pete assumes having Alice or Renée for himself. While a person might scoff at the duality of how one can interpret the movie, there remains no doubt whatsoever that the entire film cannot be based out of reality (Rickman & Klein, 1997). As one might say, the movie is all about a stream of consciousness, something that only Lynch can decipher with his proven weird sensibilities.

REALISM AND SURREALISM IN 'LOST HIGHWAY': AN EFFORT TO BE OBJECTIVE

Premier critic Andy Klein could not have been any truer when he wrote, "In the two decades since 'Eraserhead', David Lynch has established himself as American cinema's premier surrealist, our own Wizard of Weird" (KLEIN, 1997). While one can curse himself for having ventured to see 'Lost Highway', one cannot possibly ignore the riot on senses that the film actually is. Over a period, the movie has garnered some loyal viewers, who swear by it.

Lynch takes surrealism to a different height altogether when he constructs a quintessentially phantasmatic world through 'Lost Highway'. It is a feverish journey through the dark interiors of the human subconscious. No matter what one does, there is very little chance one can escape his own judgment. There is a faint possibility, a distinct one nonetheless, that Lynch might have tried dissecting the world of guilt through the movie. The accompanying darkness, the definite bending of reality and above all the all-encompassing sense of gloom and doom punctuate that sense of guilt. The movie is also representative of paranoia.

However, it always has to be remembered that it is an impossible ask to create definite meanings from any of the works of David Lynch. The frustration of some critics in trying to make sense out of 'Lost Highway' becomes clear when one considers this rather stark comment by Ebert, "'Lost Highway' plays like a director's idea book, in which isolated scenes and notions are jotted down for possible future use" (Ebert, 1997). The significance of the statement is magnified when one considers Ebert to be one of the finest movie critics of all time. Probably the statement is true, probably not! Even if it were to be case, can this be held against the director? Again, probably yes, probably no! This is exactly what the movie is all about. In a rather marked and definite juxtaposition of realism and surrealism, the matter becomes obliterated and senses take the backseat.

Again, if we were to compare the world of Fred and Pete, we would do well to find that the world of Fred is unclear, hazy and is shrouded in mystery. Fred, it seems, is going through a deep emotional turmoil. Everything

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that happens in the first part of the movie is representative of this emotional turmoil. On the other hand, Pete's life is reasonably clear and his transactions make sense (McGowan, 2000). However, what remains the connecting point is the presence of Renée and Alice, probably two individuals representing the same entity. If we were to consider Pete to be the imagined self of Fred, then it would be incumbent on us to accept that the imagination or dream is way more rational than the reality.

As one would put it, Fred desires his wife even though she is dead, the reason for the death being largely unknown. Consequently, he takes recourse to fantasy, something that can neutralize the burning feeling of desire and despair. Lynch's plotline often plays in the mind. This is exactly where Pete comes in – young, energetic and full of potential. Pete's world is bright, is not ambiguous and is not nearly as complicated as that of Fred. However, there are many points in the movie that establish the similarities between Pete and Fred as well that make us wonder if at all Lynch wanted the movie to be so ambiguous (McGowan, 2000). Let us take for example the sexual encounters between Pete and Alice. Someway, these encounters remind us of the passionless sexual dealings between Fred and Renée. Considering everything, it could be safe to deduce that not only are Fred and Pete the same individual but also they are at the two different ends of the same spectrum. However, this interpretation could also be subjected to questioning.

Let us look at the symbolisms used in the movie. The first symbolism that is visible is the usage of cars. Cars represent power and masculinity in the context of the movie. While Fred uses the car to run away from the police and go into the desert, Pete uses cars to meet his ends. His profession concerns cars. He involves in sex in the car as well. Here, there is an attempt at showing brute masculinity. At times, the masculinity shown is toxic. There is another example here. Dick Laurent goes mad when someone tails his car. Dick beats him to pulp and threatens him never to do it again.

The second symbolism in the movie is the depiction of Fred. Fred is shown as an emasculated entity from the beginning of the movie itself. It seems that he has no control over what happens to him. He shows a pacifist inactivity. He lets things happen around him. On the other hand, Pete is a male sex symbol. He gets people going. Active, energetic, good looking and young – Pete is the ultimate female fantasy. There is a severe contrast between the characters.

The third symbolism is the usage of the desert cabin. It seems that the cabin is the place where Pete goes through the physical metamorphosis. Therefore, the twist in the plot comes in the cabin itself.

The character of Dick Laurent is the fourth symbolism. He represents all the fears that Pete ever had. On the other hand, Dick is mentioned a couple of times during the first part of the storyline as well. Dick is heinous, dick is brute and dick is unsympathetic. Therefore, he represents everything that a woman would never want from a man. It is important to remember that Fred calls himself up to specify that Dick is dead.

For 'Lost Highway' as well, the usage of the soundtrack is rather interesting. Like all other Lynch movies, the soundtrack was made with a lot of caution so that it fits into the narrative of the movie. Dark, sinister and strange – the soundtrack creates the right environment for the movie to follow.

Does it have a femme fatale? Probably it does, probably it does not. The answer would depend a lot on how one looks at the storyline. Fred's wife or Pete's love interest – both have distinct shades of grey. Both of them are rather ambiguous. Both of them, in ways more than one, use the men in their lives for their own interests. In both the storylines, both these women are critically responsible for the fate that befall both the protagonists, who are but two identities of the same entity. Both these women, who look the same and probably represent the same entity, evoke lust and desire. Therefore, if one considers them as femme fatales, one will not be at least academically wrong. However, an analysis that is a little more careful would reveal that both these women simply have incidental roles in the two parallel plotlines. Although they incite actions, a strange pacifistic demeanour mark their characters.

ALTERNATIVE EXPLANATION

There are multiple ways to interpret the movie. Some of the interpretations have already been given in the preceding paragraphs. However, some other interesting explanations also tumble out of the closet. Some of these explanations include the concepts of simulated realities, transfusion of memory, spiritual body swapping and journey through time. While each of these explanations hold some ground, there can be another way of looking at the entire enigma.

To start with, it is important that we accept 'Lost Highway' as a product of the subconscious existence. The moment we do so, piecing together the puzzle becomes comparatively easier. To be very frank, very few people make sense out of a non-linear and bizarre plotline that is contained in the movie. However, a closer look and an

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honest attempt can get us closer to the filmic reality. Darkness and psychological paradox abound in the movie. However, these two devices provide clues to unlock it as well. Fred and his wife dwell at a large house. The walls of the house are soundproof because Fred is a saxophonist. Nevertheless, the emotional distance between Fred and his wife is somehow established through this. It is important to remember that the couple has no children. This fact enhances the psychological distance even more.

The couple never have any pleasant exchanges, the sex between the two is hardly animated and both of them stay in their own small echo chambers. As pointless as it seems, there still is a continuity in their lives. This continuity lets them survive the daily ordeal of forced companionship. However, this continuity is violently broken when they start receiving bizarre videotapes containing footages of their own house. The videotapes progressively show their daily private lives with the final one showing Fred haplessly loitering around the corpse of his wife. While he is put on the death row, he unsuccessfully makes a case for his innocence, something nobody bothers listening to. As distant as it might sound, this first part is also representative of the dysfunctional family in the American context.

The transformation happens exactly now. Fred transforms to Pete. While Pete is released for apparent absence of any crime, the parallel reality starts from hereon. It is important to remember that Pete, although being quite different from Fred, reminds us of the exact same insecurities at multiple points in the second part of the movie. If we look a little carefully, the dysfunctionality that rocked Fred rocks Pete as well. He also has to grapple with the concept of romantic infidelity. Pete also gets on with his life with the same seriousness as Fred. Pete also desires a woman, who is psychologically and emotionally detached from him. The fact that Pete is the alternate identity of Fred can be understood through multiple events in the movie. Pete hallucinates when he listens to some of the saxophone tracks of Fred. Pete experiences nosebleed when he sees the picture of Fred's wife. Pete also struggles with some memory rudiments of Fred.

Fred longs for a normal life. He also longs for a loving relationship with his wife. However, he constantly struggles to get the same. This is exactly the reason why he creates a portal to consummate his wishes. He creates Pete; he creates the concept of his alternate identity. It is also interesting to note how Dick Laurent plays the spoilsport in the second part of the movie. He is the perennial impediments that prevent Pete and the lookalike of Fred's wife to take their relationship to the next logical step.

In very simple terms, 'Lost Highway' deals with the concept of identity. Identity has always been a paradox. Lynch takes it to a new level altogether through his remorseful and enigmatic portrayal of identity. Like many other Lynchian movies, 'Lost Highway' also looks at sex from a cynical and perverse perspective. Lynch seldom depicts love the way it has been conceived in popular culture. For Lynch, love is multidimensional. In some ways, 'Lost Highway' also depicts the ambiguity of romantic relationships. Exploitation, torture, self-injury, sacrifice and possession are some of the associated post-romantic concepts that Lynch experiments with in the movie.

Sexual exploitation is a recurrent motif in most of Lynch's creations. Even in 'Lost Highway', Fred is actually exploiting his wife in the name of sex. It would not be far from reality if we were to call the activity marital rape. This angle needs a serious introspection when someone tries to make meaning out of the movie. In the same vein, Dick Laurent sexually exploits the counter persona of Fred's wife in the second storyline. Deceit, infidelity and sexual jealousy are some of the undercurrents throughout the movie – in both the parallel plotlines.

Alienation is another subtle theme that the movie tries to deal with. Contemporary civilization is increasingly alienating individuals and making the society a conglomeration of individual human islands. This process, in itself, can be disastrous and can have its ramifications all around. 'Lost Highway' somehow deals with this contemporary problem in a surrealist way. The rest, as they say, is open to interpretations from all possible quarters.

There is one element though that demands more than just a passing reference – the usage of hair colours. It is interesting that Lynch differentiates women through the usage of different shades of hair colour. While Fred's wife is a brunette, Pete's love interest sports a blond hair. In cultures across the world, the hair colour is considered representative of certain distinguishing traits. In Western cultures, blond hair is considered a symbol of wisdom. Similarly, brown hair is considered more sinister. In 'Lost Highway' though, Lynch does not make any generalist supposition and all the characters are grey. However, the fact that he used hair colours as a cinematic device is important.

In addition to hair colour, Lynch makes extensive usage of colours to distinguish between characters and events. Grey, blue, green and red serve as the theme colours for Lynch in the movie. However, ‘Lost Highway’, unlike most other Lynch movies, does not use any colour code to express meaning. The meaning remains ambiguous throughout the movie although bright hues do play their parts.

CONCLUSION

Although the ingrained madness in ‘Lost Highway’ is debilitating and cryptic at the first instance, a careful analysis of the film does find a nuanced juxtaposition of realism and surrealism, bizarre as it might be. In fact, Lynch asks a very fundamental question, a question that has the potential to spark fresh debates. What is realism? The answer, as everyone understands, is not as easy as it seems on the surface.

Style, dominant as it is throughout the diegesis, is not the sole motive. For ‘Blue Velvet’, the style in itself gives out a meaning. However, the same is not the case with ‘Lost Highway’. In this case, the style is just a directorial decision and not a cinematic device. It could be compared to an intellectual puzzle with insufficient clues thrown in between. The challenge is to make our way through. When analyzed using multiple perspectives, it could be concluded that ‘Lost Highway’ is representative of human guilt and remorse. It also represents the eternal tenacity of human beings to create a parallel world so that reality does not come to bite. In a strange way, the Mystery Man could be described as the human incantation of jealousy. Like many other Lynchian movies, ‘Lost Highway’ provides an escape route from the horrors of real life.

The fact that Fred calls up Renée in between a performance smacks of jealousy and a lack of trust stemming from her possible infidelity. Interestingly though, Renée does not react to the obvious situation and behaves exactly the way a loving wife would do.

While the exact lines between dreams, reality, fantasy and desire are blurred, meaning is automatically created without the usage of narrative techniques bordering on rationality. Lynch might have tried his bit to dabble with the primal human instincts. Jealousy, insecurity, infidelity, murderous rage, criminality and dark desires are some of the instincts that Lynch plays with. Any other director would have made a mystery thriller with a definite ending, Lynch chose the other way where reality obliterates dreams and dreams provide the clues to real happenings. As rightly pointed out on multiple occasions, most of Lynch’s movies convert the viewers into detectives until the point the narratives meet dead ends.

The last scene where Fred violently shakes inside the car which he uses to run away from the police after murdering Dick Laurent is representative of an ending that is pregnant with more possibilities, possibilities that might change the meaning of the film altogether. To end it, this statement sums up the experience of the movie more than anything else does, “Lynch’s films have always presented a challenge, an uncompromising look at his view of the world, and if you are in search of an experience in ‘dangerous film-making’, ‘Lost Highway’ is a sure bet” (Leong, 1997). Dangerous it is and in multiple ways. In fact, Lynch sometimes make us question our own existence to the extent that morbidity creeps in. What needs to be understood though is the fact that Lynch’s conception of the living world is very different from us.

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A STUDY ON ENVIRONMENTAL FRIENDLY PRACTICES ADOPTED BY TODAY'S YOUTH

Prof. Sulbha Dey
Professor, University of Mumbai, Mumbai

ABSTRACT
Our precious environment is degrading day by day. Human activities are mainly responsible for the same. There is an urgent need of addressing these environmental issues by changing our life style and by adopting the environmental friendly practices. Today's youth being the link between the present and future generation have tremendous power to influence both the generations to adopt the eco-friendly way of life. There is a need to study the life style of today's youth so that they can be trained to adopt the green ways of life. Therefore the present study attempted to explore the environmental friendly practices of today's youth. Convenience sampling was used to select 160 students of Mulund College of commerce, Mumbai. Out of 160 students 156 questionnaires were received and analyzed to assess the environmental friendly practices of today's youth. Secondary data has been collected by websites and journals. Frequency, cross tabulation, Chi Square test was used to quantify and analyze the environmental friendly practices adopted by today's youth. Findings of the study revealed that the majority of respondents have adopted the environmental friendly practices and there is a high level of awareness about the environmental issues among today's youth

Keywords: Environmental protection, youth, Environmental friendly practices, awareness, attitude.

INTRODUCTION
Environment is a precious gift of nature which provides all the required things which are necessary for the human being to live, survive and prosper. We have spoiled this gift of nature in many ways to make our life more comfortable and better. Problems like depletion of ozone layer, climate change, global warming, misuse of natural resources, pollution of water, air and soil and many other plentiful challenges of the environment are the results of selfish and reckless attitude of humans. Some of these are the direct result of human activities and some of these are the secondary effect due to the series of actions and reactions of human beings. Due to the deteriorating environment people's health, food and livelihood everything is degrading day by day. Life of not only the present generation but also future generation is at risk. There is a serious need to address the environmental issues by changing our life style and by adopting the environmental friendly practices. There are several simple things that people can do on a daily basis to minimize their impact on the environment for example to close running water tap when it is not needed, turning off lights when not in use, avoid use of paper by going digital, using most efficient mode of transport etc. People need to understand both individually and collectively the need to adopt the environmental friendly practices in their day to day life. While every part of the society is accountable to protect the environment, today's youth being a link between the present and future generation can make unique contribution to protect the environment. This is because the fact that they are living a part of life with the deteriorating environment entrusted by the earlier generation and they have to live a part of life with the next generation who may have lot of risks and health hazards if timely action to protect the environment is not taken. They can change their lifestyle and also influence the present and future generation to adopt the lifestyle which can help to protect the environment. There is a need to study the life style of today's youth so that they can be trained to adopt the green ways of life. Therefore the present study attempted to explore the environmental friendly practices adopted by today's youth in their lifestyle.

SIGNIFICANCE OF THE STUDY
Human impact the environment in several ways. Unexpected climate change, cyclone, heavy rainfall, severe drought conditions, global warming, depletion of natural resources etc have become the matter of serious concern all around the world. There is a serious need to address the environmental issues by changing our lifestyle. The present study will help to understand the lifestyle of today's youth, their awareness, attitude and concern towards environment. The results obtained by the study will be guiding factor for today's youth to make their life environment oriented and to influence the present and future generation to adopt the environmentally responsible behaviour.

REVIEW OF LITERATURE
Lawrence M. (2016), in this research paper the researcher threw light on the green marketing and its impact on youth. The researcher conducted the study of the environmental awareness, knowledge and perception of consumer towards the green marketing and difficulties faced by the consumers in adopting the green marketing. The findings of the study revealed that respondents were ready to accept the green marketing and ready to pay attention and read whenever any information they come across related to the green marketing.

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Youisuf A. & Bhuta S. (2012) conducted the study on 312 students of Pakistan with an aim to find out whether there is a difference between male and female student's attitude towards the environmental issues. The result of the study revealed that there was no significant difference between the attitude of male and female.

Soto-Cruz R. & et al (2014) conducted the study on young individuals, aged 14 to 21 of a schools at Turuachi, in Mexico to examine the environmental awareness. The findings of the study revealed that the respondents had good knowledge of ecology concepts and it was influenced more of by their everyday experience and knowledge gained in the school. Garbage pollution was pointed out as main environmental problem. Women had showed a stronger perception than men about garbage pollution.

Kapur R. & Kapur R,(2016) ,In this review research article the authors have discussed the environment related issues prevalent in India like environmental degradation, effects of disasters and natural hazards, assessing risks, impacts and opportunities from natural resources and the environment, sustainability and green development, greening rural development and economic growth and environmental sustainability. The authors have suggested the measures to tackle these issue, preserve and sustain the natural resources and the environment.

Sengupta M & et al (2010), have conducted the study on 360 students of West Bengal Council of Higher Secondary Education in Kolkata to understand the effect of Stream (Arts, Science and Commerce) and Gender on Twelfth Grade Students' Environmental Awareness and Environment Related Behaviour. The findings of the study revealed that there was a gap or barrier between awareness and action. The girl students were observed to be more environmentally aware although the gender had no effect on environment related behaviour. Unlike other findings it showed that science students' scores on environmental awareness and behaviour were less than that of arts students.

OBJECTIVES OF THE STUDY

1) To study the awareness of today's youth towards the environment protection.

2) To identify the attitude of today's youth towards the environment protection.

3) To examine the environmental friendly practices adopted by today's youth.

HYPOTHESES

1) Awareness of today's youth is high towards the environment protection**.**

2) Today's youth have positive attitude towards the environmental protection.

3) Today's youth have adopted the environmental friendly practices in their lifestyle.

LIMITATIONS OF THE STUDY

1) The study is limited only to the students (youth) one of the colleges of in Eastern Suburb of Mumbai.

2) The study is restricted to selected environmental friendly practices.

RESEARCH METHODOLOGY

The present study is a descriptive cum exploratory in nature and is based on the primary data and secondary data. The primary data was collected with the help of a well structured questionnaire. The population comprised of male and female students belonging to the age group of 17-22 studying in Mulund College of commerce, Mumbai. Convenience sampling was used to select 160 students of Mulund College of commerce, Mumbai. Out of 160 students 156 questionnaires were received. Secondary data was collected by websites and journals. The study mainly used frequency, cross tabulation, Chi Square Test to quantify the environmental friendly practices adopted by today's youth.

Table-1: Socio-Economic Factors of Respondents

Respondents :156					
Age(years)	**Frequency**	**Percent**	**Gender**	**Frequency**	**Percent**
17	24	15.4	F	119	76.3
18	53	34.0	M	37	23.7
19	53	34.0	**Total**	**156**	**100.0**
20	22	14.1	**Educational Level**	**Frequency**	**Percent**
21	2	1.3	First year	60	38.5
22	1	.6	Second year	57	36.5
No response	1	.6	Third year	39	25.0
Total	**156**	100.0	**Total**	**156**	**100.0**

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Table1. showed the socio economic background of the respondents which includes age, gender, and educational level of the respondents. Respondents belonged to the age group between 17 and 22. Majority of the respondents were in the age group of 18 to 19 i.e. 68%. Female respondents were majority in number (76.3%). Majority of the respondents were studying in first year i.e. 38.5%.

RESULT AND DISCUSSION

Awareness of Today's Youth towards Environmental protection

Awareness of today's youth towards the environmental protection was examined through their response for the deteriorating state of the environment such as air quality, water quality, global warming, etc. Respondents were also asked for their opinion about the need of environment protection and their role in the environment protection.

Table-2: Awareness of Today's Youth towards Environmental protection

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
Do you feel the state of the environment around your area is deteriorating? (Air quality, Water quality, Global warming, Climate change etc.)	156	100	0	0
Do you think environment protection is the need of the hour?	156	100	0	0
Do you feel today's youth have an important role to play in the environment protection?	154	99	2	1

Result of table 2. showed that all the respondents felt that the state of the environment around our area like air quality, global warming, climate change etc. is deteriorating and environment protection is the need of the hour. 99% respondents felt that today's youth have an important role to play in the environment protection. It showed the high level of awareness of today's youth about the environmental issues. They knew that they can play an active role to improve and protect the environment.

Table-3: Test of Awareness of Today's Youth towards Environment Protection across Gender And Age

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.632[a]	5	.125

Table 3. showed the result of chi-square tests that was conducted to identify the awareness level of today's youth towards the environment protection across the gender and age. The result of Chi-square test (.125) showed that there was insignificant relation between the gender, age and awareness level i.e. age and gender did not have any bearing on the awareness level towards the environment protection. The awareness level was equally high across all the genders and the age groups.

Attitude of Today's Youth towards Environmental Friendly Practices

In this segment of the study the attitude of the respondents was studied by examining the environmental friendly practices like Water management, Electrical energy management, Waste management , Efficient fuel management and Preference to green product that adopted by the youth in their life style.

Table-4: Water management practices adopted by today's youth in their life style

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
To close running water tap when it is not needed	152	97	4	3
Regular maintenance of taps for leakage free plumbing system	142	91	14	9

The findings of table 4. revealed that 97% respondents were closing the running water tap when it was not needed. 91% respondents agreed that they were doing regular maintenance of taps for leakage free plumbing system. It showed youth under study was highly concern about the scarcity of water.

Table-5: Electrical energy management practices adopted by today's youth in their lifestyle

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
Turning off lights when not in use and saving electricity as much as possible	149	96	7	4
To make use of maximum daylight	135	87	21	13

The result of table 5. indicated that 96% youth were turning off the lights when they were not in use and saving electricity as much as possible. 87% respondents were using of maximum daylight. Wise use of resources such as saving water, electricity and other resource child learns from home first and then it is reinforced by educational institutions, media etc. Such habits are also passed from one generation to another. The result in the table 5. revealed that the respondents representing today's youth were highly educated for careful use of water and would definitely pass this legacy to the next generation.

Table-6: Waste management practices adopted by today's youth in their lifestyle

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
Giving away unwanted or unusable material to free service organization	112	72	44	28
Reusing furniture and other wooden items	119	76	37	24
Recycling paper, plastics, glass and metals	108	69	48	31
Avoid use of paper by going digital	131	84	25	16
Printing on both sides of paper	138	88	18	12
Lessen the margins while printing	106	68	50	32
Segregation of dry and wet waste	108	69	48	31

It was evident from table 6. that 72% youth were giving away unwanted or unusable material to the free service organization. 76% youth were reusing the furniture and other wooden items, 69% youth were recycling the paper, plastic, glass and metals. 84% youth were avoiding use of the paper by going digital. 88% youth were printing both sides of the paper. 68% youth were lessening the margins while printing and 69% youth were segregating the dry and wet waste. It showed active participation of majority of the youth in the waste management. The percentage of environmental friendly practices like recycling paper, plastic, glass and metals (69), lessening the margins while printing (68) and segregation of dry and wet waste (69) were comparatively less. Since these practices have more applicability in day to day life of today's youth, they need to be educated and motivated to adopt these practices on large scale in their life. Educational institutions, Media, NGO, and Government should shoulder the responsibility to create awareness among today's youth to incorporate these green practices in their day to day life. Rational and consistent use of the waste management practices of Recycling, Reusing, Reducing by today's youth promise a clean environment and the healthy life for not only the present generation but also for the future generation.

Table-7: Efficient fuel management practices adopted by today's youth in their lifestyle

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
Maintaining the vehicle regularly and providing it for service.	130	83	26	17
Use of more fuel efficient vehicles	118	76	38	24
Using most efficient mode of transport	140	90	16	10

The findings of table 7. highlighted that majority of the respondents were implementing the efficient fuel management practices in their day to day life. 83% respondents were regularly maintaining the vehicle and providing it for service. Badly maintained vehicle consume more fuel than the vehicle which is in good condition. 76% respondents were using more fuel efficient vehicles. Tailpipe carbon emissions coming from fuel-efficient vehicles are lesser than the vehicle which is not fuel efficient. 90% respondents were using most efficient mode of transport. Using most efficient mode of transport reduces the distance traveled and thereby the consumption of fuel. Gases like carbon dioxide, hydrocarbons, carbon monoxide etc are let out from the vehicles. These gases are not only harmful to the environment but also to us. The lesser the fuel consumption of the vehicles, lesser is the smoke and gases that will come out of its exhaust and as a result the damage done to us and the environment can be reduced to a greater extent.

Table-8: Preference to green product given by today's youth in their lifestyle.

Variables	Frequency	Percent	Frequency	Percent
	Yes	%	No	%
Buying organic or ecofriendly products	119	76	37	24
Advice shop owners to use only cloth bags or to take with you a cloth bag.	115	74	41	26

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Table 8. revealed that 76% respondents were buying the eco-friendly products. Eco friendly products do not harm the environment and help to conserve the energy, reduce the carbon emission and do not lead to the pollution. 74% respondents advised the shop owners to use only the cloth bags or they were also taking with them the cloth bags. Plastic bags are more convenient, cheap, lightweight and therefore they are popular not only among the consumers but also among the shopkeepers. But these plastic bags are responsible for causing pollution, killing animals and fishes and the most dangerous environmental impact is that they are non-biodegradable. The result showed still 26% of the respondents were using the plastic bags. There is a need of strict laws and education to control the use of plastic bags to 100%.

Awareness of environmental friendly practices among today's youth and their opinion for its implementation

In this part of the study the awareness of the environmental friendly practices of today's youth and their opinion for its implementation were identified with the help of following questions.

Table-9: Awareness of environmental friendly practices among today's youth and their opinion for its implementation

Variables	Frequency Yes	Percent %	Frequency No	Percent %
Did you aware of these practices before?	148	95	8	5
Do you feel above mentioned practices need to be implemented by every youth of today to save environment?	156	100	0	**0**

The findings of table 9. showed that 95% respondents were informed about the environmental friendly practices which had been mentioned in the study. 100% respondents felt that these practices need to be implemented by every youth of today to save the environment. High level of awareness as well as readiness to implement these practices can go a long way to address the environmental issues.

Factors preventing today's youth to adopt environmental friendly practices

The knowledge of the factors that hinders the implementation of environmental friendly practices can help to find the way out to overcome it. This can help to enhance application of environmental friendly practices among today's youth. Therefore in this section of the study the factors preventing today's youth to adopt environmental friendly practices were investigated.

Table 10: Factors preventing today's youth to adopt environmental friendly practices

Variables	Frequency	Percent
No response	2	1.3
Lack of concern towards environment	58	37.2
Lack of concern towards environment, Lack of awareness about environmental friendly practices	16	10.3
Lack of awareness about environmental friendly practices	65	41.7
Lack of awareness about environmental friendly practices, People do not know how to practice environmental friendly practices.	1	.6
People do not know how to practice environmental friendly practices	14	9.0
Total	**156**	**100.0**

It is evident from table 10.that 58% respondents felt that people have lack of concern towards the environment. 16% respondent felt that people have lack of concern as well as awareness towards the environmental friendly practices. 65% respondents were in the opinion that there is lack of awareness of the environmental friendly practices among people. 1% respondents claimed that people are not aware as well as they do not know how to practice these practices. 14% respondents felt that they did not know how to practice these practices. Though majority of the respondents i.e. 65% felt that there is lack of awareness among people about the environmental friendly practices, but the result of table 9. Showed that majority of the respondents of this study that is 95% were aware of these practices. 100% respondents felt that every youth should implement these practices in their day to day life to save the environment. It showed high level of concern towards the environment.

CONCLUSION

Majority of the respondents felt that today's youth have an important role to play in the environment protection. Majority of the respondents had adopted the environmental friendly practices such as water management, waste management, efficient fuel management, using paper bag or cloth bag and buying eco friendly products. It

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showed high level of awareness about the environmental issues and their attitude was highly positive towards the environmental protection. Such positive attitude towards the environmental issues by today's youth can save the environment, animals and humans and will make earth a better place to live. It can help to develop the society who understand their responsibility, respect, protect and conserve the nature and world around it.

SUGGESTIONS

Adoption of the green practices by majority of the respondents showed the success of the green movement. But we should not be complacent with this result. Participation of the youth in the environment related practices need to be increased to a greater extent. Government should make stringent rules and regulation which will compel people to adopt the environmental friendly lifestyle. Educational policy maker and institutions should incorporate the environmental related topics in the curriculum which will educate the people about the environmental friendly practices and how these practices can improve the state of a degrading environment. Environment related subject should be made compulsory at the school and college level. Media by organizing and sponsoring the environment based programmes should create awareness among the people about environmental issues. Corporates by selling and promoting the green product at reasonable price can of make the green movement successful. Willingness of all these stakeholders to shoulder the responsibility towards the environmental protection can definitely increase the participation of today's youth in the environment related issues. Today's youth are the backbone of the society. They have tremendous power to influence the actions of the society and to lead them towards an environment friendly way of life.

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A STUDY ON THE PROBLEMS OF VISUALLY CHALLENGED STUDENTS WITH SPECIAL REFERENCE TO MORAN JANAMANGAL ADARSHA ANDHA BIDYALAYA OF DIBRUGARH DISTRICT OF ASSAM

Bituraj Gohain
Assistant Professor, Lahowal College, Lahoal, Dibrugarh

ABSTRACT

The study aimed to examine the problems faced by the visually challenged students and to study the awareness on government schemes provided to them. The method used for the present investigation was descriptive survey method. Purposive sampling method was used to select 64 sample students of Moran Blind School. A self made interview schedule was used to gather information related to blind students problem and awareness. The results of the study revealed that majority of the visually challenged student's vision by birth so there is not much problem in adjustment in the society. It was found that majority of the students faced problem in the school. The results concluded that most of the visually challenged children want to do job as professional. It was also found that the expectations from the government are very much important for the visually challenged and most of them expect financial support.

Keywords: Visually Challenged, Education, Problem

INTRODUCTION

Education is the fundamental right of all children without any discrimination. Our constitution has therefore provided special provision for the exceptional children. A student is said to be visually impaired when his vision is so limited that it is inadequate for most or all instruction situations and information must be provided in other forms. Thus, from an educational perspective students described as having visual impairments or low vision are generally those who are able to use their remaining vision for compensatory vision strategies, low vision devices and environmental modifications to access visual information. The term includes both partial sight and blindness. This impairment refers to abnormality of the eyes, the optic nerve or the visual center for the brain resulting in decreased visual acuity. Blindness creates a cycle of illiteracy, poverty and social exclusion for Indian's 2 millions blind children, making them one of the most vulnerable groups in the world.

The subject of blindness and education included evolving approaches and foundations Mumbai India supports the education for blind in an affectionate and unique way. It is estimated that at least 200,000 children in India have severe visual impairment or blindness and approximately 15,000 are in schools for the Blind. Miss Annie Sharp, a missionary founded the first school for visually impaired in India at Amritsar. It was shifted to Dehradun during 1903.

In Assam education for visually challenged children also has given important. There are various blind school in Assam like – Srimanta Sankar Mission Blind School, Barhampur, Nagaon, Assam Sishu Andha Vidyalaya, Bihupuria, Lakhimpur, Moran Janamangal Adarsha Blind School, Moranhat, Dibrugarh.

REVIEW OF RELATED LITERATURE:

Sheela, J. (2008) conducted a study on problems of Visually Challenged with Special Reference to School Children in Coimbatore District, Tamilnadu. The objectives of the study were to know the problems faced by the visually challenged female children as well as to know the caretaker of the visually challenged female children. It was also aimed at to know the awareness on Government schemes provided to visually challenged person. From 3 Blind Schools of Coimbatore District, Tamil Nadu State, 100 samples were selected for the study. Major tool used in the study is an interview schedule prepared by the researcher itself. It was observed that nearly half of the respondents i.e., 45 per cent of them are in the age group of 14 to 15 years. It was observed that almost all the respondents face problems in one or the other activities. Slightly more than half of them (55%) said that they have no courage to travel alone by bus. It is evident that the respondents expect the government to increase the scholarship and to provide employment opportunities to them.

Pothuraju, J at all. (2014) studied on the topic entitled 'educational difficulties of Totally Visual Impaired Students at School Level of the Jawahar Blind School, Chimakurthy Ongole Mandal, Prakasam District – A Case Study in Andhra Pradesh'. This study aimed to create a profile of difficulties of totally visual impaired students from childhood with a vision to inform future services and to raise awareness of the need for comprehensive assessment. The Jawahar blind school, Chimakurthy, Prakasam district is selected to conduct case studies. The result of the study revealed that insufficient provision of funds is the biggest issue in providing equal access to education for students with disability. There are not sufficient numbers of teachers' Aides or

Integration Aides available at all to meet the need. It was also found that there is common agreement at all levels of the education spectrum that some disabilities are more challenging than others, these are: behavior problems, including Attention Deficit Disorder, Autism, learning difficulties, Deafness and psychiatric problems.

Singh, S.K (2017) conducted a study on inclusive education with reference to visually impaired students in Lucknow and measures to strengthen fund management. The major objectives of the study were to study the issue and challenges faced by the special need students in relation to availability of assistive device, special educator, barrier free environment etc. The study is analytical in nature, and it is based on the Primary data collected from the student who are Persons with disabilities of Visual Impairment, pursuing higher education in Lucknow. Further it concluded that Special education needs for children with disabilities could not advance in isolation and hence it is necessary to advance the commitment to “education for all”, by ensuring effective implementation regardless of their physical, intellectual, social, emotional, linguistic or other conditions.

SIGNIFICANCE OF THE STUDY

The research study of visually handicapped children has to be organized not merely on humanitarian grounds, but also on the grounds of utility. The scientific study and research out come on their capabilities generally enable them to overcome their handicappers and make useful citizen in society. The review of literature shows that no comprehensive effort has been made to study the problems of visually handicapped children which are necessary to know for the national development. The following study will help the educators and policy makers to have knowledge about their problems and prospects for taking necessary steps. In view of this it was thought worthwhile to undertake the present study.

This study is important from many points of views. It is essential to study the different problems faced by the visually impaired and find proper solutions for them. It is also important as to study what kind of provision and support are given and what should be continued or change so that we support blind students to the extent that their blindness has little impact on their study as possible. It will also help to create awareness of different government facilities for the visually impaired and to study the school environment, their curriculum, method of teaching, evaluation system or curriculum activities provided to them.

OBJECTIVES OF THE STUDY

- To study the problems faced by the visually challenged students.
- To study the awareness on government schemes provided to visually challenged students.

DELIMITATION OF THE STUDY

- The present study is delimited to Moran Blind School.
- The sample of the study is limited to 120 students only.

METHODOLOGY

- **Research Method:** The Method used for the present study is descriptive Survey Method. Descriptive methods are concerned with describing the characteristics of a particular phenomenon. It is a scientific method which involves observing and describing the behavior of subject without influencing it any way. It tried to collect thorough and true data about any type of social fact.
- **Sample of the study:** Sample is a small proportion of the population selected for observation and analysis. In order to investigate the present problem, the researcher was purposively selected the Moran Blind School as a field of study. Sample of 64 students has been selected by using purposive sampling method giving due equal weightage of students i.e. 32 male and 32 Female.
- **Tools of study:** In this present study as self-made interview schedule was use to obtain data related to problems of blind students. The interview schedule comprised of 12 questions. The questions were in detail about their family background, problems faced by them, their importance in family, awareness on government schemes etc.
- **Data Analysis:** After the collection of data all the responses were checked as well as edited carefully. The analysis of the data has been carried out using simple percentage.

ANALYSIS AND INTERPRETATION

For the sake of convenience and keeping in view the objectives of the study, the results have been presented in the following way:

BACKGROUND INFORMATION

Table-1.1: Number of Respondents by their background characteristics

(ii) AGE	No. of Students	Percentage
< 13	22	34.38%
14 to 15	20	31.25%
16 above	22	34.57%

(iii) RELIGION	No. of Students	Percentage
(a) Hindu	54	84.37%
(b) Christian	10	15.63%
(c) Islam	0	0
(d) Others	0	0%

(iv) CASTE	No. of Students	Percentage
(a) OBC	40	62.5%
(b) ST	16	25%
(c) SC	2	3.12%
(d) General	6	9.38%

(v) FAMILY TYPE	No. of Students	Percentage
(a) Nuclear	36	56.25%
(b) Joint	28	43.75%

(vi) Childhood place Residence	No. of Students	Percentage
(a) Rural	58	90.62%
(b) Urban	6	9.38%

Analysis of the above table

(i) n order to know the age group of visually challenged students, the age group are classified into three categories i.e. ≤13, 14 to 15 and 16 and above years. From the above table (a) it was observed that the age groups of visually challenged students were approximately from all three categories. 34.3% of them are in the age group of below or equal to 13 year, 31.25% of them are other remaining 34.3% are in the age group of 16 and above years.

(ii) It was observed from above table that majority of visually challenged students are belong to the Hindu religion i.e. 84.37% and other 15.63% of the total respondent are belong to Christianity. It was found that no students come from other religion like Islam etc.

(iii) In order to know the caste of visually challenged students it has been observed from the table that most of them belong from OBC i.e. 62.5%, and other ST – 25%, SC – 3.12% and General 9.38%.

(iv) From the above table observation of visually challenged children we come to know that majority of their family type was nuclear family i.e. 56.25% and 43.75% of them belong from joint family type.

(v) The maximum childhood place residence of visually challenged students belong to rural place is 90.82% and 9.38% belong to urban place.

TYPES OF VISION

Table-1.2: Number of Respondents by types of Vision

Type of Vision	No. of Students	Percentage
(a) Visually impaired	34	53.12%
(b) Blind	30	46.88%
Total	64	100%

After the observation of type of vision from the above table we have seen that most of the visually challenged students are visually impaired i.e. 53.12% and other 46.88% of their vision is blind.

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NATURE OF VISION

Table-1.3: Number of Respondents by Nature of Vision

Nature of Vision	No. of Students	Percentage
(a) By Birth	44	68.75%
(b) After Birth	20	31.25%
Total	64	100%

This table represent the nature of vision of the visually challenged students. 68.75% of the total number of student are visually impaired by birth and 31.25% of students were impaired after birth due to causes such as accidents and various diseases such as chicken-pox, cataracts etc.

PROBLEMS FACED BY THE RESPONDENTS IN DAILY LIFE

Table-1.4: Number of Respondents by Problems Faced in daily life

Problems faced by the Respondents in daily life	No. of Students	Percentage
(a) No problem	40	62.5%
(b) Eating food	0	0%
(c) Purchasing dress	10	15.62%
(d) Changing dress	4	6.25%
(e) Cooking	4	9.37%
(f) Purchasing of things	6	9.37%
Total	64	100%

According to table no 3, majority of students do not face any problem in their daily life. No students faced problem while eating food. 15.62% of them faced problem while purchasing dress, 6.25% faced problem in changing dress, 9.37% faced problem while cooking and 9.37% of them faced problem while purchasing things.

PROBLEMS FACED IN HOUSE

Table-1.5: Number of Respondents by Problems Faced in house

Problems faced in house	No. of Students	Percentage
(a) No problem	48	75%
(b) Indentifying products	6	12.5%
(c) White helping mother	10	15.62%
(d) Moving one place to another place	10	15.62%
Total	64	100%

The different problems faced by the students are categorized in different categories. Observing the table, we can say that 75% of students faced no problem in their house, 12.5% of them faced problem in identifying products, 15.62% of students faced problem while helping their mother and the same percentage of students faced problem while moving from one place to other.

PROBLEM FACED IN THE SCHOOL

Table-1.6: Number of Respondents by Problems Faced in the school

Problems faced in the school	No. of Students	Percentage
(a) No problem	36	56.25%
(b) Going to bathroom	12	18.75%
(c) Writing lesson	16	25%
(d) Reading lesson	20	31.25%
(e) Moving	12	18.75%
(f) Difficulties to identity Teachers	16	25%

It is observed from the table that majority of the student faced no problem in the school. It is also observed that 18.75% of student faced problems while going to bathroom, 25% face problem while writing lessons using the Braille method. In comparison to writing, children faced more problems while writing the lesson. And 18.75% faced problem while moving from one place to another. Moreover, 25% of them faced problem while identifying their teachers.

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PREFERENCE OF SCHOOL

Table-1.7: Number of Respondents by Preference of School

Preference of School	No. of Students	Percentage
(a) Ordinary School	56	15.5%
(b) Special School for Blind	8	87.5%
(c) Total	64	100%

To know the preferred school of the visually challenged students the types of school are classified into two parts ordinary school and special school. Analysing the data, we found that percentage of special school was higher than ordinary school. Hence, majority of students preferred special school.

PERSON HELPING IN SCHOOL

Table-1.8: Number of Respondents by Person helping in School

Persons helping in School	No. of Students	Percentage
(a) Friends	50	78.12%
(b) Teachers	46	71.87%
(c) Self	20	31.25%

It is observed from the table that 78.12% of students were being aided help from their friends, 71.87% from teachers. Only 31.25% were seen who are being helped by themselves.

PREFERRED OCCUPATION

Table-1.9: Number of Respondents by Preferred Occupation

Preferred Occupation	No. of Students	Percentage
(i) Professional job	30	53.12%
(ii) Government job	34	46.87%
Total	64	100%

In order to know the visually challenged students that kind of job they prefer, we have observe that most of them want to do an professional job of i.e. 53.12% and 46.87% of them want to do government job.

KNOWLEDGE ABOUT GOVERNMENT BENEFITS

Table-1.10: Number of Respondents by Knowledge about Government benefits

Knowledge about Government Benefits	No. of Students	Percentage
(a) No Knowledge	38	56.25%
(b) Government Knowledge	12	18.75%
(c) Only about Bus pass and scholarship	14	21.87%
Total	64	100%

Lots of people help the visually challenged students in their study in different ways so in order to know whether they have the knowledge about the government benefits.Wwe have seen that maximum of them have no knowledge i.e. 56.25%, 21.87% of them only know about Bus pass and Scholarship and 18.75% have thorough knowledge of government benefits.

SATISFACTION ABOUT THE GOVERNMENT BENEFITS

Table-1.10: Number of Respondents by Satisfaction about the Government Benefits

Satisfaction about the Government benefit	No. of Students	Percentage
(a) Not Sufficient	24	37.5%
(b) Sufficient	40	62.5%
Total	64	100%

From the above observed table we come to know that maximum of the visually challenged students are being satisfied from the government benefits i.e 62.5% and other 37.5% of them are not satisfied.

EXPECTATION FROM THE GOVERNMENT

Table-1.11: Number of Respondents by Expectation from the Government:

Expectation from the Government	No. of Students	Percentage
(a) No expectation	16	25%

(b)	Providing dress material	16	25%
(c)	Financial support	24	37.5%
(d)	Increase Scholarship	22	34.37%
(e)	Employment opportunity	8	12.57%
(f)	Provide Awareness	10	15.62%
(g)	School development	2	3.12%
(h)	And job	10	15.62%

From the above table we have the expectation from the government of the visually challenged students. What kind helping they are expecting like maximum of them are expecting financial support i.e. 37.5%, 34.37% of them want to increase in providing dress materials, 15.62% want lots of helps and school development and job, 12.5% of the visually challenged students wants employment opportunity and 3.12% of them wants to provide awareness.

MAJOR FINDINGS

1) It was found that approximately equal number of students falls under the both type of vision that is visual impaired and blind.
2) It was found that majority the visually challenged student's vision by birth so there is not much problem in adjustment in the society.
3) Majority of the student face no problem in daily life i.e. 62.5%. Other 15.62% of students faced problem while purchasing dress and 9.37% of students faced problem while cooking and purchasing of things.
4) It was found that 75% of students faced no problem in their house. 12.5% of them found problem in identifying while helping mother and same percentage of student also faced problem while moving from one place to other
5) It was found that majority of the students i.e. 56.25% faced problem in the school.
6) The study also revealed that majority of the students wants to study and prefer a special school.
7) Approximately equal number students get help by their friends (78.12%) and 71.87% are get help by their teachers in the school.
8) The visually challenged children are special children they may also have expectations and aims in life and most of them want to do job as professional.
9) It was also found that majority of the students have no knowledge about the government benefits.
10) Majority of the visually challenged children of Moran are satisfied of the government benefit.
11) The expectations from the government via very much important for the visually challenged and most of them expects financial support. So government should provide help to these blind students.

EDUCATIONAL RECOMMENDATION

The government should provide facilities for visually impaired students such as stipends and scholarships. Also the visually challenged students should be well behaved as like other normal students. Do not treat them with pity. They should be given vocational training and employment opportunities. Co-curricular activities should be organized to develop their inner-potentialities. Give them opportunities through encouragement to show their talent. Government is providing various schemes for the upliftment of the blind people but most of the blind people are unaware of such schemes. Thus, it is clear that awareness programmes for the upliftment of the visually challenged should be organized at national and international level and more and more government schemes in the field of education and occupation should be created for them.

SUGGESTION FOR FURTHER STUDY

- Study may be conducted on students with other disabilities like hearing impaired, learning disabled, locomotors disabled etc.
- Comprehensive studied can be carried out by covering all the visually challanged students for the entire state of Assam.
- Similar study should be carried out to make comparison between visually handicapped students and students suffering from other disabilities.

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CROSS CASE STUDY OF CAREER DECISION-MAKING OF STUDENTS WITH LEARNING DISABILITIES IN RELATION TO THEIR CAREER CHOICE ANXIETY AND SELF-DETERMINATION

Supreet Kaurand[1] and Karamjeet Kaur[2]
Associate Professor[1], Education, University School of Open Learning, Panjab University, Chandigarh
Research Scholar[2], Department of Education, Panjab University, Chandigarh

ABSTRACT

The present study is an attempt to explore career decision-making of students with learning disabilities in relation to their career choice anxiety and self-determination (N=10 students with learning disabilities) through cross case study method. In order to find out the factors affecting the learning disability of students, cross case analysis was done among ten case studies. The basic or primary factors which causes Tentativeness or Undecidedness in the process of Career decision-making of students with learning disabilities was Personal factors. Family factors occupy the second place after personal factors in playing key role in the life of students with learning disabilities. The school factors were found to be least effective. The study has implications for the students with learning disabilities, parents, teachers, researchers and school counselors.

INTRODUCTION

An important task for students when their high school is about to end or has ended is to consider seriously the plans for their future education and careers (Noeth, Engen, & Noeth, 1984). In this time the students are developing a firm sense of their self, where they are going in future, and how they can benefit the society. They begin to evaluate their strengths, skills, and abilities for life. At this time, assistance is needed by learning disabled students with academic achievement, personal and social development and as well as career development and planning so as to reduce anxiety in them (Owen, Thomas & Strong, 2011).

Research findings revealed that individuals with disabilities, including learning disabilities, are at a disadvantage of their career development and exploration in a way that they can be unemployed or underemployed than peers without disabilities and less likely to seek out and obtain post secondary education or additional job training (Bolton, 1975; Humes & Hosenshil, 1984; Ochs & Roessler, 2004; Osipow, 1976; Roe, 1956). Conte (1983) found that individuals with disabilities have limited opportunities for career development and Strohmer, Czerlinski, Menz and Engelkes (1984) noted that these limited opportunities are the only cause that leads to career indecisions.

Career decision-making difficulties are related to decision making skills, unclear goals, dysfunctional career thoughts, career indecision, lack of vocational information, perceived barriers, and value conflicts (Germeijs & DeBoeck 2003; Holland et.al., 1980; Ladany et.al. 1997; Osipow 1999) and are a significant obstacle to employment for many people with disabilities (Enright 1996; Enright et.al. 1996; Hagner & Salomone 1989); therefore, it is the need of the hour to understand career related issues for these individuals.

The ability to make effective choices and decisions is one of the most important competencies needed by students, including those with learning disabilities; to be successful in life after high school. Promoting student self-determination provides an excellent framework within which to teach students how to make effective choices and decisions. An under- standing of one's strengths and the limitations together with a belief in oneself as capable and effective are essential to self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults in our society.

Among various categories of special education, Students with learning disabilities comprised the largest single category of students with special educational needs in most countries. Therefore, it can be said that the process of Career decision-making of students with learning disabilities is impeded by many factors and affect it in a way or other. Hence it becomes necessary to understand the Career decision-making potential of students with learning disabilities, prevalence of Career choice anxiety affecting their career decisions and their Self-determination which motivates them to have courage to pursue the career of their choice in spite of facing all the problems they are suffering from.

LEARNING DISABILITY

Learning disability is a generic term which covers a heterogeneous group of disorders represented by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical disabilities. These disorders are intrinsic to the individual and assumed to be caused because of central nervous system dysfunction.

According to Learning Disabilities Association of Canada (LDAC) (2002), Learning disabilities comprises of a number of disorders which may affect the acquisition, retention, understanding or use of information verbal or non-verbal in nature. These disorders affect learning in individuals who otherwise demonstrate at least average abilities essential for thinking and/or reasoning. As such, learning disabilities are distinct from global intellectual deficiency. Learning disabilities are a result of impairments in one or more processes related to perceiving, thinking, remembering or learning. These include, but are not limited to: language processing, phonological processing, processing speed; memory and attention; and executive functions (e.g. planning and decision making).

CAREER DECISION-MAKING

Career decision involves a choice among occupational alternatives. Which alternatives is chosen, depends on the career decision-makers preference for various factors or criteria on the basis of which he or she compares or evaluates the possible alternatives. The large number of alternatives available to the decision-maker, the uncertainty concerning future preferences and the complexity involved in combining personal and occupational information suggest that a better understanding of the way in which career decisions are made and the process underlying them is of theoretical as well as practical significance (Gati, Shehnav & Givon, 1993).

Crites (1974), Super (1983) and Savickas (2000) defined career decision-making as the process by which individuals make career and educational decisions contend that it is the main task of career counselling. It examines how people make career decisions (decision-making style); the precursors that may influence or impede career choice (career indecision) and individual beliefs that can successfully accomplish behaviours that will lead to desired outcome (decision-making self-efficacy beliefs).

According to Swanson and D'Achiardi (2005), career choice or career decision making may be defined as a process-oriented construct that deals with how clients make career decisions or the circumstances surrounding those decisions. The client's standing on this construct influences their level of decidedness or indecision.

1. ***Career decidedness or career certainty:*** Career decision status is the certainty or indecision about one's career choice (Osipow, Carney, Winer, Yanico & Koschier, 1976).

2. ***Career indecision:*** Career indecision is defined as the indecision with regard to career choice (Osipow et al., 1976). Chartrand et al. (1994) defined career indecision as a developmental problem within the career maturation process that results from a lack of information about self or the world of work.

Categories of Career decision-making

At this point, after discussing the concept of career decision-making, it is very important to discuss the categories of career decision-making. These are discussed as follows:

- ***Decided:*** The dictionary meaning of decided is definite i.e., having no doubt about a choice. Whereas decisiveness means the extent to which an individual is definite about making a career choice.

- ***Tentative*:** The dictionary meaning of tentative, stresses as one not having sure knowledge, subject to change or hesitant as the characteristics of being tentative or uncertain.

- ***Undecided*:** An individual who is undecided means he is not yet determined or not having reached the decision.

Indecision represents the inability of an individual in making a particular decision at a required time. Whereas, indecisiveness represents a characteristic which the individual display frequently in the course of making required decisions.

CAREER CHOICE ANXIETY

Making career decisions, such as choosing which career path to take, can cause much anxiety. You may have fear of making the wrong choice. You may perceive that you have a lack of control over the choice you make. Deciding whether or not to change careers, and any indecisiveness about choosing careers, can be most stressful.

Anxiety is a persistent state of dread and apprehension. It is characterized by helpless impotence in danger situation. The anxious person feels that there is actually nothing that he can do immediately to facilitate escape or avoid the approaching danger. Anxiety implies that the person is incapable of taking precautionary measure.

Career choice anxiety has been defined as affective distress associated with career decision making and has been conceptualized as an important personal-emotional factor that may inhibit career decision-making process

(Chartrand, Robbins, Morril, & Boggs, 1990). Anxiety is a concern of solicitude respecting something or event, future or uncertain which disturbs mind and keep it in a state of painful uneasiness. Anxiety is described as having cognitive, somantic and behavioural components (Seligman, Walker, Rosenhan, 2001).

Hence, from the above we can conclude that anxiety is a persistent state of dread and apprehension. It is a continuous tension and the person is unaware of its root cause and sometimes, it leads to irrational behaviours.

SELF-DETERMINATION

Field, Martin, Miller, Ward and Wehmeyer (1998) defined Self-determination as a combination of skills, knowledge, and beliefs that enable a person to engage in goal directed, self regulated, autonomous behaviour. An understanding of one's strengths and limitations together with a belief in one as capable and effective are essential to Self-determination. When acting on the basis of these skills and attitudes, individuals have greater ability to take control of their lives and assume the role of successful adults (p. 2).

Self-determination is the characteristics that enable people to act as the primary casual agent in their life and improve the quality of their life (Wehmeyer & Field, 2007). It includes four essential characteristics: (1) utilizes autonomous behaviour, (2) demonstrates self-regulated behaviour, (3) acts in a psychologically empowered manner, and (4) displays self-realizing behaviours.

QUALITATIVE RESEARCH QUESTIONS

Grand Tour Questions/Central Questions

1. What are the general educational experiences of senior secondary school students with learning disabilities?
2. What are the special educational experiences of senior secondary school students with learning disabilities?
3. What factors lead senior secondary school students with learning disabilities towards decidedness in Career decision-making?
4. What factors lead senior secondary school students with learning disabilities towards tentativeness in Career decision-making?
5. What factors lead senior secondary school students with learning disabilities towards undecidedness in Career decision-making?
6. What are the social and emotional experiences of senior secondary school students with learning disabilities?
7. What are the pre-natal and birth conditions of the students with learning disabilities?
8. What is the developmental history of students with learning disabilities?

Cross Case Research Questions

1. What are the commonalities or themes of experiences of students with learning disabilities as it relates to their Career decision-making?

Design of the study

In the present study survey was done to collect data from a identified number of cases within a particular time period by administering various tools related to variables to find the answers of research questions. The present study was also co-relational in nature as the investigator examined the relationship of dependent variable career decision-making with the independent variables of career choice anxiety and self-determination.

Sample

From the initial sample of 893 students, 107 students (fulfilling the criteria of selection as mentioned earlier) were nominated by the class teachers on the basis of identification signs of students with learning disabilities. For the sample of 107 students, teacher referral forms were given to the teachers. They were collected after two weeks. After scoring the teacher referral form of 107 students, 89 students scored more than 60%. These 89 students were then administered Malin's Intelligence Scale for Indian Children (1969). Out of 89 children, 42 students scored 90 & above (full scale IQ). Therefore, these 42 students were diagnosed as students with learning disabilities on the basis of teacher referral form and standardized diagnostic test. These 42 were then administered with Learning Disabilities Diagnostic Inventory by Hamill and Bryant (1998) in order to identify the learning deficit area of students with learning disabilities which helps the researcher to address the questions of the qualitative phase. Therefore, these 42 students comprised the final sample of the study.

Tools Used

Identification Tools

A. Teacher referral form: made by investigator.

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B. Malin's Intelligence Scale for Indian Children (1969)

C. Learning Disabilities Diagnostic Inventory by Hammill and Bryant (1998).

Tools for Data Collection

A. Career Decision-Making Inventory (CDMI; Singh, 1999).

B. Career Choice Anxiety Scale state – trait anxiety inventory (STAI) by modification of form Y by Charles, D. Speilberger (1983).

C. Self-determination Scale (Prepared by the investigator)

METHODOLOGY

Procedure

After 42 learning disabled students have been identified, they will be administered Singh's career decision-making inventory followed by state trait anxiety inventory and self-determination scale. On the basis of scores obtained on career decision making inventory, students with learning disabilities will be classified as decided, tentative and undecided.

Qualitative Data Collection Procedure

In present research work, in-depth interviews were conducted with purposefully selected students with learning disabilities who were identified as Tentative (N=18) and Undecided (N=15) on Career decision-making inventory. Five cases from each category, scoring high on tentative and undecided categories were selected for interviews. Therefore, in total ten cases were selected for qualitative study.

To procure information ten case studies were undertaken. Each case study has its uniqueness. Keeping in view the objectives of the study in-depth analysis of the cases was done and an attempt has been made to provide it in a systematic manner. To conclude the factors which affect their learning disability, cross case analysis was done.

For this purpose, in the present study, the Career decision making scale (Singh, 1999) was administered on 40 students with learning disabilities. The students were classified further as decided, tentative and undecided on the basis of their scores obtained on the scale of Career decision-making. Case studies were conducted on those students with learning disabilities, who scored high on indecision scale and fell in the category of tentative and undecided groups with respect to their Career decision-making. This sub-unit illustrates the case of different individuals in which the facts will be based on an actual case.

Cross Case Analysis

Table-1: Overall common factors emerged as factors affecting Career decision-making of students with learning disabilities

Subjects → Factors ↓	A	B	C	D	E	F	G	H	I	J	Frequency
PERSONAL FACTORS											
Self confidence	Low	Low	Low	Low	High	Low	High	Low	Low	Low	8
Self determination	Low	High	Low	Low	Low	Low	Low	Low	Low	Low	9
Career decision-making {T-Tentative U-Undecided}	T	T	U	T	U	T	U	U	T	U	5
Emotional Stability	Yes	Yes	No	No	No	No	Yes	No	No	Yes	6
Shyness	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	8
Socio-Emotional Adjustment	Low	Low	Low	Low	Low	Low	High	Low	Low	Low	9
Anxiety	High	High	High	Very high	Low	High	Low	High	Low	High	6
Exam fear	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	8
Motivation	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Attitude towards school	-ve	-ve	-ve	-ve	-ve	+ve	+ve	-ve	-ve	-ve	8

Attitude towards homework	-ve	-ve	-ve	-ve	-ve	-ve	+ve	-ve	-ve	-ve	9
Attitude towards teachers and classes	-ve	-ve	+ve	-ve	-ve	+ve	+ve	-ve	-ve	-ve	7
Study habits	Poor	Poor	Poor	Poor	Poor	Good	Poor	Poor	Poor	Poor-	9
Involvement with teachers and parents	Low	Low	Low	Low	Low	Low	High	Low	Low	Low	9
Time management	Need to manag e time	Need to manag e time	Need to manage time	Need to manag e time	Need to manage time	Need to manage time	Need to manage time	Need to manage time	Need to manage time	Need to manag e time	10
Peer issues	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes	8
Problems among sibling	Yes	No	No	No	Yes	No	No	No	No	No	2
Health issues	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes	Yes	8
Effect of Social Media	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No	Yes	7
Concentration power in studies	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Retention power	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Difficulty to learn independently	Yes	No	Yes	Yes	Yes	No	Yes	No	No	No	5
Difficulty to understand abstract concepts	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Difficulty in reading	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	10
Difficulty in writing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Difficulty in learning	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Need for help for Educational Plan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10

FAMILY FACTORS											
Father occupation	Farmer	Farmer	Expired	Farmer	Farmer	Farmer	Farmer	Farmer	Farmer	Farmer	9
Mother occupation	House wife	Shop-keeper	House wife	House wife	House wife	House wife	House wife	House wife	House wife	House wife	1
Work outside home by father	Part time	Full time	Expired	Full time	Part time	Full time	Half time	Half time	Half time	Half time	3
Work outside home by mother	No	Part time	No	No	No	No	No	No	No	No	1
Father qualification	Illiterate	Illiterate	Illiterate	Literate	Illiterate	Illiterate	Illiterate	Literate	Illiterate	Illiterate	8
Mother qualification	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	Illiterate	10
Parents knowledge about child	Low	High	Low	High	Low	Low	Low	Low	Low	Low	8
Parents attitude towards education	Favorabl e	Unfavora ble	Favorab le	Favorabl e	Unfavora ble	Unfavora ble	Unfavorable	Unfavora ble	Unfavor able	Unfavor able	7
Parents involvement in studies	Low	Low	Low	High	Low	Low	High	Low	Low	Low	8

Family interaction	Less	Less	Less	More	Less	Less	Less	Less	Less	Less	9
Educational Guidance	No	No	No	Yes	No	No	No	No	No	No	9
Parental Expectations	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	10
Boosting educational aspirations	No	No	Yes	No	No	No	No	Yes	No	No	8
Parental encouragement	Low	High	High	Low	Low	Low	Low	Low	Low	Low	8

SCHOOL FACTORS											
Lesson planning	Well planned	Well planned	Not well planned	Well planned	Not well planned	Not well planned	Well planned	Well planned	Not well planned	Well planned	4
Individual attention	No	Yes	Moderate	No	No	No	No	Yes	No	No	7
Class environment	Congenial	Uncongenial	Congenial	Congenial	Uncongenial	Uncongenial	Uncongenial	Uncongenial	Congenial	Uncongenial	6
Value the learning disabled child	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	5
Homework {I- Inappropriate A- Appropriate}	I	I	I	I	I	A	I	I	I	I	9
Availability of Resource room in the school	No	Yes	No	No	No	No	No	Yes	No	No	2
Use of teaching Aids	Less	Less	Less	Less	Less	Less	Less	Less	Less	Less	10

Table-2: Calculation for relative and Percent Frequency for Whole Qualitative Sample

	Frequency	Total Number of Factors	Total Number of Cases	Relative Frequency	Percent Frequency
Personal Factors	221	27	10	0.818	81.8
Family Factors	99	14	10	0.7071	70.71
School Factors	43	7	10	0.662	66.2

Table numbers 1 and 2 was concerned with data transformation stage where qualitative data was converted into numerical codes that can be presented statistically (i.e., quantized) (Onwuegbuzie & Leech, 2006).

To explore the possible factors contributing to student's learning disability, three core categories are created which are personal, family and school. The following section contains the discussion of these core categories affecting each student. Among these three categories, one category may emerge as primary category affecting the Career decision-making of students with learning disabilities but the other categories cannot be neglected. The learning disability and Career decision-making can be affected by either a single category or combination of two or all three categories.

Table-3: Contributors to Career decision-making among students with learning disabilities for individual students

	A	B	C	D	E	F	G	H	I	J	Primary factor
Personal	26 (P)	22 (P)	24 (P)	25 (P)	21 (P)	23 (P)	20 (P)	22 (P)	21 (P)	24 (P)	10
Family	10	12	14 (P)	11	11	13	11	13	14 (P)	11	2
School	4	2	4	4	6 (P)	4	5	4	5	5	1

Table 3 represented summary of frequencies of primary factors (P) responsible for the career indecision in the process of Career decision-making of students with learning disabilities. Personal factors were the most frequent

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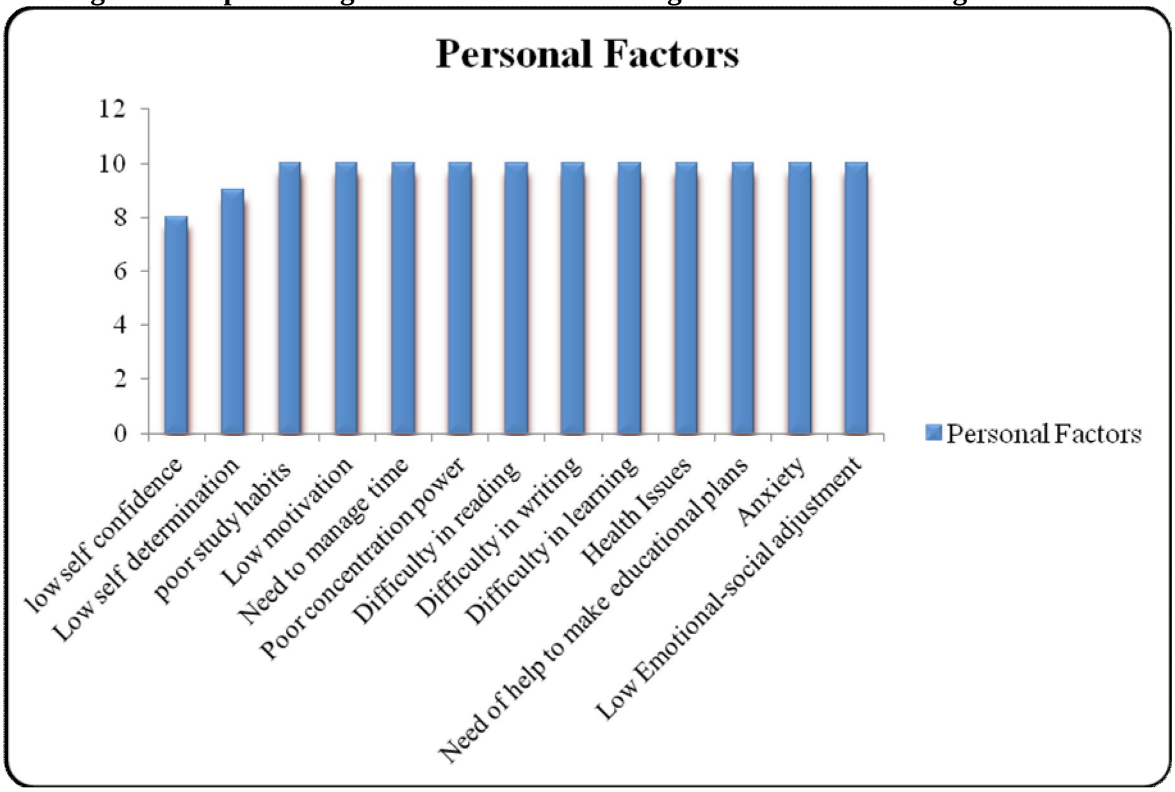
primary factor; family issues were the second frequent and the school factors were the least frequent factors. These factors have been discussed in separate sections below:

PERSONAL FACTORS

Table 3 indicated that the majority of the students with learning disabilities had low self confidence, low self determination, poor study habits, low motivation, low self-determination, high anxiety, health issues, indecision in Career decision-making, poor time management skills, negative outlook towards studies and poor concentration power for their studies which affect their process of Career decision-making. Most of the students with learning disabilities feel shy, does not have emotional stability, have exam fear, has poor time management skills, suffer from health issues, have peer issues and are affected by social media. Therefore the students with learning disabilities are in need of individualized educational plan

Table 3 clearly described the primary factors for each student and pointed out that all students had personal factors as the primary factors. We can say that their career indecision is very much affected due to personal factors as it was the primary factor for them. This factor further included 26 sub-factors as shown in table. The common personal factors experienced by these students were: low self confidence, poor study habits, low self-determination, low motivation, strong need of help to make educational plans, poor time management skills, low retention power, poor concentration power, and difficulties in reading, writing and learning. Figure 1 represents the scores of all students with learning disabilities affected by the above mentioned factors.

Figure-1: Representing Personal factors affecting students with learning disabilities



Low self confidence

In the perusal of table 3, it can be seen that Subject A, B, C, D, F, H, I and Subject G possess low self confidence. Due to this, most of the times, they are unable to express themselves. They could not make decisions with regard to their career because they think that they do not make good choices or they do not have the ability to make choices in the process of Career decision-making. Due to low self confidence the students with learning disabilities feel inferior in comparison to their non-disabled peers.

Low Self determination

As discussed in previous chapters, Self determination is the key component for the success of students with learning disabilities. Students with learning disabilities, who possess high self-determination, were found to be decided with regard of their career choices. In contrast, subjects who scored low on Self-determination were found to be undecided or tentative in Career decision-making. Except Subject B, all other subjects possess low self-determination. So, in order to have rational Career decision-making, students with learning disabilities must possess high Self-determination.

Poor study habits

It can be inferred from Table 3 that all students with learning disabilities possesses poor study habits. They do not possess good study habits. Almost all the subjects do not take interest in study in their classrooms. Other than this, they hardly spare time to study at home. All the subjects do not spare time to improve their reading or writing skills. They are in dire need of sparing extra time for their reading, writing and speaking skills. But they do not work hard. So, it can be said that the subjects possess poor study habits which affect their Career decision-making.

Low motivation

Another personal factor affecting the Career decision-making of students with learning disabilities is their low motivation. Motivation is of two types intrinsic and extrinsic. Intrinsic motivation means when a person gets motivated due to his inner will and extrinsic motivation is provided to him from his environment. It can be seen from the table 3 that all students with learning disabilities possess low motivation. They have accepted that they cannot read and write like their classmates. Therefore, they must be motivated from inside and must be motivated from teachers and parents so that they can improve their studies and make better decisions.

Poor time management skills

On the basis of case studies, it can be inferred that all subjects lack the ability to manage their time. They spend their most of the time wandering here and there, thinking about their inabilities, fighting against their disabilities without knowing the exact way out or strategies. Most of the subjects spend their time in watching television or by playing with their friends. Hence, it can be generalized that if the students with learning disabilities possess time management skills, they will be able to overcome their learning disabilities. This will help them to develop rational decision making strategies.

Concentration power

All the subjects lack concentration power or it can be said that they cannot concentrate on their studies or any other work done by them. They get easily distracted and they use to disturb others also during the class. This distraction or inability to concentrate creates a barrier in their learning. In order to improve in academics or in any area either sports, creative writing, singing etc a good grasp on concentration power is needed. Therefore, concentration power should not be low among students with learning disabilities to have success in future.

Difficulty in reading

Students with learning disabilities face problems in reading. Subject C have the problem of gross mispronunciation and similarly, Subject A, Subject B, Subject D, Subject E, Subject F, Subject G, Subject H, Subject I and Subject J suffer from reading disorders. Their reading problems cause other problems like inability to write correctly, inability to learn and development of inferior complex in them. When the students find themselves unable to read, it takes away their interest from studies being unable to write and learn properly. This directly affects their Career decision-making process.

Difficulty in writing

Among students with learning disabilities, their difficulty in reading leads to difficulty in writing. Subject B and Subject F writes with left hand. They face problems in holding the pen, alignment of the paper and slow speed. Other than this, Subject A, Subject C, Subject D, Subject E, Subject H, Subject I and Subject J also has poor and illegible handwriting. Subject G has neat handwriting but he writes mirror images ('d' instead of 'b', 'q' for 'p' etc) due to these difficulties they perform poor in academics. Therefore, it is clear that difficulty in writing affects the career decision-making of students with learning disabilities.

Difficulty in learning

Due to problem in reading and writing, having low concentration power and low retention power, these students with learning disabilities also faces problem in learning. They mispronounce words and as a result learn them in an incorrect way. For example Subject B reads, writes and learns 'Apple' as 'Apil'. In the area of non verbal learning, these students showed much interest and through interactive learning they had learned in a better way as compared to traditional teaching methods. Therefore, learning has an effect on their academic achievement. Therefore, effective and efficient learning strategies can help the students with learning disabilities.

Health issues

Learning disability is directly related to the health issues of all the subjects under study except Subject F. Anemia, problem in vision, Hydrocephalus, Down's syndrome, skin allergy etc are health issues faced by Subject C & Subject H, Subject A & Subject E, Subject D, Subject E and Subject I respectively. The effect of these health issues can be seen on their developmental process and educational history as well. This has affected

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their Career decision-making because a person who is physically or mentally not able to cope up his difficulties will find it difficult to work with his non-disabled peers in the world of work.

Anxiety

High level of anxiety was found among eight out of ten subjects. It means that in the process of Career decision-making, all the subjects who scored high on anxiety faces career indecision. They feel anxious when they do not perform good in studies, they do not take part in co-curricular activities and find themselves unable to compete with their non-disabled peers. Therefore, strategies must be developed in order to reduce the anxiety among students with learning disabilities so that they can make rational Career decision-making strategies.

Emotional social adjustment

All the subjects have a problem in emotional and social adjustment. They are not emotionally stable. Due to the failures faced by them, they find themselves inferior to others and do not find themselves able to match the standards of the society. So, they find difficulty in social adjustment. Students who find difficulty in social-emotional adjustment, they face difficulty in expressing themselves, sharing their problems, ask for help and tell about their needs to the family, teachers, peers and society.

Strong need for help to make educational plans

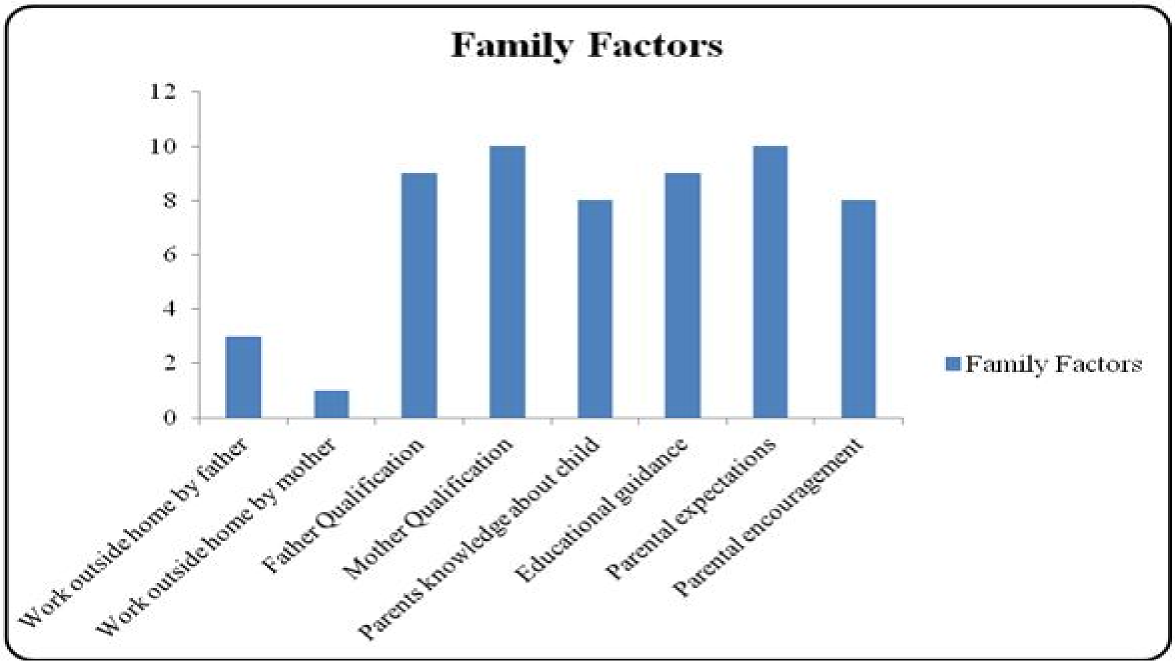
As discussed earlier, the students with learning disabilities faces problem due to the prevailing personal factors, they need help to overcome the problems faced by them. All the subjects are in need for help to make educational plans as they cannot work independently. Their inability to read and write, poor concentration power, lack of motivation, low self-determination, unhealthy study habits and poor time management skills make them unable to learn independently. They cannot be benefitted in inclusive classrooms because they need special care and individual attention. Therefore, it can be said that there is a strong need for help to make educational plans for students with learning disabilities to help them make better decisions in regard to their career.

Career decision-making is a complex process for students with learning disabilities. It is affected by all the factors discussed above. Due to the influence of these factors, the students with learning disabilities were found to be either undecided or tentative in their Career decision-making. This clearly means that these students do not have the ability to decide upon their major career related goals. Therefore, students with learning disabilities must be able to cope up with all their difficulties in order to make better career choices in the world of work.

FAMILY FACTORS

Table 3 indicated that some family factors were responsible for the indecisiveness in students with learning disabilities. Many parents work outside home, illiteracy among parents, parents were not boosting the educational aspirations of their children; their expectations are too low, their involvement in studies is low, they have less knowledge about their child etc are many family related factors. Fig. 2 represents the scores of all students with learning disabilities affected by the family factors.

Figure-2: Representing family factors affecting students with learning disabilities



Work outside by Father
Father of all the subjects was Farmers. Father of Subject B, Subject D and Subject F had full time working outside home. The fathers of other subjects worked part time. Father of Subject C had expired. Therefore, it had a great impact on his mind. The fulltime working parents hardly spare time to talk to their children. They stay outside home for the whole day. After working hard from morning to evening, they come home tired and could not spare time to ask their children about their studies. If parents do not keep a check on the studies of their children, the children does not take studies seriously. Therefore, this affects studies of students with learning disabilities.

Work outside by Mother
Mother of Subject B is a shopkeeper. She interacts with his child. Subject B's mother runs a shop in front of his school. She asks frequently about his son's performance from teachers as well as students. Other mothers are house wives. Whole day they spend time in doing household chores. They do not have time to know about their child's day. Mothers are the epitome of the family. If they take care of their children, the activities they perform during school hours, the homework assigned to their children, their behavior and performance in school, the mothers will be able to exercise control over the difficulties of their children and can help them in many ways. Therefore, if the mothers start caring and having democratic parenting attitude for their children, the students with learning disabilities will be able to cope up with their problems. It will also provide an exposure to the children to discuss their needs and problems with their mothers.

Father Qualification
Fathers of Subject D and Subject H are literate. They boost the educational aspirations of their children. Fathers of rest of the subjects are illiterate. They do not take interest in study of their children. Illiteracy itself is a curse. The illiterate parents cannot help their children in their studies or project and assignment work. The literate parents understand importance of studies and therefore, they boost the educational aspirations of their children. They do not understand the difficulties of their children and the causes behind them. They just know that their children do not have brains and that is the reason why they do not perform well in studies. Teachers must take initiative to bring awareness among illiterate parents telling them about the cause behind the problems faced by their children and importance of education.

Mother Qualification
All the mothers are illiterate. Women are the central figure of the family. She plays a vital role in shaping the future of her family. Being illiterate, the mothers find themselves unable to help their children in their studies. But they have a strong desire for getting their children educated. They hardly know about Career processes. They are not aware about the educational needs of their children.

Parent's knowledge about child
Subject B and Subject D's parents have high knowledge about their child. They know about their capacities and limitations. Rest of the parents possesses less knowledge about their children. They were not aware about the special needs of their children. They just blame their children for not reading and writing and for poor academic performance. Therefore, is very important that parents must possess the knowledge about the weaknesses and strengths of their children along with the causes behind them.

Educational guidance
Subject D's parents provide educational guidance to their child. Rests of the Subjects are not provided with any educational guidance from their family. When students with learning disabilities were not provided with any educational guidance, they develop a passive attitude towards studies. They know it very well that their parents do not take interest in keeping a check on their activities and therefore, they develop a sense of negligence towards education.

Parental expectations
Parental expectation of each family from their children is very low. Parents expect very less from their children. They know that their children lack the required abilities to succeed in academic areas. This inability of their children, will affect their working patterns also. Therefore, the parents expect very less with regard to their future career perspectives.

Parental encouragement
Subject B and Subject C are highly encouraged by their parents. They got family support to overcome their deficits. Parental encouragement is not provided to other subjects. Their learning disabilities are not accepted by their parents therefore, they face problem in telling about their special needs to them.

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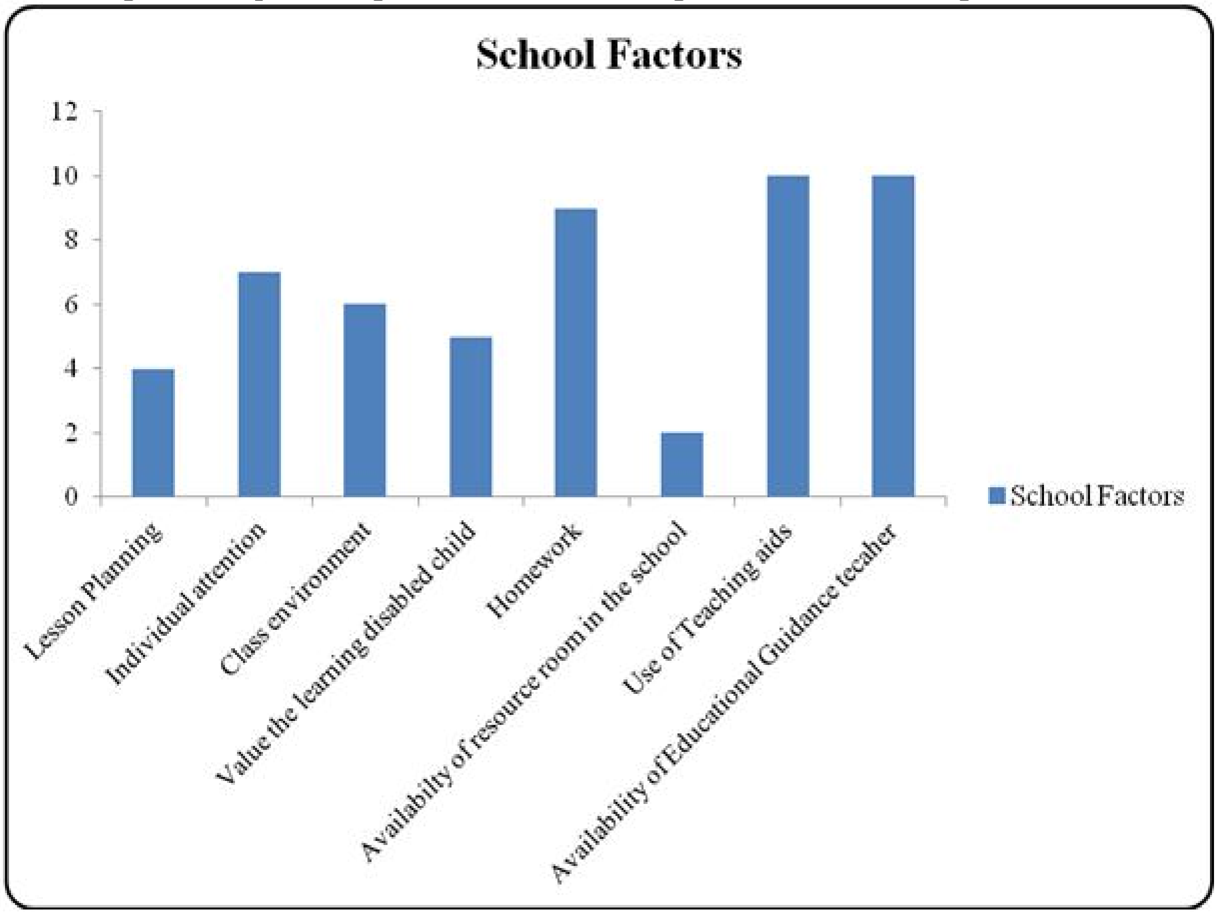
Therefore, all the above discussed factors affect the career decision-making process of students with learning disabilities. If considered individually for subjects taken under case studies, Family factors came out to be second most important and primary factors for Subject C and Subject I after personal factors.

SCHOOL FACTORS

Table 3 indicates that school factors were also responsible for the indecisiveness in students with learning disabilities. Lesson planning, individual attention, class environment, valueing the learning disabled child, homework, availability of resource room in the school and use of teaching aids are some of the school factors which has affect on the Career decision-making of students with learning disabilities in an direct or indirect manner. Fig. 4 represents scores of all students with learning disabilities affected by school factors.

Figure-4: Representing School factors affecting students with learning disabilities



Lesson Planning

Lesson planning was necessary to have effective teaching and learning. Unfortunately, lesson planning was not done in the schools of Subject C, Subject E, Subject F and Subject I. Well planned lessons include the use of proper methodology and instructional material to deliver the lesson. The unplanned lessons failed to provide effective learning environment to these subjects. The teachers must plan their lessons before delivering them in classrooms. The students with learning disabilities are already on the deficit in comparison to their non-disabled peers. Other students can still learn from the unplanned lessons but the students with learning disabilities find it very difficult to learn without learning aids.

Individual Attention

Individual attention is a needed by all the students with learning disabilities. They must be given individual attention to restore their self confidence and to develop a sense of self worth. They should not be made feel neglected due to their poor academic performance. Extra classes must be provided to them to overcome their learning deficits. Subject B and Subject H are provided with individual attention in schools.

Class environment

Class environment should be congenial in order to have effective learning. The classroom environment was found to be congenial in case of subject A, Subject C, Subject D, Subject I and Subject J. It was found to be uncongenial in case of Subject B, Subject E, Subject F, Subject G and Subject H. Congenial classroom environment helps in effective learning of students especially in case of students with learning disabilities.

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Value the learning disabled child

The learning disabled child must be valued in inclusive classroom so that they do not find themselves inferior to their non- disabled peers. Subject B, Subject C, Subject F, Subject H and Subject I were not valued in their schools. Due to this they have become the victims of low Self confidence, poorly developed personality, low self-determination, socially not acceptable and many other stigmatizations.

Homework

Appropriate homework must be given in accordance to the needs of students with learning disabilities. Also their potential and abilities required for its completion must be kept in mind while assigning the homework. Unfortunately in case of majority of Subjects expect Subject F, the homework given was inappropriate. Students with learning disabilities find it very difficult and uninteresting and as a result they do not complete it.

Availability of resource room in the school

In order to make school atmosphere comfortable for students with learning disabilities, they must be provided with a resource room in their schools. With the availability of the resource room, they can refresh their minds and can have a motivation to come to school every day. The resource room is available only in the school of the Subject B and Subject H.

Use of teaching aids

Teaching aids are the additional learning material used by teachers in their teaching process, for the effective learning of the students. The use of teaching aids in instructional methodology is needed by students with learning disabilities who find learning difficult through traditional methods of teaching. But the use of these teaching aids was found to be very less in all schools. Therefore, students with learning disabilities can be taught through the use of various teaching aids in everyday classroom teaching.

School factors came out to be second most affecting factors in case of Subject E. These factors play an important role in the Career decision-making of Subject E after the personal factors. The students with learning disabilities need the Educational guidance most because they find learning and transition process more difficult than their non-disabled peers. But there is no teacher appointed in schools for providing Educational guidance to students with learning disabilities. Therefore, unaware about their potential and being the victims of so many failures in life, the students with learning disabilities face numerous problems in the process of Career decision-making.

DISCUSSION AND FINDINGS OF THE STUDY

In the present resesearch work, case studies were conducted on ten students with learning disabilities, both from Tentative and Undecided categories of students with learning disabilities. It was found that the general educational experiences of students with learning disabilities differ from that of their non disabled peers. They find learning difficult in an inclusive classroom as they need individual care and attention. They cannot cope up with their non-disabled peers in day to day academic work. The students with learning disabilities faces problem in understanding multiple-directions at one time, has difficulty in reading, difficulty in writing, difficulty in memorizing the facts, difficulty in doing arithmetic and numerous other problems than their non-disabled peers. Therefore, their general educational experience differs from their non-disabled peers.

It was also found that the students with learning disabilities can learn better in special classes. From the case studies, it was evident that the students with learning disabilities if taught through activity method, demonstration method, role-play, story-telling and picture method etc, can learn and understand the things in a better way. They will be able to recall the things learnt through these methods.

The qualitative phase explored the responsible reasons for their Tentativeness or Undecidedness which were found to be low self confidence, low self determination, poor reading and writing abilities, development of sense of inferiority from their peers etc. It was also found that either the pre-natal, birth history of the child or the conditions at the time of birth or environmental factors could be responsible for the learning disability among these students.

Cross case Analysis was done in order to find the key commonalities in all the cases studies. The basic or primary factors which causes Tentativeness or Undecidedness in the process of Career decision-making of students with learning disabilities was Personal factors. Personal factors play an important role in the development of 'Self' in an individual. Students with learning disabilities lack personal qualities like self-confidence, self-determination, motivation, ability to read and write, recall things and facts easily, high retention power, concentration power and ability to make decision for themselves. Due to this they develop inferiority complex for themselves. Family factors occupy the second place after personal factors in playing key role in the life of students with learning disabilities. Parental encouragement, understanding of their different needs by parents, educational aspirations of the parents, interests in study of their children, family support, emotional support etc are found to be major family factors. The school factors were found to be least effective. It was found that the students with learning disabilities need individual attention. They remain undiagnosed with the cause behind their inability to read and write like their peers. Lesson planning, use of teaching material, different methods of learning like activity method, role-play, story-telling, picture method etc, can be useful in their learning process. We cannot neglect the total influence of school factors on the students with learning disabilities. It could be said that as they lack personal abilities and do not get support and understanding from their parents and family, it is only the school and guidance provided at school which could be fruitful for students with learning disabilities.

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PRESENT AGRICULTURE SECTOR IN INDIA: A THEORETICAL CONSTRUCT

N. Nithyananda[1] and Dr. Umesh Maiya[2]
Assistant Professor[1], Department of Political Science, Dr. G. Shankar Govt. Women's First Grade College and P.G. Study Centre, Ajjarkadu, Udupi
P.G. Co-ordinator[2], Dr. G. Shankar Govt. Women's First Grade College & P.G. Study Centre, Ajjarkadu, Udupi

ABSTRACT
Agriculture is a State subject and the State Governments are primarily responsible for the growth and development of agriculture sector in their respective States. The role of Central Government is to supplement the efforts of States through appropriate policy measures and budgetary support. The agricultural sector in India contributes to the overall growth of the economy and provides livelihood and food security to a majority of the population. The growth rate of Gross Value Added (GVA) at constant basic prices for Q2 of 2017-18 was 6.1 per cent as compared to 6.8 per cent in the corresponding period of previous year. At the Sectoral level, GVA of agriculture, industry and services sectors grew at the rate of 1.7 per cent, 5.8 per cent and 7.1 per cent respectively in Q2 of 2017-18. In this paper researchers made an attempt to highlight the challenges faced by the Indian Agriculturist, To know the reforms expected in Indian Agriculture sector, To project the recent central govt. initiatives in the agriculture sector, To highlight the demand for the agricultural commodities, To project the Total Factor Productivity trends for crops in selected states.

Keywords: GDP, Agriculture sector, Reforms in agriculture, Agricultural commodities.

INTRODUCTION
India has high population pressure on land and other resources to meet its food and development needs. The natural resource base of land, water and bio-diversity is under severe pressure. The massive increase in population (despite the slowing down of the rate of growth) and substantial income growth, demand an extra about 2.5 mt of food grains annually, besides significant increases needed in the supply of livestock, fish and horticultural products. Future increases in the production of cereals and non-cereal agricultural commodities will have to be essentially achieved through increases in productivity, as the possibilities of expansion of area and livestock population are minimal. To meet the projected demand in the year 2020, country must attain a per hectare yield of 2.7 tons 2 for rice, 3.1 tons for wheat, 2.1 tons for maize, 1.3 tons for coarse cereals, 2.4 tons for cereal, 1.3 tons for pulses, 22.3 tons for potato, 25.7 for vegetables, and 24.1 tons for fruits. The production of livestock and poultry products must be improved 61% for milk, 76% for meat, 91% for fish, and 169% for eggs by the year 2020 over the base year 1999. Average yields of most crops in India are still rather low. At 157.35 million hectares, India holds the second largest agricultural land in the world. India is among the 15 leading exporters of agricultural products in the world. India is the largest producer of spices, pulses, milk, tea, cashew and jute; and the second largest producer of wheat, rice, fruits & vegetables, sugarcane, cotton and oilseeds. India is one of the largest manufacturers of farm equipment such as tractors, harvesters and tillers. India accounts for nearly one-third of the overall tractor production, globally, with the tractor production in the country estimated to increase from 0.57 million units in FY16 and reach to 16 million units by 2030.

RESEARCH OBJECTIVES
- To highlight the challenges faced by the Indian Agriculturist,
- To know the reforms expected in Indian Agriculture sector,
- To project the recent central govt. initiatives in the agriculture sector,
- To highlight the demand for the agricultural commodities,
- To project the Total Factor Productivity trends for crops in selected states.

RESEARCH METHODOLOGY
The study is descriptive in nature based on secondary data and pertinent literature. The main sources of secondary data and pertinent literature are published and documented sources. Secondary data and pertinent literature has been compiled, analyzed and reviewed accordingly and the data has been presented in tabular form.

FINDING OF THE STUDY
CHALLENGES OR ISSUE FACED BY THE INDIAN AGRICULTURIST
In national priority setting, the following recurring and emerging issues for sustainable agricultural development and poverty alleviation must be considered:

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(i) Population pressure and demographic transition;

(ii) Resource base degradation and water scarcity;

(iii) Investment in agriculture, structural adjustment and impact on the poor;

(iv) Globalization and implication on the poor;

(v) Modern science and technology and support to research and technology development; and

(vi) Rapid urbanization and urbanization of poverty, and deceleration in rural poverty reduction.

In addressing the above issues, a policy statement on agriculture must take note of the following uncommon opportunities:

- Conservation of natural resources and protection of environment.
- Vast untapped potential of our soil and water resources, and farming systems
- Technology revolution especially in the areas of molecular biology, biotechnology, space technology, ecology and management.
- Revolution in informatics and communication and the opportunity of linking farmers, extension workers and scientists with the national and international database.

REFORMS EXPECTED IN INDIAN AGRICULTURE SECTOR

Accelerated investments are needed to facilitate agricultural and rural development through:

• Productivity increasing varieties of crops, breeds of livestock, strains of microbes and efficient packages of technologies, particularly those for land and water management, for obviating biotic, a biotic, socio-economic and environmental constraints;

• Yield increasing and environmentally-friendly production and post-harvest and value-addition technologies;

• Reliable and timely availability of quality inputs at reasonable prices, institutional and credit supports, especially for small and resource-poor farmers, and support to land and water resources development;

• Effective and credible technology, procurement, assessment and transfer and extension system involving appropriate linkages and partnerships; again with an emphasis on reaching the small farmers;

• Improved institutional and credit support and increased rural employment opportunities, including those through creating agriculture-based rural agro-processing and agro-industries, improved rural infrastructures, including access to information, and effective markets, farm to market roads and related infrastructure;

• Particular attention to the needs and participation of women farmers; and

• Primary education, health care, clean drinking water, safe sanitation, adequate nutrition, particularly for children (including through mid-day meal at schools) and women.

The above investments will need to be supported through appropriate policies 10 that do not discriminate against agriculture and the rural poor. Given the increasing role of small farmers in food security and poverty alleviation, development efforts must be geared to meet the needs and potential of such farmers through their active participation in the growth process.

Government should facilitate and support community level action by private voluntary organizations, including farmers groups aimed at improving food security, reducing poverty, and assuring sustainability in the management of natural resources. In addition, governments should enhance efforts to ensure good nutrition and access to sufficient food for all through primary health care and education for all.

Modern biotechnology tools, genetic engineering, as well as conventional breeding methods are all expected to play important roles in the generation of higher yielding, pest and stress resistant varieties of rice, wheat, maize and other cereal crops. The availability of genetic innovations in developing countries will depend on continued high levels of investments in agricultural research, both at the international and the national levels. Free and unhindered access to germplasm to breeders worldwide is absolutely crucial to the rapid dissemination and adoption of improved germplasm. This free movement and the dissemination of modern biotechnology innovations to developing countries are hampered by increased patent protection and private sector investments. There is an urgent need to address this problem of free access to technology in the future. Increased attention will also have to be given to development of sustainable systems that protect the natural resource base. Recent evidence of resource degradation and declining productivity in some intensively cropped areas is of particular concern. Also population driven intensification of agriculture without the use of external inputs, is leading to a serious problem of mining soil fertility Sustaining global food supplies will depend on continued high levels of investments in research and technology development. It is essential that research capacity has to be increased substantially. In addition to investments in research, infrastructure investments, particularly in irrigation, transport and market infrastructure development are equally important for sustaining the productivity and profitability of food crop production. Mobilize the best of science and development efforts (including traditional knowledge and modern scientific approach) through partnerships involving national and international research institutions, NGOs, farmers' organizations and private sector in order to tackle the present and future problems of food security and production. Donors and Government must urgently increase funding for agricultural research targeted at the needs of the rural and urban poor, and every effort must be made to ensure the free flow of information, technology and germplasm so that a proper sustainable agriculture can be achieved.

Therefore, the Agriculture Policy document must articulate a clear vision on following few basic parameters of the agricultural sector around which a policy framework must be developed.

Organization of agriculture: A clear long-term vision where inter-sectoral linkages are explicit. • Sustainability and natural resource management: Prescription must lie in the domain of political economy. Otherwise, allocating funds for watershed development, agroforestry, soil conservation, and so on will not produce desired results.

Institutional change: Policy document must spell out new approaches and new institutions free from the shackles of bureaucratic and self-help framework.

Investment priorities: There is a need to develop a consensus on investment themes, priorities and policies. Policy document must lend strength to the claim for greater investment in rural areas, and also re-examine its programmes in the light of complementarities.

Incentives: Document must articulate a clear vision on the incentive framework.

RECENT CENTRAL GOVT. INITIATIVES IN THE AGRICULTURE SECTOR

Agricultural Technology Management Agency (ATMA)

• This technique facilitates retrieval of data and data entry from the internet based web portals without actually having internet by using a simple mobile phone.

• More than a dozen of services of innovative technology like USSD are being operationalized for farmers and other stakeholders.

Pradhan Mantri Fasal Bima Yojana (PMFBY)

• In 2016, Central Government launched PM Mantri Fasal Bima Yojana for providing financial support to farmers and cover their crop losses. The scheme covers rabi, kharif crops as well as annual horticultural and commercial crops

• PMFBY is a crop insurance policy and premium payable on the principle amount to the farmers.

Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)

• Under the scheme, allocation of USD7.64 billion has been made for investment in irrigation, expanding cultivable area, improve efficiency of on-farm water to reduce wastage, enhance adoption of precision irrigation, etc.

• Governments of, majorly, all the states are funding agriculture sector and taking appropriate measures to achieve the targeted growth rate and address the issues being faced by farmers

Paramparagat Krishi Vikas Yojana (PKVY)

• This scheme ensures the promotion of organic farming

• Adoption of farming will promote the balanced use of chemical fertilizers and enhance the quality of farm produce.

DEMAND FOR THE AGRICULTURAL COMMODITIES

India has high population pressure on land and other resources to meet its food and development needs. The natural resource base of land, water and bio-diversity is under severe pressure. The massive increase in population (despite the slowing down of the rate of growth) and substantial income growth, demand an extra about 2.5 mt of food grains annually, besides significant increases needed in the supply of livestock, fish and

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horticultural products. Under the assumption of 3.5% growth in per capita GDP (low income growth scenario), demand for food grains (including feed, seed, wastage and export) is projected in the year 2020 at the level of 256 mt comprising 112mt of rice, 82mt of wheat, 39mt of coarse grains and 22mt of pulses. The demand for sugar, fruits, vegetables, and milk is estimated to grow to a level 33mt, 77mt, 136mt and 116mt respectively. The demand for meat is projected at 9mt, fish 11mt and eggs 77.5 billion (Table 1).

Table-1: Demand for Agricultural Commodities

Item	Achieved TE 1997-99			Demand in 2020 (million tons)		Yield target in 2020	
	Area (Million ha)	Production (Million tons)	Yield (Kg/ha)	LIG	HIG	LIG	HIG
Rice	42.2	85.7	1903	112.4	111.9	2664	2652
Wheat	26.2	69.1	2582	82.3	79.9	3137	3045
Coarse cereal	30.7	30.4	1041	38.9	37.3	1268	1214
Cereal	99.1	185.2	1814	233.6	229.0	2357	2311
Pulses	21.7	13.8	608	22.3	23.8	1029	1095
Food grains	120.8	199.0	1595	255.9	252.8	2119	2092
Edible oil	28.6	6.4	269	10.8	11.4	379.7	399
Potato	1.2	21.6	17188	27.8	30.6	22279	24566
Vegetables	5.3	74.5	14204	135.6	168.0	25673	31812
Fruits	3.2	43.0	13437	77.0	93.6	24064	29259
Sugarcane Gur	3.7	26.9	7006	32.6	33.7	8788	9088
Milk	-	71.2	-	115.8	137.3	-	-
Meat	-	5.0	-	8.8	11.4	-	-
Eggs number	-	2873	-	7750	10000	-	-
Fish	-	5.3	-	10.1	12.8	-	-

Source: R.S.Paroda and Praduman Kumar (2000). Food Production and Demand in South Asia. Agril. Econ. Res. Rev. 13(1):1-24. LIG: Low income growth 3.5% per capita GDP growth HIG: High income growth 5.5% per capita GDP growth Demand includes export 4.7mt rice, 3.6 mt wheat, and vegetables 2.2 mt fruits 1.4mt And fish 0.49 mt.

Table-2: Total Factor Productivity trends for crops in selected states

Crop	TFP trend		
	Increasing	No change	Declining
Paddy	Andhra Pradesh, Orissa, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal	Assam, Haryana	Bihar, Karnataka, Madhya Pradesh
Wheat	Haryana, Punjab, Rajasthan, Uttar Pradesh	Madhya Pradesh	
Sorghum	Andhra Pradesh, Maharashtra, Karnataka	Madhya Pradesh, Rajasthan	
Pear millets Maize	Gujarat, Haryana, Rajasthan Madhya Pradesh	Rajasthan, Uttar Pradesh	
Barley	Uttar Pradesh	Rajasthan	
Chickpea	Haryana	Rajasthan, Uttar Pradesh	Madhya Pradesh
Black gram	Maharashtra	Andhra Pradesh, Madhya Pradesh, Uttar Pradesh	Orissa
Moong	Madhya Pradesh	Andhra Pradesh , Rajasthan	Orissa
Pigeon pea	Madhya Pradesh	Gujarat, Uttar Pradesh	

Groundnut	Andhra Pradesh , Karnataka, Maharashtra, Orissa	Gujarat, Tamil Nadu	
Rapeseed & Mustard	Rajasthan, Uttar Pradesh	Assam, Haryana	Punjab
Soyabean		Madhya Pradesh	
Sugarcane	Bihar	Andhra Pradesh , Haryana, Karnataka, Maharashtra, Uttar Pradesh	
Cotton	Gujarat, Haryana, Tamil Nadu	Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Punjab	
Jute	Assam, Bihar, West Bengal		Bihar
Onion	Maharashtra	Himachal Pradesh	
Potato	Uttar Pradesh	Himachal Pradesh	

Source: IARI-FAO/RAP study (2001) based on cost of cultivation data, DES, GOI.

Table-3: Priority states for increasing national average yield of crops, India

Crops	**Target growth Per cent**	**Priority states**	**Percent share of priority states in total crop area**
Rice	2.35	BH, OR, AS, WB, UP	66
Wheat	2.22	UP, MP, BH, RJ	68
Sorghum	1.36	MH, KN, MP, AP	82
Pear-millets	0.43	RJ	47
Maize	2.00	BH, UP, MP, RJ	60
Chickpea	4.34	MP, RJ, UP, MH	83
Pigeon pea	4.28	MH, GJ, KN, AP, MP	72
Groundnut	2.51	AP, GJ, KN, MH	76
Rapeseed & Mustard	2.11	RJ, UP, MP, WB	74
Soya bean	1.11	MP, RJ	83
Cotton	3.78	MH, GJ, KN, RJ, AP	74
Sugarcane	3.07	UP	51

Source: Agriculture Policy: Vision 2020. **Note:** AP: Andhra Pradesh. AS: Assam. BH: Bihar. GJ: Gujarat. KN: Karnataka. MP: Madhya Pradesh. MH: Maharashtra. OR: Orissa RJ: Rajasthan. UP: Uttar Pradesh. WB:West Bengal.

CONCLUSION

Raising agricultural productivity requires continuing investments in human resource development, agricultural research and development, improved information and extension, market, roads and related infrastructure development and efficient small-scale, farmer-controlled irrigation technologies, and custom hiring services. Such investments would give small farmers the options and flexibility to adjust and respond to market conditions. Identification of need-based productive programs is very critical, which can be explored through characterization of production environment. We have to develop demand-driven and location-specific programs to meet the requirements of different regions to meet the nutritional security of most vulnerable population in the rural areas. Improved agricultural technology, irrigation, livestock sector and literacy will be most important instruments for improving the nutritional security of the farm-households. The globalization of agricultural trade will bring to the fore access to markets; new opportunities for employment and income generation; productivity gains and increased flow of investments into sustainable agriculture and rural development. Researchers believe that if managed well, the liberalization of agricultural markets will be beneficial to developing countries in the long run. It will force the adoption of new technologies, shift production functions upwards and attract new capital into the deprived sector.

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PREVENTING THE DATABASE OF WEB BASED APPLICATIONS FROM SQL INJECTION ATTACK

Prashant P. Pittalia
Associate Professor, Department of Computer Science, S. P. University, Vallabh Vidyanagar

ABSTRACT
Day to day the online applications are increase exponentially, and data in the web databases are more confidential, so security of database is more important in current era. of social media on society with positive and negative aspects. Database powered web applications are used by end user to get data from it. Attackers use the SQL injection techniques to hack the data from the database and misuse data to further complication for the organization or industry. This type of attacks is possible only due to the lack of security on database server. In this paper, I present various SQL injection attacks and different tactics to prevent such attacks.

Keywords: SQL injection attack, Stored procedure, Union, Web Application

1. INTRODUCTION
Static and dynamic Web applications are used in the Internet. In such website some are used for money transaction like online shopping, online bill payment, online reservation, online banking, purpose where money transactions are performed. Each and every web applications are connected with the database server, which keeps track of all the data related to the application. The interaction between web application and database is through the SQL (Structured Query Language). SQL is used to retrieve the data from the database. Attacker may misuse of SQL and gain the sensitive or credential data from the database. Nowadays, web applications are widespread around the world. More and more companies and organizations use web applications to provide various services to users. Web applications receive users' requests, interact with the back-end database, and return relevant data for users [1]. In SQL injection, the attacker adds Structured Query Language code to web form to gain access or make changes to data. SQL injection vulnerability allows an attacker to flow commands directly to web applications underlying database and destroy functionality or confidentiality.

2. SQL INJJECTION ATTACKS
SQL (Structured Query Language) Injection is an attack in which an intruder executes a wrong SQL statement to control web application database to adding, modifying or deleting the valid data. With SQL injection the attacker perform the following things.

- By add, modify or delete the data it makes the application in unstable mode.
- Add some malicious code that should be executed when user access the application.
- Getting the credential data and bypassing the web application authentication mechanisms.
- Access the authorized user data and use it at other places to misuse of data.
- By getting administrative authority control the application in the way he / she wishes.

Some of the SQL injections attacks are specified as follow.

Code in Conditional Statement: In such attacks the code is added in such a way that it evaluation become true. Attacker wants to bypass the authentication of the user or retrieve the data from the database or insert some parameters. For example, SELECT * FROM user_master WHERE user_id = '1' or '1=1'--'AND user_password='111'; Here the attacker has write two special parts. or '1=1' is a condition that will always be true, so it is considered as valid input for the application. – (Double Hyphen) instruct the SQL parser that rest of the line is comment and it should not be executed. This query removes the password verification it means bypass the authentication.

Piggy-Backed Queries: The main aim of the Piggy- Backed Query is to execute remote commands or add or modify data. In such attack, attacker adds some additional query with the original query and said "piggy-back". As a result, multiple SQL queries are executed on the atabase [7]. For example, if the attacker append [';drop table user_master--] into the password field, the application generates the query: SELECT user_id FROM user_master WHERE user_id='San' and user_password=''; DROP TABLE user_transaction'. Here the database executes two queries. The execution of second query would dropping the table user_transaction.

Logically Incorrect Queries: The main purpose of this attack is to know the detail information about the database. When a query is rejected a error message returned from the database with debugging fact. By getting this message attacker find vulnerable parameters. For example Error Message: SELECT user_type FROM user_master WHERE user_id='111'\'. From such message attacker comes to know the table name and fields name. With this information attacker may use other strong attacking techniques.

Union Query: Here the attacker intention is to get the data from the other tables rather than from actual table. In such attacks, attacker injected query to the original safe query by the word UNION and retrieve the data of other table by application. For example, the query is as follows: SELECT user_name, user_birthdate FROM user_master WHERE user_id = $user_id.

When the user_id value is as: $user_id = 1 UNION ALL SELECT credit_card_no FROM credit_table. This query result into provide the original query and credit card information to the attacker.

Stored Procedure: This attack is used to run the stored procedure in the database. Stored procedures are created and maintained by the database administrator or the developer. In Oracle, MySQL and MS-SQL the stored procedures are different. Attacker has to first identify the type of database used on server. Attacker start with logically incorrect query attack and then try for stored procedure attack. For example,

```
CREATE OR REPLACE PROCEDURE Dynamic_Table
(V_columns VARCHAR2, V_tables VARCHAR2) AS
statement  VARCHAR2(4000);
TYPE VTYPE IS VARRAY (250) OF VARCHAR2(250);
output VTYPE;
BEGIN
statement: = 'SELECT '||V_columns||' FROM '||V_tables;
DBMS_OUTPUT.PUT_LINE(statement);
EXECUTE IMMEDIATE statement BULK COLLECT INTO output;
FOR i IN 1..output.COUNT()    LOOP
DBMS_OUTPUT.PUT_LINE (output(I));
END LOOP;
END TAB_COLS;
```

With SQL injection the execution of procedure is as:

EXEC dynamic_table ('user_name,'user_master WHERE 1=5 UNION SELECT NAME FROM USER_SOURCE WHERE TYPE="PROCEDURE");

Here the 1=5 not considers the user_master table but it could retrieve data from user_source table.

Blind SQL: This injection is used when there is no value from database in output from the web application, that means the server don't show any information about database, we only can check if the injection will return true or false. If the application is secured, queries would be unsuccessful, because of input validation. But if there is no input validation, the attacker can try the chance. Attacker submit the query with “1=0” and receives an error message. Attacker does not understand the error is for input validation or for logical error in query.

Time-based SQL Injection: In such injection, SQL query is sending to the database and force the database to wait for certain time period before sending the response. The time website takes to respond will indicate to the attacker whether the result of the query is TRUE or FALSE.

3. TECHNIQUES TO PREVENT AGAINST SQL INJECTION ATTACKS

Several automated injection tools have been used for attack, as a tool is easier to use than the manual attack, the attacker just gives the basic information that is required by the tool and waits till the tool retrieves the attack result whether it is successful or not. Many tools have been created; some of them are primitive tools and only can be used to attack specific database or to execute a prepared injection procedure. Other tools can attack any database type and can be used to execute different injection attacks [2-6, 7-9]. Following points to be used to prevent against SQL injection attacks.

- Regular expressions can be used to detect potential harmful code and remove it before executing the SQL statements.

- User input must always be sanitized before it is used in dynamic SQL statements. When prepared statements are used first you should validate the input value should be of valid type, size, format etc. It could not prevent underlying vulnerability but it helps to remove most of the attacks.
- Prepared statements to work by creating the SQL statement first then treating all submitted user data as parameters. This has no effect on the syntax of the SQL statement. SQL Command uses a parameter instead of allowing to insert the values directly into the command, so malicious queries which are dangerous for the database are not executed in the database. For example if the user entered 13422 or 1=1 as the input, the parameterized query match with the entire string 12345 or 1=1 in the corresponding table.
- Stored procedures can encapsulate the SQL statements and treat all input as parameters. It provides more security in the database beyond the prepared statements. SQL code for a stored procedure is written and stored in the database server and than it would be called from web application. To make the data very safe, user should not be allowed to access the data directly, he / she must call the stored procedure to execute any command on the database.
- SQL injection attacks are developed frequently and implemented on database. It is advisable to regularly update the patches in database server time to time to protect it against attacks.
- Proper rights should be assigned to the database users who have account in database. This can help reduce what the SQL statements can perform on the server. Database administrator account or system account should be used only in worst condition. If limited privilege account is enough to manage the database, use such account. It helps to secure the account from attacker and more secure the data.
- Error messages should not disclose credential information and what the actual error occurred. Simple custom error messages such as “Sorry, we have a technical errors. The technical team will solved in shortly. Please try again after sometime.” can be used instead of display the actual SQL statements which caused the error. Error messages help the attacker to know the information about the database and do some malicious task. Encourage the users to contact with technical team members if it is crucial problem.
- Identify the credential or sensitive data from the database and keep it in separate file to protect against the attacks. Also stored sensitive data in encrypted format, so if attacker is able to retrieve the data but he / she could not be able to crack the original values.
- Check the security policies of database and make a role with proper privileges to assign them to the right account and right time. Remove or disable the dead or outdated account and make a backup of old data in separate file from the working database.

4. CONCLUSION

Many companies and organizations developed and uses web applications to provide services to its users. To provide data to the end user the web application is totally depends on the database. Attacker is targeting the database to find the loophole and get the important data from the database. Here in this paper the various SQL injection attacks are discussed with proper examples. Some important techniques are discussed that helps to prevent breaches the data of database system to unauthorized person.

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RE-BUILDING KERALA: NEED FOR REJUVENATING THE TOURISM SECTOR OF THE FLOOD-HIT KERALA ECONOMY WITH A FOCUS ON HEALTHCARE TOURISM

Rajagopal Nayar[1] and Dr. Manoj P. K.[2]
Ph.D. Research Scholar[1] and Faculty Member & Research Co-ordinator[2], Department of Applied Economics, CUSAT, Kochi, Kerala

ABSTRACT

Kerala, a small state in the southernmost part of India, is often called 'God's own Country' because of its enviable natural beauty-high mountains, gorges and deep-cut valleys, lakes and backwaters, lush and evergreen forests, delicious food, and so on. The state has one of the best tourism resources in India because of its unique natural resources, special geographical location, moderate climate, vast coastal areas, large pool of skilled man power and good physical infrastructure. Worldwide Kerala is famous for its healthcare services, particularly the Ayurvedic treatments. Kerala has the unique distinction of having the largest pool of trained medical professionals. These special features make Kerala one of the topmost tourism destinations in world, particularly in respect of healthcare tourism. Despite these advantages, Kerala was late in recognizing its immense tourism potential. Since the late 1990s, the state has been keen in promoting tourism and this has resulted in consistent growth for its tourism sector. Segments like responsible tourism (RT) and healthcare tourism (HT) are priority areas now. Of late, Medical Value Travel (MVT) to Kerala is on the rise.

The flood that occurred in Kerala in August 2018 was one of the deadliest the state witnessed ever since the massive flood of 1924. The flood of August 2018 badly affected all sectors of Kerala economy, and tourism was a worst-hit sector. Tourism accounts for about 12 percent of Kerala's GDP. Given the unique features of Kerala tourism and also the vast potential of tourism for employment generation and economic growth, this sector offers excellent growth prospects for Kerala economy. After the devastating impact of the flood, Kerala tourism has been gradually picking up normalcy over the last few months. Despite the flood havoc, Kerala tourism could register a reasonable growth of 6.35 percent in 2018 in respect of the domestic tourist arrivals (1,56,04,661 tourists for the year ended Dec. 2018 as against 1,46,73,520 for the year ended Dec. 2017). Likewise, in respect of foreign tourists arrivals too, there has been a growth from 10,91,870 (2017) to 10,96,407 (2018) thus registering a growth of 0.42 percent. Kerala has the potential to enhance the quantum of Medical Value Tourism by 10 to 15 percent. The Consortium of Medical Tourism in Kerala believes that, Kerala attracts only 5 to 7 percent of MVT, which is equivalent to US Dollar 200 Million annually. Some experts estimate that by 2020 Kerala will become the next healthcare hub in the country. The resilience shown by Kerala tourism even at times of flood points to its huge growth prospects. It is estimated that Kerala tourism has lost at least 10 lakhs tourists just because of the flood havoc that occurred in August 2018. Vast developmental activities have been going on throughout the state after the flood havoc, with a view to rebuild Kerala into a 'Nava Keralam'(New Kerala), with the active participation of the State Government. In the above context, focusing on tourism sector of Kerala in general and Healthcare Tourism (HT) in particular, this study makes a closer look into the problems and prospects of Kerala tourism considering the impact of the flood, and accordingly suggests strategies for the rejuvenation of Kerala tourism, particularly the state's Healthcare Tourism (HT) sector.

Keywords: Tourism earnings, Healthcare Tourism (HT), Medical Value Travel (MVT).

INTRODUCTION

It is widely recognised in the literature that tourism offers excellent potential for employment generation and economic development and hence tourism is being promoted aggressively by nations, particularly the developing nations like India. It may be noted that at the global level tourism is ranked second highest in terms of income generation and is second only to the oil industry. Tourism has emerged as one of the largest and fastest growing industries in the whole world. The combined effect of enlarged leisure and better purchasing power makes tourism affordable to more people. Every country can play a decisive role in tourism and tourism industry is reckoned as very valuable, particularly for the development of global transportation and communication. Of late, this industry is receiving good attention as a foreign exchange earner and in most parts of the world it is aggressively promoted primarily for attracting more foreign exchange. The huge amounts spent by foreign tourists for accommodation, food, transport, recreation, etc. have got linkage effects resulting in overall economic development of the host countries.

In India, after the independence of the country in 1948, the focus of attention of the Government was on the development of sectors like agriculture, industry, infrastructure etc. Tourism sector in India was never considered as a sector with high growth potential and it had been growing at slow pace during the early years of the country's independence. Hence, Indian tourism could not exploit the vast tourism potential of the country during those years. But, since the last two decades or more, there has been an organised effort to aggressively promote tourism by the Government of India. Quite similar to the poor tourism performance of Indian tourism among comparable world nations, the relative performance of tourism sector of Kerala in India has been very poor vis-a-vis other states in the Indian union. In spite of the enviable tourism resources in Kerala state the state is lagging far behind most of the other Indian states, notwithstanding the fact that those states have low tourism endowments. As India has been showing the best way to strategize sustainable tourism is by way of encouraging the pursuit of tourism in a responsible manner. It is about sensitizing tourists on the need for conserving and maintaining the natural wealth and cultural heritage of a nation. It is observed that through hospitality entrepreneur's rural resources, wild-life and adventure, cultural, health, farm tourism. It should be possible to conserve natural resources as well as increase greater monetary benefits to the people at the local level. In this context, of late, Kerala has been keen in promoting tourism more aggressively. Accordingly, models like Responsible tourism (RT) and Healthcare tourism (HT) are priority areas for the Tourism Department of Government of Kerala, often called Kerala Tourism.

Of late, the Government of Kerala has been giving focused attention on RT, though allied models like ecotourism, rural tourism etc. are also being accorded high priority. RT seeks to measure the effects of tourism on the well being of the host community, their art and culture, by products, hereditary values and knowledge, as well as on local environment. RT tourism envisages minimum negative effect on the culture of the indigenous society, and on the environment. So, RT ensures environmental sustainability besides magnifying host culture. Though RT and its variants like ecotourism have immense growth potential in Kerala because of the huge demand from foreign tourists, these models are yet to pick up adequate growth momentum in the state.

The flood that has occurred in Kerala in August 2018 has adversely affected all industries in the state, particularly the tourism industry. So, the recent flood has given another dimension to the constraints and limitations of Kerala tourism. Suitable remedial measures need to be taken to bring back the flood-hit tourism back to its normalcy.

LITERATURE REVIEW

The industry report by World Economic Forum (WEF) (2015) [30] 'The Travel and Tourism Competitiveness Report' has done a detailed study of the competitiveness of various countries of the world, in the travel and tourism front. Competitiveness of nations at the regional and global levels based a number of well-defined parameters is dealt in the WEF report. As per WEF report, the global competitiveness of Indian tourism is only 52 as against 17 in respect of China. This indicates a huge performance gap between the two comparable (and neighbouring) nations of the developing world. At the regional (Asia Pacific region) level too, there is a huge gap in the competitiveness, as India is in the 12th position whereas China is ranked in the 6th position. WTTC (2015) [33] in its report, 'Economic Impact of Travel & Tourism 2015 – Annual Update' has studied in detail the comparative performance of different world nations in respect of tourism, including region-wise details as well as future projections. It has been noted that South Asia, spearheaded by India and the Middle East, would be the fastest growing region globally, in terms of the total contribution of Travel and Tourism to the GDP. So, India is included in the group of larger, fast growing markets like China, Indonesia, South Korea and Turkey. Besides, WTTC has reported that South Asia will be the fastest growing sub-region for total Travel & Tourism GDP long-run growth to 2025 (7.0 percent) as India outpaces China. Empirical studies on ecotourism in the Indian context, particularly in the context of Kerala state in the Indian union are rather rare. Some relevant studies are briefly discussed here. Kumar, Yathish (2007) [13] has noted that the aim of tourism is to improve the quality of life of people, provide a good experience to the tourists, and maintain the environmental quality which is vital for both the tourists and the local populace. A macro level study done in the Kerala context by Manoj P K (2008) [17], 'Sustainable Tourism in India: A Study from a Global Perspective with Focus on Tourism Prospects of Kerala' points out the vast growth prospects of sustainable tourism in Kerala from a global perspective. The author has suggested some strategies for the faster growth of sustainable tourism with special reference to the Kerala state in India. In another Kerala-based study, Oommen M. A. (2008) [24] warned about the danger of overlooking the environmental sustainability in development activities in the state. While referring to the growing environmental issues in Kerala from the perspective of the state's economic development model viz. 'Kerala model of development' the author has pointed out in detail the environmental and ecological issues that the state faces at present; the current scenario being critically referred to as one of 'Ecological Overkill' in his paper. The day by day worsening situation of the natural environment in Kerala and its adverse impact on the long-term sustainability of tourism has been noted by many researchers, pointing out the need for environment-friendly (nature-friendly) tourism models like ecotourism and its variants like rural

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tourism, responsible tourism etc. Notably, the macro level study by Manoj P K (2009) [18], 'Environment Friendly Tourism for Sustainable Economic Development in India', for instance, underscores the cardinal significance of tourism in India for its rapid economic development; and at the same time point out the need for promoting environment-friendly (and hence sustainable) tourism models. The author, thus, makes a few strategies for development of environment-friendly tourism in India. In his book on 'Ecotourism Development Management', Singh, Sarvjeet (2009) [26] has stated that ecotourism is entirely a new approach in tourism and it provides opportunities for visitors to experience powerful displays of nature and culture and to learn about the importance of biodiversity, conservation and local cultures. It focuses on volunteering, personal growth and finding innovative means to live on the earth. It involves travels towards locations wherein flora, fauna, cultural heritage etc. are the main attractions. It encourages the active participation by the local population in the conservation and education dimensions of tourism development process.

In a research article by Manoj P K (2010) [19], 'Tourism in Kerala: A Study of the Imperatives and Impediments with Focus on Ecotourism', the tourism sector in Kerala state in India is analysed in detail using the SWOT model. Accordingly, strategies are suggested for the faster and sustainable development of tourism in Kerala. Sudheer, B (2015) [27] in his research report submitted to University Grants Commission (UGC), New Delhi titled 'Economic and Cultural Impact of Responsible Tourism Initiative in Kerala – A Case Study of Kumarakom Panchayath' has highlighted the need for alternative and innovative practices like Responsible Tourism (RT) to minimise the negative effects of tourism on environment and to make it sustainable in the long-term. With respect to RT at Kumarakom in Kerala, the positive effects like employment to the local people, empowerment of women through RT-related activities (like, providing vegetables, fish, meat etc. often procured locally), positive linkage effects on the locality (like, earnings arising from the purchases made by tourists) etc. have been pointed out. An empirical study by Manoj P K (2015) (a) [20], 'Prospects of Responsible Tourism in Kerala: Evidence from Kumarakom in Kottayam District' focuses on ecotourism in Kerala and based on the findings of his study makes some suggestions for sustainable ecotourism development in the state. Another empirical study by Manoj P. K (2015) (b) [21], 'Employment Generation from Rural Tourism: A Field Study of the Local Community at Kumbalangi, Kerala' is based on the feedback obtained from the local community about their perceptions on the employment prospects of rural tourism, their expectations about the required Governmental interventions etc. The high prospects of employment generation and economic development on the one hand, and the need for enhanced tourism infrastructure, primarily through Government initiatives, on the other hand, are noted. Another study by Manoj P K (2016) [22], "Impact of Rural Tourism on the Environment and Society: Evidence from Kumbalangi in Kerala, India", in *International Journal of Advance Research in Computer Science and Management Studies (IJACSMS)* has pointed out the obvious positive effects of rural tourism but warned about the urgent need to preserve the environmental purity through managing the inflow of tourism, controlling the use of non-degradable wastes like plastics, better thrust on maintaining the cleanliness etc. In a study by Manoj P K (2017) [23], "Segmentation Strategy for Promotion of Ecotourism Products: Evidence from Thenmala Ecotourism" in *South Asian Journal of Socio-Political Studies (SAJOSPS)*, the author has studied as to whether the socio-economic factors have influenced the decisions of the tourists and suggested the segmentation strategy for tourists.

RESEARCH GAP

Though there are many studies on tourism done in the Indian context, including a few studies in the Kerala context, empirical studies that focus on the impact of flood on Kerala tourism are virtually nil. So, this study seeks to bridge the above research gap by focusing on the impact of flood on Kerala tourism in general and MVT in particular.

RELEVANCE AND SIGNIFICANCE

Even though tourism is being aggressively promoted by the Kerala Government, particularly models like Responsible Tourism (RT) and Health Tourism (HT), tourism is yet to pick up its full growth momentum in the state. The flood havoc that took place in Kerala in August 2018 has adversely affected all industries, particularly the tourism sector. It is estimated that Kerala tourism has lost at least 10 lakhs tourists just because of the flood havoc. Vast developmental activities have been going on throughout Kerala after the flood havoc, with a view to rebuild Kerala into a 'Nava Keralam' (New Kerala), with the active participation Kerala Government. In this context, focusing on tourism sector of Kerala in general and Medical Value Travel (MVT) in particular, this study makes a closer look into the problems and prospects of Kerala tourism considering the impact of the flood, and seeks to suggest strategies for the rejuvenation of Kerala tourism, particularly the MVT – the new incarnation of HT.

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OBJECTIVES

(i) To study the prospects and problems of Kerala tourism, in terms of tourist arrivals and foreign exchange earnings, with a focus on Healthcare Tourism (HT) sector in Kerala;

(ii) To study the impact of flood on Kerala tourism, particularly on HT and MVT (Medical Value Travel), and to suggest strategies for rejuvenating the post-flood tourism sector.

METHODOLOGY OF THE STUDY

This study is descriptive-analytical and exploratory in nature. Both primary and secondary data are used for this study. Primary data are collected by means of sample survey using an Interview Schedule. Secondary data are collected from the publications of United Nations World Tourism Organization (UNWTO), World Travel and Tourism Council (WTTC), Kerala Tourism Development Corporation (KTDC), Kerala State Planning Board, tourism statistics of the tourism departments of Governments of Kerala and India, reports on tourism industry by agencies like FICCI, IBEF etc. Popular statistical tools are used for data analysis.

PROSPECTS AND PROBLEMS OF TOURISM IN KERALA

In fact, way back in 2000 Kerala had drafted a comprehensive tourism policy viz. *Vision 2020* that had given due consideration to the sustainability aspects of tourism growth along with its economic and feasibility aspects. This policy sought to make tourism one of the core competencies of Kerala and to regulate the tourism initiatives properly taking into account the broader and long-term interests of Kerala, like, environmental conservation, protection of heritage and culture, development of tourism infrastructure, quality standards etc. In short, it aims at using a sustainable and integrated approach to tourism promotion in Kerala.

The performance of Kerala tourism has been encouraging, in general. There has been an increasing trend in respect of foreign tourist arrivals to Kerala over the years, and also in the share of Kerala in the tourism revenue for the whole of India. However, there is scope for further improvement in view of its enviable tourism potential as the "God's own country". There are a few areas wherein Kerala has a comparative edge over the rest of India and also other countries of the world. Its unique socio-economic and geographic profile has already made it one of the sought-after tourist destinations in the world. The lengthy coastal belt, peculiar geographical location, lusty backwaters, a large number of beaches, serene hillocks, moderate climate throughout the year, highly literate populace etc. are some of the factors. It is worth noting that there has been growing trend in the foreign tourists and domestic tourists to Kerala despite the flood havoc in 2018 that adversely affected its tourism sector. (Table I).

Table-I: Trends in Domestic and Foreign Tourist Arrivals into Kerala (2000-2017)

Year	Tourists (Domestic)	Change (Percentage)	Tourists (Foreign)	Change (Percentage)
2000	5013221	2.6	209533	3.8
2001	5239692	4.5	208830	-0.5
2002	5568256	6.3	232564	11.3
2003	5871228	5.4	294621	26.7
2004	5972182	1.7	345546	17.3
2005	5946423	-4.3	346499	.27
2006	6271724	5.47	428534	23.7
2007	6642941	5.92	515808	20.37
2008	7591250	14.28	598928	16.11
2009	7913537	4.25	557258	-6.96
2010	8595075	8.61	659265	18.31
2011	9381455	9.15	732985	11.18
2012	10076854	7.41	793696	8.28
2013	10857811	7.75	858143	8.12
2014	11695411	7.71	923366	7.60
2015	12465571	6.59	977479	5.86
2016	13172535	5.67	1038419	6.23
2017	14673520	11.39	1091870	5.15
2018	15604661	06.35	1096407	0.416

Source: Govt. of Kerala (2018), *Economic Survey*; and Tourism statistics (Kerala Tourism).

The Department of Tourism (DoT) of Kerala has formulated a three-pronged strategy to maintain and improve the superior status of Kerala in the global tourism map. Accordingly, three broad strategies viz. (i) Product

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Innovation, (ii) Innovative Marketing, and (iii) Strategic alliance with the Govt. of Rajasthan. Besides, there are efforts in the direction of obtaining the benefits of Special Economic Zones (SEZs) for tourism, so that SEZs for tourism could be established meaningfully. The recently drawn up 'Kerala Tourism Policy 2017' has given a further boost to RT initiatives in Kerala whereby Responsible Tourism Mission (RT Mission) will be implemented to promote RT in the state in a systematic manner.

Healthcare Tourism (HT) in Post-Flood Kerala: The Way Ahead

Healthcare is becoming more and more costly in advanced countries. This makes the market for Healthcare Tourism (HT) or Medical Value Travel (MVT) in India growingly attractive for foreign tourists who seek medical treatment affordably or at very reasonable costs. The market size of MVT in India is estimated to more than double to about USD 8 Billion by 2020 from its size of about USD 3 Billion as of 2015. There has been a gradual transition from Medical Tourism (MT) to Medical Value Travel (MVT) in the recent years. (FICCI, 2016) [10]. The term MVT encompasses the healthcare seeking behaviour of medical tourists and also the economic impact of such medical travels on the host countries. Broadly three areas are typically covered in MT or MVT viz. (i) Medical Treatment, (ii) Wellness and Rejuvenation, and (iii) Alternative Medicine (like, AYUSH in the Indian context).

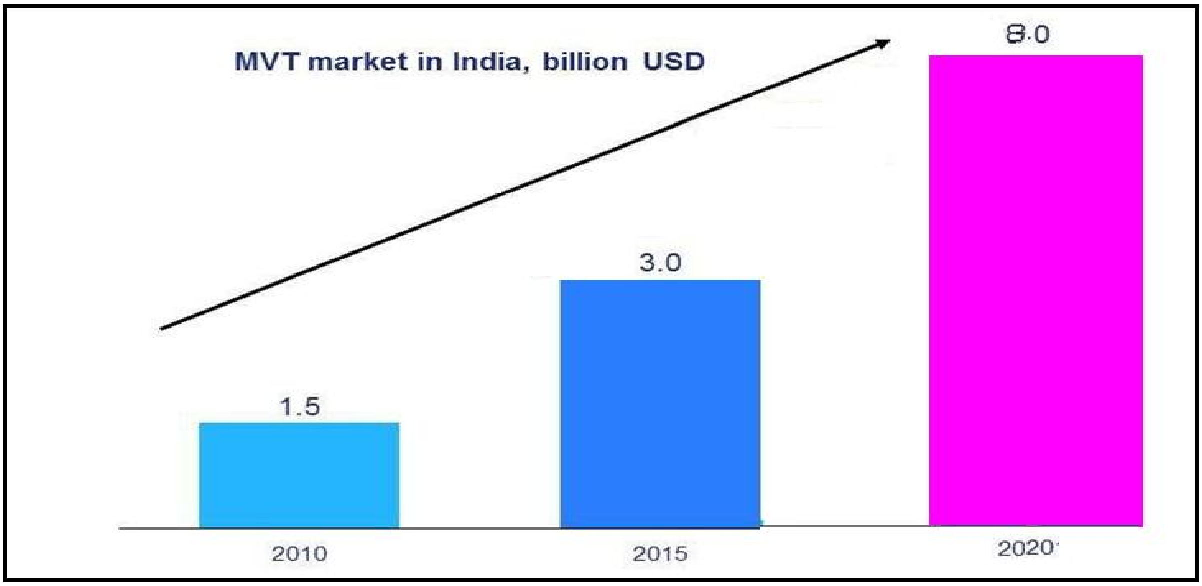

Figure-I: Growth Prospects of MVT in India. Source: FICCI (2016).

As shown in Figure I, there is excellent prospects for MVT in India. In fact, the MVT market in India is grossly untapped today. The value created (benefits) because of MVT to the individual tourists and to the host nation (here, India) are given in Table II.

Table-II: Benefits of MVT to the Tourists and Host Country (India)

Benefits (Value) to the Medical Tourists	Benefits (Value) to the Host Nation (India)
Lower cost of treatment	Source of foreign exchange earnings
Better clinical outcomes	MVT enhances country's image.
Opportunity to travel and explore new places	Supports the growth of hospitality sector

Impact of Flood on Kerala Tourism and the Present Status of Kerala Tourism

It is estimated that because of the devastating flood that occurred in August 2018, at least 10 tourists have cancelled their tourism trips to Kerala. Based on the discussions with all the stakeholders, the following are the adverse effects of the flood havoc:

(i) Transportation was disturbed during one week fully, and three weeks partially;

(ii) There was lack of proper communication facilities for nearly two weeks;

(iii) There was cancellation of registrations to the tune of 60 percent in August 2018, but the situation gradually improved to 20 percent or less by the end of October 2018.

(iv) Image of the tourism spots was affected after the flood, but later it gradually improved.

In spite of the above temporary issues, because of the pro-active steps taken by the Government, particularly the Tourism Department of the Government, the tourism industry in Kerala has been gradually attaining normalcy. The adverse impact of the floods is vanishing and more tourists are expected in the future. The macro level (Kerala state as a whole) picture on the impact of the unprecedented flood on Kerala tourism are as follows:

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- Foreign Tourist Arrivals (FTAs) decreased by 13.55 percent during the third quarter viz. July-Sept. 2018 compared to the same period last year i.e. July-Sept. 2017. There was a positive growth of 12.13 percent in FTAs in the first quarter, viz. Jan.-March 2018. But, a negative growth of -4.6 percent was registered in the second quarter viz. April-June 2018; because of the alleged rape and murder of a Latvian woman near Kovalam in Kerala and also the Nipah virus outbreak in Kozhikide in May 2018. This negative growth further widened to 13.55 percent in the third quarter viz, July-Sept. 2018, as already noted above.
- Domestic Tourist Arrivals (DTAs) decreased by 3.48 percent during July-Sept. 2018 whereas there was a high increase of 15.93 percent during May-June 2018. This is for the first time that the state witnesses a negative growth rate in DTAs, as the normal trend in Kerala used to be that of 5-6 percent annual overall growth rate, and double digit growth during special occasions. The four worst-hit districts because of the devastating flood were Idukki, Wayanad, Alappuzha, and Thrissur.
- Flight bookings to Kochi (via. Cochin International Airport Limited, or CIAL in short) almost halved to 53 percent in August and Sept. 2018 – a direct impact of the floods. In October too, the flight bookings is 17 percent lower than that of last year, i.e. Oct. 2017.
- The often attributed weakness of ‘lack of hygiene’ became worse after the flood, because the flood further deteriorated the cleanliness in the tourism spots. Another persisting complaint is that of exploitation of tourists, particularly the foreign tourists.

Flood has caused irreparable damage to Kerala economy, particularly Kerala’s tourism sector. The flood that occurred in August 2018 was one of the deadliest that Kerala has ever witnessed since the one in 1924. The flood adversely affected all facets of Kerala economy, particularly the tourism sector which accounts for about 12 percent of the GDP of the state. The post-flood recovery costs, assessed by the UN team in October 2018, are as follows:

Sectors	Recovery Cost (Rs. Crore)
Housing & Land Settlements	Rs. 5659 Cr.
Cultural Heritage	Rs. 73 Cr.
Employment & Livelihood including Tourism	Rs. 3903 Cr.
Environment & Climate change	Rs. 148 Cr.
Agriculture, Fisheries & Livestock	Rs. 4499 Cr.
Health & Nutrition	Rs. 567 Cr.
Education	Rs. 214 Cr.
Water, Sanitation & Hygiene	Rs. 1331 Cr.
Transportation	Rs. 8554 Cr. … etc.
GRAND TOTAL	Rs.26,985 Cr

In spite of the adverse impact of flood on Kerala tourism as noted above, there are indications of a revival of the sector. Some indications are as follows;

- Foreign tourists arrived in large numbers, totally over 900 tourists – all from United Kingdom, in three charter flights in the month of December 2018.
- Large number of tourists started flowing to in Munnar in December 2018, increasing the occupancy levels in the hill stations and home stays in that tourism spot.
- Gradually improving status of health and wellness tourism in Kerala, particularly the renowned Kerala brand Ayurveda tourism. Other types of medical tourism (like, modern medicine) is also picking up in the state, though initially affected by the flood.

Suggestions based on the Findings of the Study

- Kerala has to formulate a separate strategy for Healthcare Tourism (HT) or MVT also as done in respect of Responsible Tourism (RT) viz. the Responsible Mission (RTM) way back in 2007. An MVT policy needs to

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be formulated. RT model like the one in Kumarakom in Kottayam is a role model for the whole nation. Similarly HT or MVT can also perform well in Kerala.

- Events like Kerala Travel Mart (KTM) need to be arranged periodically so as to promote tourism in Kerala in a greater way. The case of MVT needs to be given greater emphasis in such events. Events in foreign countries (target markets for MVT) would be very meaningful.
- Remedial measures are required to counter the negative impact of tourism, particularly mass tourism. The environmental degradation because of plastic littering, imbalance in bio-diversity, pollution of water bodies and streams etc., as observed in many ecotourism destinations (like, Thenmala, in Kollam district) needs to be controlled. Mass tourism should give way to 'class tourism' so as to ensure the sustainability and environmental purity; the focus should be on MVT because in the present scenario MVT offers better economic benefits than any other tourism model. MVT does not have much adverse impact on the environment unlike the mass tourism models. Also, MVT generates more higher quality employment opportunities and GDP growth.
- Diverse tourism models, including newer and less common ones like Cruise tourism, adventure tourism etc. can be successfully implemented in Kerala, given the unique geographic advantages of the state, like the vast coastal areas, serene hillocks etc. Most of these emerging tourism models (eg. Cruise tourism) are preferred by medical tourists from advanced countries and hence are complementary to the promotion of MVT.
- The problems of lack of hygiene and exploitation of tourists are two worst problems. Efforts are required to get rid of these evils from the tourism products on the offer. These are vitally important pre-requisites for attracting the foreign medical tourists.
- Many tourists are interested in healthcare tourism, and some are interested in studying about traditional products like those based on Ayurveda (Ayurveda tourism). Hence, the Government and other stake holders should provide facilities to encourage such tourists, including those interested in such studies. This would enhance the image of the sector and also promote MVT indirectly, which is desirable in the long run.
- Concerted efforts towards aggressive promotion of Kerala tourism. Given the immense potential of information and communication technology (ICT), the same has to be used not only for tourism promotion but also as a vital element that is embedded in all tourism products and services. ICT is an enabler of superior tourism products and services and also enhanced productivity, and hence ICT adoption needs to be nurtured. ICT can ensure the delight of MVT clients as it enables online booking, reservations and such other high-tech products and services that are preferred by them.
- Special thrust in required on Human Resource Development (HRD) in the tourism sector, particularly with the help of modern ICT-based tools. Only highly skilled and techno-savvy professionals can provide the kind of service that is expected by the growingly discerning tourists from advanced nations of the world, like the US or UK. Extensive use of ICT in all facets of the delivery of tourism products and services is an imperative for the growth of the sector in Kerala, as is the case elsewhere in the world. Special training be provided to tourist guides on ICT-based tools and applications, and that too in a way that is desired by the medical tourists or MVT clients.

CONCLUDING REMARKS

In spite of the adverse impact of flood on Kerala tourism, it is fast picking up in the state. By way of concerned action Kerala can definitely attain complete normalcy in its tourism within a few months. The indications have so far been positive and let us hope that Kerala tourism will attain laurels by the current year viz. December 2019. Special focus on MVT also, along with models like RT, would definitely act as a catalyst in accelerating the pace of the growth of tourism in Kerala.

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RISE OF INFOTAINMENT IN TELEVISION AND DIGITAL MEDIA

Madhu Kumari
Assistant Professor, Department of Journalism and Mass Communication, Banasthali Vidyapith, Niwai

ABSTRACT
The Indian media has dramatically changed in the past two decades. Privatization and globalization in media has changed its image from public service provider to entertainment service provider. The aim of this paper is to explore the television and digital media, as they are the leading source of infotainment for the viewers and the users. Television plays a very important role in the lives of viewers for growth and development. Across the world, media consumption is increasing widely in digital media formats as the users access it for infotainment anywhere and anytime. The prime aim of the paper is to analyze and highlight the emerging trends and innovation technologies in television and digital media for infotainment. Television and Digital Media have great impact in shaping the society at large and so they have positive and negative effects too. The analysis will also focus on the positive and negative impact of television and digital media on the adolescents, women, youth and society at large, as they are important source of information and entertainment. Media is a dominant and powerful source which can bring tremendous and sea change in the society or world as it is omnipresent and omnipotent. It has potent force to educate, entertain, motivate and persuade to bring change for growth and development in the society. The objective of this paper is to highlights the pivotal role of television and digital media in bringing social change with respect to information and entertainment.

Keywords: Digital Media, Development, Infotainment, Media, television

INTRODUCTION
Infotainment is the combination of two words ‘Information’ and ‘Entertainment’ to disseminate soft information with ease to the people at large. Information in this context means to clarify specific facts (Schultheiss 2001: 34) and Entertainment means the pleasant and enjoyable reconciliation of free time (Bosshart 1991: 2). According to the *Oxford English Dictionary*, “Infotainment is broadcasting material which is intended both to entertain and to inform”.

It is neologism that materialized in late 1980s. It usually tries to educate, inform and entertain through soft news which is appealing to the users. Infotainment helps in increasing the audience size and reach through news and current happening merged with entertainment and information. In the critical view, infotainment is considered as the downfall of hard news, discussion and debates for public affairs and subsequently growth of the dumbing down debate which is simpler and easier to understand, tabloidization which transform news, literature into sensational form and newszak. Newzak was termed by Malcolm Muggeridge, journalist which was intended to show the changing scenario or pattern of news values which was without depth and unessential.

Infotainment is a great source of information and stories for its clients through gripping and surprising elements of any happening which makes an entertaining, witty and stimulating story. The key elements of infotainment are exaggeration, alienation and the creation of conflict which grabs the attention of consumers. In headlines, the words like horror, terrorism, sex, tragedy, nudity are often used to exaggerate it. Alienation is considered as coming up with exciting, thrilling and special events and keeping aside the normal and simple cases. The creation of a conflict is also a very important and common application of the infotainment media which intensify and hook the people’s attention.

Rumors, gossips, scandals and scams about the celebrities, politicians, businessman, sportsperson etc are widely read by the people. These stories, news and articles satisfy the people because the lives of the stars are also not perfect and content.

The television has become a dominant mode of infotainment for the viewers in the present days. It has direct and straight connection and impact on the people’s lives. Television plays a vital role in the lives of the viewers and has become an integral part. It has modest beginning under UNESCO’s pilot project on 15th September, 1959 as an experimental educational service in Delhi. The development of Satellite and Cable TV technology, television has become the most important and integral tool of communication which helps in disseminating information and educating and entertaining viewers.

The area of digital media is spreading widely at a great speed and providing information with entertainment to the users. It is a combination of technology and content which can be created, tailored, disseminated, analysed and conserved on digital devices. Digital Television, Digital Radio, Internet, Online Newspaper, Digital

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Photography, Digital Library, e-Commerce, Games – console, online and mobile, Websites and mobile applications, e-book, blog, video conferencing, social media, Facebook, YouTube, Twitter, Instagram, Whatsaap, Viral Marketing, Internet Meme, Virtual reality, mp_3 etc are the examples of digital media.

PROGRESS OF INFOTAINMENT IN INDIAN TELEVISION

The progression of infotainment has boosted the process of globalization. The advancement in infotainment has come with ruining trends of media concentration. Almost of every channels have infotainment content in daily serials and news that has the blend of information and entertainment in India. In India private media houses has experience conglomeration which results into profit maximization and commercialization. In media houses profit maximization has been started given importance rather than service. The introduction of private channels has changed the face of the society in many ways especially in infotainment field.

Infotainment programs depict various critical and crucial topics of every aspects of life and portray them in a very attractive manner. The prime motive is to create positive attitudes and help them to form fruitful opinions. The infotainment programs are to captivate the attention of audience with their lively content. The programs like conducting live interview, panel discussion, debate, opinion polls etc are very motivating and entertaining. Interactive programs enable the TV presenter to critically interpret the topic and hold command on the program's theme and message. The genres of television programming are categorized in two broad topics such as entertainment based and information based.

The different television formats are demonstration, drama, animation, interview, documentary, panel show, graphics, puppets, sports and sitcoms (situational comedy).

The experts have the opinion that the infotainment based programs highlights the news with the combination of sitcom, songs, drama, humor, documentary, cartoons, makeover etc to disseminate the information in witty manner. These cross-breed programs have great and strong impact in formulating the public opinion for political and democratic set-up. In television programs, presentation has given more importance and value than content. The traditional television content has less importance and value because of infotainment programs.

Television is an integral and important part of everyday lives. It plays a vital role in viewer's life. The parents loved to watch the television programs when they are free, eating the food, preparing meals (entertainment), and the child learn the alphabets and numerical through TV programs (educational). It also provides a common platform where all the family members can enjoy the daily sitcoms, sports, reality shows, thriller, suspense and drama programs.

TRENDS IN TV PROGRAMMES IN INDIA FROM 90'S TO TILL DATE

In India viewers are very passionate about the television programs as it is the widely used medium of entertainment in leisure hours. The television programmes of India always showcased their culture, heritage, tradition, mythology, drama, folk dance and songs through infotainment to different sector of our society. The followings are the most popular and loved infotainment programmes:

- **Hum Log (1984)**

Hum Log was the first family serial that revolutionized Indian television. It portrays ups and downs of a middle class family.

- **Ramayana (1986)**

It was the first mythological serial produced and directed by Ramanand Sagar. It showcased the story of Lord Ram and Goddess Sita. It was highly famous and most popular show in Indian Television until Mahabharata was broadcast in 1988.

- **Mahabharata (1988)**

It holds the most famous, most popular and most viewed mythical and legendary television show produced by B.R Chopra and directed by Ravi Chopra in the history of Indian television.

- **Dekh Bhai Dekh (1993)**

It has revolutionized in comedy content in Indian television show written and directed by Aanand Mahendroo and produced by Jaya Bachhan.

It was one of the longest running shows of the 90s and a pioneer of Indian comedy shows. The story revolves an urban family with light hearted comedy which help it to set new benchmark in Indian television.

- **Antakshari (1993)**

It was popular musical show which has brought the nation together hosted by Annu Kapoor and Pallavi Joshi. It was brainchild of Gajendra Singh and set the benchmark to introduce the concept of celebrity special. The families enjoyed the show to sing the old and new songs. Parwane, Mastane and Deewane as three teams played rounds like Prelude, Dhun and Remix etc.

- **Shanti (1994) : Ek Aurat Ki Kahani**

It was the show based on Love, Sex, Dhokha Aur Drama. Mandira Bedi portrays the character of Shanti, a journalist and became household name in 1994.

- **Hum Paanch (1995)**

It was cult comedy serial revolving around five sisters and their parents as Mathur family. It was the most popular comedy serial produced by Ekta Kapoor.

- **Shaktimaan (1997)**

Shaktimaan serial adopted concept of superhero from Superman and became first Superhero of Indian Kids in 90's. The show was directed by Dinkar Jani and produced by Mukesh Khanna. Shaktimann character was played by Mukesh Khanna.

- **Kaun Banega Crorepati (2000)**

It was first quiz show based game show which is enriching, entertaining and informative hosted by the superstar Amitabh Bachchan. The concept was adopted by UK show 'Who Wants to Be a Millionaire'. The game show has changed the fate of many people.

- **Crime Patrol (2003)**

It is real crime based show which is re-enacted and holds the record of longest running reality crime television series in India which has completed fifteen years in 2018.

- **Sarabhai Vs Sarabhai (2004)**

The Indian sitcom loved by all ages which revolves around a classic upper-class family living in penthouse in South Mumbai was produced by Hats Off Productions. Maya, Monisha, Indu, Sahil and Rosesh are the Indian television favorite Gujarati family members.

- **Bigg Boss (2006)**

It is reality game show franchised produced by EndemolShine (Dutch based media company) in seven languages of India where contestant have to stay and perform different task in constructed house isolated from outside world and monitored by cameras.

- **Baalika Vadhu (2008)**

The Indian soap opera based on child marriage. A Rajasthani girl Aanandi who is married to Jagdish at a very tender age portray the life of childhood to womanhood. The story based on the ups and downs of the childhood marriage and how they grow up.

- **Kyunki Saas Bhi Kabhi Bahu Thi (2008)**

Tulsi, daughter-in-law of Virani family became the most discussed topic among females in every Indian family. It was the most loved and watched show which was not aired on Doordarshan and changed the fate of Star Plus.

- **Taarak Mehta Ka Ooltah Chashmah (2008)**

It was based on the column "Duniya Ne Oondha Chashma" by Taarak Mehta, a real journalist of Chitralekha, a weekly magazine of Gujarat. It is very famous sitcom and family show.

- **Comedy Nights with Kapil (2013)**

It was comedy and celebrity talk show hosted by the great entertainer Kapil Sharma with his crazy team. It has more viewership than Kaun Banega Crorepati according to India Today, Magazine in 2014.

- **Raja, Rasoi Aur Anya Kahaniyaan (2014)**

It is aired on Epic Channel, India's No. 1 infotainment Channel which portrays the cuisine and culture of India. It showcases the exemplary culture, cuisine and tradition of Indian Royal Families.

- **Stories by Rabindranath Tagore (2015)**

It is one of the most appreciated shows aired by Epic Channel based on classic short stories by Rabindranath Tagore. These stories filled with emotions, issues, drama, songs and anxieties and beautifully adapted to the small screen by renowned visual story-teller director Anurag Basu. Radhika Apte, Amrita Puri and Abigail Jain showcased their exceptional talents and brought life to timeless characters.

- **Bhabiji Ghar Par Hain! (2015)**

It is an adult-oriented comedy theme and jokes revolve around the Mishras and the Tiwaris, two neighbors who impress each other wives as they were attracted towards each other's wives. Based on fictional 'Modern Town' in Kanpur garnered huge success in Indian Television.

- **Nimki Mukhiya (2017)**

It is Indian television serial shows the women empowerment and how quirky, whimsical girl became first female Mukhiya of her village. Nimki is a ray of hope and sunshine during crisis.

The content in Indian Television has not gone into major changes with the passage of time. The programmes have great impact on our society in terms of women empowerment, globalization, and issues related to rural and urban areas.

Digital Infotainment

With the rapid amalgamation between television and digital media, infotainment has attracted wider audience. Infotainment is easily and regularly disseminating and feeding the information, entertainment, news, commentary etc into the web from where the users can satisfy their hunger. The new digital generation access information and entertainment through different tools and techniques of digital media and communication which are as follows:

- **Digital Data**

Digital data is binary language which discretely and discontinuously represents information or analog signals in a progressive manner. When we are clicking picture, reading online post or sending email, it's a digital data.

- **Digital Image**

It is a numeric representation of a two dimensional image made up with pixels or lines and shapes. Digital image can be vector or bitmap/raster type. Bitmap images are made up with pixels whereas vector images are mathematical sequence of lines and shapes. The few bitmap image formats are Joint Photographic Experts Group (JPG), Portable Network Graphics (PNG), Bitmap Image File (BMP) and vector image formats are Scalable Vector Graphics (SVG), Encapsulated PostScript (EPS) and Portable Document Format (PDF).

- **Digital Audio**

It is technology which is encoded in digital form to store, record, reproduce, generate and manipulate sound. Digital audio technologies in present time used for mass production and distribution of sound such as online music downloading and uploading on the websites, digital radio, digital audio player, digital audio tape, Hard disk recorder, Super Audio CD, various audio file formats etc.

- **Digital Video**

It is contrast to analog video and represents the moving visual images encoded in digital data. Digital videos are easily transferred and stored. There is no hamper in the quality of video by copying.

- **E-Book**

It is book composed and converted into digital form which consists of text, images, graphics or info-graphics accessed and read on digital devices such as computer, laptop, smart phones, tablets etc. E-book stand for electronic book or digital book (preferably e-edition) is a publication of book in digital form for the display on digital devices such as computer screen and handheld device. It is non-editable digital book. The three e-book formats are EBUP (electronic publication), AZW (Amazon Kindle eReaders) and PDF (portable document format). The most popular eReader devices for readers include:

- Amazon's Kindle
- Rakuten's Kobo
- Barnes & Noble's Nook

- **Instant Messaging**

In the technological advancement, instant messaging is a real-time text transmission of online chat over the internet through various messaging apps such as Facebook Messenger, Whatsaap Messenger, WeChat, Line, SnapChat, Viber, Skype, KIK, IMO etc. it has become a very important platform where people can converse and communicate with the people who is geographically away.

- **Blog**

A blog is informational site published on the World Wide Web. It is an online diary or journal presented in a reverse chronological order on websites or web pages. The blogs are of different types such as personal blogs, Group Blogs, Microblogging, Corporate Blogs, Aggregated Blogs etc. which is operated and managed by individual, groups or institution etc.

- **Videoconferencing**

It is live communication with the help of telecommunication technologies by two-way visuals and audio transmission. It is also known as visual collaboration with full-motion video images and high-quality audio between multiple places rather than individuals. Videoconferencing has great impact on various sectors such as General Public, Government and Law, Education, Medicine and Health, Sign Language Communications, Business and Media Relations

- **Social Media**

They are Web 2.0 internet-based applications, user generated content like text, graphics, pictures, digital photo, digital video and audio. It helps in creating highly interactive platforms where users can share, create, disseminate, discuss, transform and exchange content on mobile and web-based technologies. The various sites are Facebook, Twitter, YouTube etc.

- **Instagram**

It is free and online photo sharing app started in San Francisco by Kevin Systrom and Mike Krieger and now owned by Facebook in 2012. The users can create, edit and upload picture and videos with captions, hasthags or geotags. The numbers of active user accounts are 400,000,000 as of April, 2016. This app is very popular among celebrities, businessman and youth.

- **Twitter**

Twitter was conceptualized and designed by Jack Dorsey in March 2006 which enables users to directly communicate and view other media content. The users can access the videos and images of various websites by clicking the links of tweets. It has many benefits and uses such as personal or business. It is a micro-blogging service which enables users to read and send messages and also develop critical thinking. The numbers of active user accounts are 320, 000,000 as of April, 2016.

- **Facebook**

It is most popular online social networking website launched on 4th February, 2004 by Mark Zuckerberg along with Eduardo Saverin, Andrew McCollum, Dustin Moskovitz and Chris Hughes. It is very famous, user-friendly because of its various features such as Chat, Messaging, Voice Calls, Video Calling, Video Viewing, News Feed, Like Button, Following etc. The numbers of active user accounts are 1,650,000,000 as of April, 2016.

- **YouTube**

YouTube is a popular and free video sharing website where registered users can create, upload and share videos with viewers. Viewers can like, dislike, rate, share and comment on the content. YouTube is operated and owned by Google. It was conceptualized and developed by Chad Hurley, Steve Chen and Jawed Karim, three former PayPal employees in February 2005.

- **Internet Meme**

The word meme was opined by Richard Dawkins in 1976. A meme is *"an idea, behaviour or style that spreads from person to person within a culture"*. It spread 'virally' from one person to person. The contents of internet meme are humorous and appeal with content such as image, video, website, hashtag or hyperlink. It is a very popular source of infotainment.

- **Digital TV**

Hotstar is the most watched Indian digital and mobile streaming entertainment platform which shows drama and movies in 17 languages more than 100000 hours owned by Novi Digital Entertainment, subsidiary of Star India. *SonyLIV* launched on 22 January 2013 is providing multi-screen engagement and the first premium Video on Demand (VOD) service by *Sony* Pictures Networks India Private Limited (SPN).

- **Digital Apps (Streaming Services)**

Netflix is a popular streaming service started on 29 August 1997 in United States that allows the subscribed customers to watch and enjoy a wide variety of award-winning TV shows, movies, documentaries, and more such as *13 Reasons Why, Ghoul, Lust Stories, Touch, Jessica Jones, You, Fireband, Shadow Hunters, Black Mirror* on thousands of internet-connected devices. Amazon Prime is another most popular paid subscription service launched on 2nd February, 2005 which broadcast various series like Four More Shots please, *The Americans, Justified, The Wire, Deadwood* etc.

CONCLUSION

The rise in infotainment in Indian Television and Digital media has positive and negative influences on adolescents, youth, women and society at large. Due to the increase in functionalities and services of digital media and Indian Television, it is important to create a system which is capable in managing the flow of

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information in the society. It informs, entertain, educate, motivate and persuade the people through its different services. It gives voice to the voiceless for growth and development, also it is important to adapt some kind of interface which changes the complexity of the scenario to make an ease for the interaction of voiceless. It also motivates the involvement of citizens in decision making of the democracy. The main benefit of television and digital media is that it helps in changing the behavior of the system being in the system which has some restricted functionalities and services. Infotainment is an effective, efficient and grand way to enhance and disseminate information and knowledge among the masses as it calm down an individual and make it fun. This entertainment factor always attracts those who either have neglected this fun or the information that is being conveyed. Infotainment always conveys the message and information in a delicate manner and with an ease.

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UNCOVERING THE TWITTER PRIORITY OF DIGITAL INDIA INITIATIVE OVER A PERIOD OF ONE YEAR FROM NOVEMBER 21, 2016 TO NOVEMBER 20, 2017

Amrita Chakraborty
Lecturer, School of Liberal Studies (SLS), Pandit Deendayal Petroleum University (PDPU), Gandhinagar

ABSTRACT

The Digital India initiative is a flagship programme of the Government of India. The objective of this programme is to transform public services in the country through the creation of an accessible digital platform. This initiative was launched with nine broad pillars – Broadband Highways, Universal Access to Mobile Connectivity, Public Internet Access Programme, e-Governance – Reforming Government Through Technology, e-Kranti – Electronic Delivery of Services, Information for All, Electronics Manufacturing, IT for Jobs and Early Harvest Programmes.

Regular updates are posted on social media platforms such as Twitter, Facebook, Google Plus, Instagram and the likes to create awareness about the initiative.

When this researcher began her study on this initiative, it was found that Twitter is the most commonly used social platform in India for carrying political and bureaucratic narratives. It was also revealed through the study that the government has actively used Twitter to spread awareness about the various programmes under the Digital India initiative.

A careful study of the tweets by the Twitter page of Digital India over a period of one year from November 21, 2016 to November 20, 2017 revealed that a few of the pillars received greater mileage compared to the rest of the pillars. This paper makes a concerted attempt at uncovering those pillars of the Digital India initiative that received the maximum mileage through Twitter during the above-mentioned period.

This paper thus addresses some pertinent questions: What are those three pillars of the Digital India initiative that featured in the maximum number of tweets on the Twitter page of Digital India? What are the primary topics under each of these pillars that are being twitted? What is the monthly frequency of tweets by the Twitter page of Digital India and what are the identical frequencies for each of the top three pillars? What is the percentage of original tweets posted by the Twitter Page of Digital India amongst all the tweets featured on its page including the retweeted ones? Is there a correlation between the Digital India Tweets versus the Retweets by others on the Digital India page?

INTRODUCTION

What exactly is the Digital India programme? While many scholars use the phrase with relative impunity, it is often misunderstood and misinterpreted. Before delving into the discussion any further, it is important we understand the concept in its totality. The Government of India launched the Digital India programme so that essential government services are provided to the citizens through electronic means. The principal mechanisms to achieve the same was a complete revamping of the online infrastructure and digital empowerment of the people.

The official website of Digital India defines the programme thus, “The Digital India programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy” (Digital India, 2019). If we take a closer look at the definition, we shall appreciate that ‘e-Governance’ is the buzzword here. e-Governance by itself is a relatively new concept in India. While the internet was launched in India back during the mid-nineties of the last century, it was largely an elite concept until the turn of the millennium. The renowned Dot-com Bubble ensured that India also started to gather momentum in terms of the number of internet users. The trend has continued ever since and India today has one of the largest internet subscriber bases globally. According to the Internet and Mobile Association of India (IAMAI), roughly 35 percent of the India populace (close to 481 million people) use the World Wide Web as of December 2017 (Agarwal, 2018). This has inspired multiple government authorities to adopt e-Governance, which truly has the potential to transform the country into a knowledge economy.

If we take a good and hard look at the history of e-Governance in India, we shall find that the concept started taking shape right after the introduction of internet in the country. Of course, the emphasis back then was decidedly on citizen-centric services. Slowly but gradually, a host of states and Union Territories initiated a number of e-Governance schemes. As a case in point, Andhra Pradesh successfully tested a number of e-Governance initiatives. The state’s government in fact clinched three gold awards at the 20th National Conference on e-Governance in 2017 (The Hindu, 2017).

It will be interesting to note that the purpose of e-Governance in India has changed over the years. Initially, it revolved around the computerization of records at the government departments. Now, the principal objectives of e-Governance are citizen-centricity and transparency. Notwithstanding all these developments, e-Governance could not make much of a headway in India. The villages were still to be covered and the lower strata of the society were yet to be encompassed. To address these gaps, the National e-Governance Plan (NeGP) was launched. The idea was to take a complete view of all the possible e-Governance schemes in the country and bring them under the same roof. The plan was initiated on May 18, 2006. It initially had 27 Mission Mode Projects (MMPs) and eight components. In 2011, four MMPs were added to take the tally to 31. At the end of the day, the intent was to make public services more accessible to the common people, as can be gathered from the Vision Statement of NeGP (Aggarwal, 2018).

Despite numerous success stories, e-Governance could not still make the impact that that it was supposed to. Successive governments have felt the necessity of promoting inclusive growth through the wider implementation of e-Governance. The most important areas that were needed to cover were electronic services, products, devices and job opportunities. It was also felt that extra emphasis needed to be put on electronic manufacturing in the country.

To address all these issues and many more, the Government of India kick-started the Digital India programme. The programme is expected to transform the country into a digitally empowered society (Digital India, 2019).

The Digital India programme has three key vision areas:

1. Digital Infrastructure as a Core Utility to Every Citizen.
2. Governance and Services on Demand.
3. Digital Empowerment of Citizens (Digital India, 2019).

Digital India is an encompassing programme that covers a number of ministries and departments under the Government of India. Thus, the emphasis areas of the programme also range across many parallel domains. To streamline the functioning of the programme, the authorities have identified eight specific pillars. Each of the pillars fall under multiple ministries and departments. The pillars are:

1. Broadband Highways.
2. Universal Access to Mobile Connectivity.
3. Public Internet Access Programme.
4. e-Governance – Reforming Government through Technology.
5. e-Kranti – Electronic Delivery of Services.
6. Information for All.
7. Electronics Manufacturing.
8. IT for Jobs.
9. Early Harvest Programmes (Digital India, How Digital India will be realized: Pillars of Digital India, 2019).

ROLE OF SOCIAL MEDIA IN POPULARIZING THE DIGITAL INDIA PROGRAMME

In the current complicated world order, any social initiative significantly needs the assistance of publicity campaigns to be successful in any form. Digital India programme is no exception. For people to know about the programme and participate in it spontaneously, an intelligent publicity and branding exercise needed to be carried out. This is exactly what has been done. It needs to be understood that Digital India is one of the flagship initiatives of the current government. Hence, it spent millions in publicizing and popularizing the scheme. One of the primary mechanisms that was adopted in the process was the utilization of the social media platforms. The current generation eats drinks and sleeps social media.

Let us look at some hard statistics to understand the phenomenon that is social media, at least in India. Facebook and YouTube are used by about 30 percent of the population, 28 percent are active on WhatsApp, Facebook Messenger is used by 20 percent, 19 percent use Instagram and Google Plus, Twitter is used by 18 percent, Skype and LinkedIn enjoy the following of about 15 percent of the population, Pinterest is used by 11 percent while Hike and Snapchat are used by 10 percent of the Indian population (Statista, 2019). Considering the numbers, it is anybody's guess that Digital India will extensively use these platforms to communicate its intended purpose to the general populace. It is pertinent to mention here that Digital India makes use of almost all the platforms mentioned here barring the messenger applications. It goes without saying that the Digital India initiative would have gone nowhere had it not been popularized through the social media channels.

REASONS FOR STUDYING TWITTER

Twitter calls itself an information network. It stands in stark contrast with platforms such as Facebook and Google Plus where information is incidental. Although there exists very few statistical studies vis-à-vis the exact status of Twitter as a news aggregator, the fact remains that a majority of the news organizations make it a point to post all their breaking news items on Twitter. Even a cursory glance through the Twitter page of a news organization establishes the primordial nature of Twitter in the world of news. If we follow the different social media handles of Digital India, we shall be able to appreciate that the maximum number of posts concerning the programme are published on the Twitter page itself. In addition, in India, a number of political and social developments are discussed over Twitter. Bureaucrats, politicians and public figures regularly post theirs views and opinions on Twitter thereby making it the dominant social medium.

OBJECTIVES OF THE STUDY

The study focusses on finding objective answers to the following four problem questions:

1. What are those three pillars of the Digital India initiative that featured in the maximum number of tweets on the Twitter page of Digital India?
2. What are the primary topics under each of these pillars that are being twitted?
3. What is the monthly frequency of tweets by the Twitter page of Digital India and what are the identical frequencies for each of the top three pillars?
4. What is the percentage of original tweets posted by the Twitter Page of Digital India amongst all the tweets featured on its page including the retweeted ones?
5. Is there a correlation between the Digital India Tweets versus the Retweets by others on the Digital India page?

METHODOLOGY

Systematic sampling has been used for the study. Let us describe the sampling mechanism further in the form of pointers:

1. Samples in the form of tweets for two days per week were chosen.
2. Weeks were constructed to pick up the sample in the following structure:

a. First Week: Monday and Tuesday.

b. Second Week: Wednesday and Thursday.

c. Third Week: Friday and Saturday.

d. Fourth Week: Sunday and Monday.

3. A detailed content analysis of the samples was done.

Table-1

	Monthly Break-up of Tweets			
Month	**Period**	**Total Number of Tweets**	**Sample**	**Population**
1	21/11/2016 – 20/12/2016	228	24	204
2	21/12/2016 – 20/01/2017	236	91	145
3	21/01/2017 – 20/02/2017	250	37	213
4	21/02/2017 – 20/03/2017	257	21	236
5	21/03/2017 – 20/04/2017	149	33	116
6	21/04/2017 – 20/05/2017	156	36	120
7	21/05/2017 – 20/06/2017	263	79	184
8	21/06/2017 – 20/07/2017	244	31	213
9	21/07/2017 – 20/08/2017	162	31	131
10	21/08/2017 – 20/09/2017	192	47	145
11	21/09/2017 – 20/10/2017	247	57	190
12	21/10/2017 – 20/11/2017	306	85	221
		2,690	**572**	**2,118**

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Total No. of Population: 2,704

Total No. of Sample: 572

RESULTS AND DISCUSSION

Let us try to find out the answers to each of the research questions in a systematic and objective manner.

1. What are those three pillars of the Digital India initiative that featured in the maximum number of tweets on the Twitter page of Digital India?

Table-2

Pillars of Digital India	No. of Tweets
e-Kranti – Electronic Delivery of Services	294
e-Governance: Reforming Government through Technology	74
Digital India Promotion	64
Others	56
Electronics Manufacturing	31
IT For Jobs	15
Public Internet Access Programme	15
Broadband Highways	9
Information for All	9
Early Harvest Programmes	3
Universal Access to Mobile Connectivity	2
Grand Total	**572**

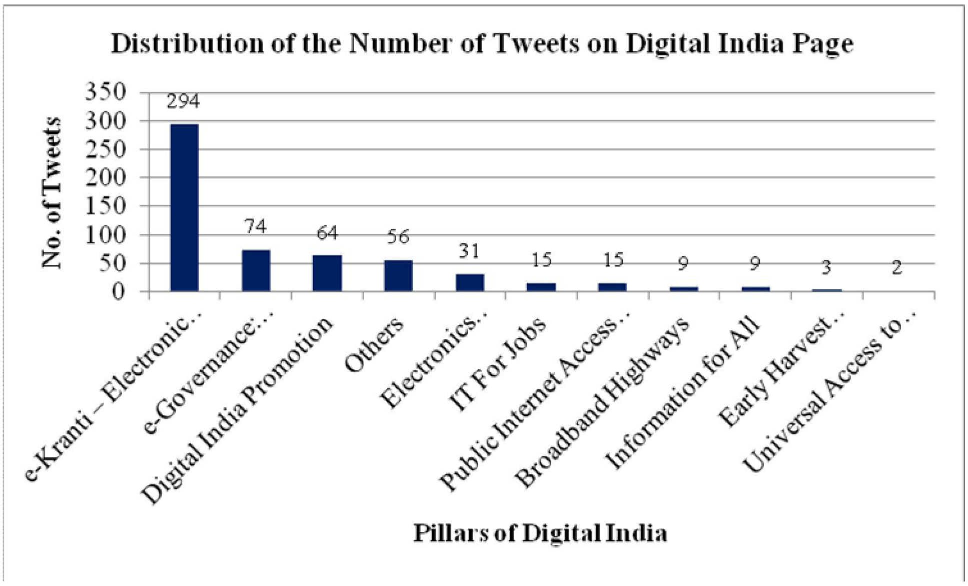

Figure-1

From the table and the figure given above, it becomes clear that e-Kranti, e-Governance and Electronics Manufacturing constitute the top three pillars under the Digital India programme. These three pillars were featured in the maximum number of tweets.

It is equally important to understand as to what these pillars exactly mean. Let us explore a little further:

e-Kranti: According to the Press Information Bureau of the Government of India, “e-Kranti is an important pillar of the Digital India programme. The Vision of e-Kranti is “Transforming e-Governance for Transforming Governance”. The Mission of e-Kranti is to “ensure a Government wide transformation by delivering all Government services electronically to citizens through integrated and interoperable systems via multiple modes, while ensuring efficiency, transparency and reliability of such services at affordable costs” (Press Information Bureau, 2015).

e-Governance: e-Governance is a collection of many policy decisions including the e-Kranti Framework, Open Source Software, Open APIs, E-mail Policy, Use of IT Resources, Collaborative Application Development and Application Development & Re-Engineering for Cloud Ready Applications. The Department of Electronics and

Information Technology (DeitY) have taken these policy initiatives. The central idea of the initiatives is to hasten up the implementation of the Digital India projects (Digital India, 2019).

ELECTRONICS MANUFACTURING

This pillar of the Digital India campaign emphasizes promoting the manufacturing of electronic goods in the country. The target is to achieve a target of net zero imports by the year 2020. This pillar demands concerted actions on multiple fronts (Digital India, 2019).

2. What are the primary topics under each of these pillars that are being twitted?

e-Kranti

Table-3

Final Category	**Total**
Digital Payment	128
Conference	102
General update	8
CERT (Computer Emergency Response Team)	7
Promotion	5
e-Visa	4
Digital Rail	3
e-Market	3
Cloud Data	2
Consular Grievances Monitoring System	2
Digital Economy	2
e-Book	2
e-Education	2
e-Health	2
e-Police	2
Mobile App	2
Online IT Filing	2
Passport Service Online	2
Digital Data Registration	1
Digital Literacy	2
e-Commerce	1
e-Court	1
e-Hospital	1
e-Labeling	1
EPF Online	1
e-Post	1
National Agriculture Market (NAM)	1
National Scholarship Portal	1
Others	1
Public Data Office (PDO)	1
Satellite	1
Grand Total	**294**

Table-4

Digital Payment Category	**Total**
Digital Payment	84
BHIM App	16
Digi Dhan Abhiyaan	11
Mobile Banking	3
NPCI (National Payments Corporation of India)	2
RuPay	2
Digishala	1
eNPS	1

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EVM	1
Lucky Grahak Yojana	1
NACH (National Automated Clearing House)	1
Rail (e-Ticketing)	1
Railways – ePaylater	1
Unified Payment Interface	1
Union Budget	1
UPI App	1
Grand Total	**128**

Table 5

Conference Category	Total
GCCS	102
Grand Total	**102**

Table 6

General Update Category	Total
Cyber Security	5
Cyber Forensics Centre	1
Cyber Space	1
Data Protection	1
Grand Total	**8**

From the above tables, it becomes clear that the primary topics that were dealt with under e-Kranti were Digital Payment, Conference and General Update. Under digital payment, the top three categories are Digital Payment, BHIM App and Digi Dhan Abhiyaan.

In the conference, the tweets mainly talked about the fifth Global Conference on Cyber Space (GCCS) 2017. It was the world's largest conference on cyber space.

Let us go a little deeper and see what these terms individually mean:

Digital Payment: One of the primary objectives of the Digital India programme is to make the Indian society "Faceless, Paperless, Cashless". In other words, Digital payment emphasises on cashless transactions and converting the Indian society into a cashless society. As part of the Digital Payment platform, the primary mechanisms constitute Banking Cards, Unstructured Supplementary Service Data (USSD), Aadhaar Enabled Payment System (AEPS), Unified Payment Interface (UPI), Mobile Wallets, Banks Pre-Paid Cards, Point of Sale, Internet Banking, Mobile Banking and Micro Automated Teller Machines (ATMs) (Government of India, 2018)

BHIM App: Bharat Interface for Money (BHIM) is an effective payment app that helps one make easy and rapid monetary transactions using the UPI. Direct bank payments can be made to anyone using the UPI ID. The National Payments Corporation of India (NPCI) developed this app. It was launched on December 30, 2016 (The Financial Express, 2018).

Digi Dhan Abhiyan: Digi Dhan Abhiyan is a campaign that was launched by the Ministry of Electronics and Information Technology (IT) to incentivize cashless transactions. It enables every citizen, merchant and small trader to make digital payments in their daily lives. As a part of the initiative, a free-to-air channel called DigiShala has been started to provide information in backward areas on the digital payment ecosystem (Vandana, 2016).

GCCS 2017: India hosted the fifth GCCS in 2017. The GCCS is one of the largest global conferences on the cyberspace and other related issues. It was themed on Cyber4All: An Inclusive, Sustainable, Developmental, Safe and Secure Cyberspace. It saw the participation of 2,000 delegates from over 100 countries. The conference deliberated on issues concerning the promotion of cooperation in the cyberspace, norms for responsible behaviour in the cyberspace and enhancing cyber capacity building (Press Information Bureau, 2017).

E-Governance

Table-7

Final Category	**Total**
Aadhaar	51
Mobile App	9
Digital Document Attestation	4
Online Repositories	4
National Scholarship Portal	3
e-Governance	1
e-Transactions Statistics	1
General Update	1
Grand Total	**74**

Table-8

Aadhaar	
Aadhaar Category	**Total**
Aadhaar	34
Direct Benefit Transfer (DBT)	2
UIDAI	2
Aadhaar/ DBT	1
Aadhaar/ Digital Payment	1
Aadhaar/ Jan Dhan Yojana	1
Aadhaar/ Jeevan Pramaan	1
Aadhaar/ Jeevan Pramaan	1
Aadhaar/ PAN	1
Aadhaar/ Telecom	1
Aadhaar in News	1
Aadhaar Pay/ BHIM App	1
Jeevan Pramaan	1
Mobile Verification	1
Pravasi Bharatiya Divas	1
Promotion	1
Grand Total	**51**

Table-9

Mobile App	
Mobile App Category	**Total**
UMANG (Unified Mobile Application for New-age Governance)	8
Rail SAARTHI	1
Grand Total	**9**

Table-10

Digital Document Attestation	
Digital Document Attestation Category	Total
e-Sanad	4
Grand Total	**4**

Table-11

Online repositories	
Online Repositories Category	**Total**
DigiLocker	2
NAD (National Academic Depository)	1
OGD (Open Government Data)	1
Grand Total	**4**

From the above tables, it becomes clear that the primary topics under e-Governance were Aadhaar, Mobile App, Digital Document Attestation and Online Repositories. If we dig a little deeper, we shall be able to appreciate the following micro pointers:

i. Under Aadhaar, the main categories that were discussed include Aadhaar Card, Direct Benefit Transfer (DBT) and Unique Identification Authority of India (UIDAI).

ii. Under Mobile App, the topics that were posted include Unified Mobile Application for New-age Governance (UMANG) and Rail SAARTHI.

iii. Under Digital Document Attestation, the primary topics of tweets were Digital Document Attestation Category.

iv. Under Online repositories, the topics that were discussed include DigiLocker, National Academic Depository (NAD) and Open Government Data (OGD).

Electronics Manufacturing

Table-12

Specific Category	Total
ICEGOV	16
Make In India	3
Mobile Manufacturing	3
Skill India	2
BOSS (Bharat Operating System Solutions)	1
Dot In Domain	1
ESDM (Electronics System Design & Manufacturing)	1
GeoITHub	1
M-SIPS (Modified Special Incentive Package Scheme)	1
Ph.D. Scholarship	1
Phased Manufacturing Programme	1
Grand Total	**31**

There are no additional sub-categories among the categories of Electronics Manufacturing.

From the above tables, it becomes clear that ICEGOV was featured in the maximum number of tweets. It is pertinent to note that India hosted the 10th International Conference on Theory and Practice of Electronic Governance (ICEGOV) in 2017.

The other two topics which were prominent in tweets were ‘Make in India’ and Mobile Manufacturing. It is important to underscore that Mobile Manufacturing is a part of the Make in India initiative.

Let us understand some of the terms mentioned above in details:

ICEGOV: The Ministry of Electronics and Information Technology hosted the three-day ICEGOV under the aegis of the Government of India from March 7, 2017 to March 9, 2017. The event was themed on Building Knowledge Societies: From Digital Government to Digital Empowerment. The primary objective of the event was to explore how Digital Governance can lead to Digital Empowerment (Press Information Bureau, 2017).

Make in India: One of the primary initiatives of the Government of India, ‘Make in India’ was launched in the month of September 2014. It aims to convert India into a hub for design and manufacturing (PMINDIA, 2018).

Mobile Manufacturing: As a distinct part of the ‘Make in India’ programme, the Government of India is emphasizing on manufacturing mobile handsets in the country. The primary intents are to give a boost to the sluggish economy of the country and create many fresh jobs (ETtech, 2017).

3. What is the monthly frequency of tweets by the Twitter page of Digital India and what are the identical frequencies for each of the top three pillars?

Monthly Distribution of Tweets on the Digital India page from 21/11/2016 to 20/11/2016

Table-13

Period	Month
21/11/2016 – 20/12/2016	Month 1
21/12/2016 – 20/01/2017	Month 2

21/01/2017 – 20/02/2017	Month 3
21/02/2017 – 20/03/2017	Month 4
21/03/2017 – 20/04/2017	Month 5
21/04/2017 – 20/05/2017	Month 6
21/05/2017 – 20/06/2017	Month 7
21/06/2017 – 20/07/2017	Month 8
21/07/2017 – 20/08/2017	Month 9
21/08/2017 – 20/09/2017	Month 10
21/09/2017 – 20/10/2017	Month 11
21/10/2017 – 20/11/2017	Month 12

Table 14

Monthly Distribution of Tweets in the Sample	**Total**	
Month 1	24	
Month 2	91	1st
Month 3	37	
Month 4	21	
Month 5	33	
Month 6	36	
Month 7	79	3rd
Month 8	31	
Month 9	31	
Month 10	47	
Month 11	57	
Month 12	85	2nd
Grand Total	572	

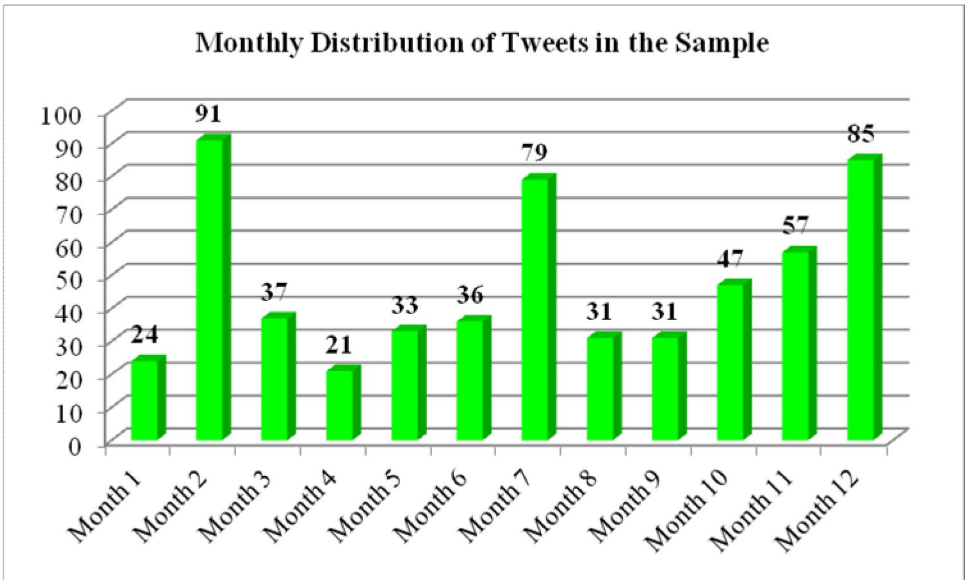

Figure-2

From the above tables and figure, it is clear that the maximum number of tweets were posted on the second month followed by the seventh month and the 12th month.

Table-15

Distribution of Digital India Initiatives	
Month 2	
Digital India Initiative	Total
Digital India Promotion	6
e-Governance: Reforming Government through Technology	4

e-Kranti – Electronic Delivery of Services	63
Electronics Manufacturing	1
Information for All	1
IT For Jobs	1
Others	15
Grand Total	91
Specific Initiative with the Maximum Posts	
Digital Payment/ Digi Dhan	55

Table-16

Distribution of Digital India Initiatives	
Month 12	
Digital India Initiative	Total
Digital India Promotion	1
Early Harvest Programmes	1
e-Governance: Reforming Government through Technology	12
e-Kranti – Electronic Delivery of Services	68
Electronics Manufacturing	1
Information for All	2
Grand Total	85
Specific Initiative with the Maximum Posts	
GCCS	64

Table-17

Distribution of Digital India Initiatives	
Month 7	
DI Initiative	Total
Broadband Highways	4
Digital India Promotion	27
e-Governance: Reforming Government through Technology	13
e-Kranti – Electronic Delivery of Services	15
Electronics Manufacturing	3
IT For Jobs	6
Others	8
Public Internet Access Programme	3
Grand Total	79
Specific Initiative with the Maximum Posts	
Digital India Promotion	27

Please note that for all the above tables, Specific Initiative means the sub-topic that was featured in the maximum number of tweets.

From the tables above, the following points become more than clear:

i. e-Kranti was featured in the maximum number of posts for Month 2. The topics that were discussed under e-Kranti included Digital Payment and Digi Dhan.

ii. For Month 12 as well, e-Kranti was featured in the maximum number of posts. The topic that was discussed was GCCS 2017.

iii. Digital India Promotions was featured in the highest number of tweets for Month 7.

4. What is the percentage of original tweets posted by the Twitter Page of Digital India amongst all the tweets featured on its page including the retweeted ones?

Percentage of Tweets by Digital India versus Retweets by Others

Table-18

Tweets versus Retweets	**Total**
Digital India	360

Retweets	212
Grand Total	**572**

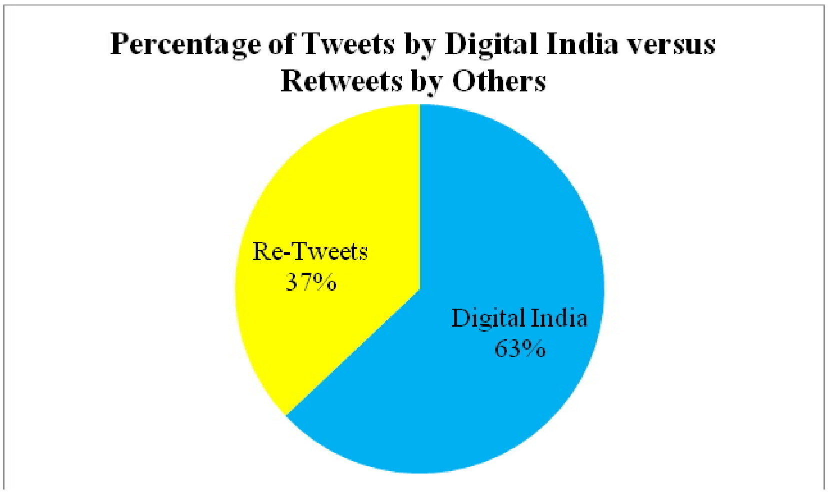

Figure-3

It becomes clear from the table and figure above that Digital India originally posted 63 percent of the total number of tweets while 37 percent of the posts were retweets by others.

Monthly Distribution of Tweets vs Retweets

Table-19

Tweets versus Retweets	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Grand Total
Digital India	12	56	26	17	19	19	51	20	27	33	38	42	360
Retweets	12	35	11	4	14	17	28	11	4	14	19	43	212
Grand Total	**24**	**91**	**37**	**21**	**33**	**36**	**79**	**31**	**31**	**47**	**57**	**85**	**572**

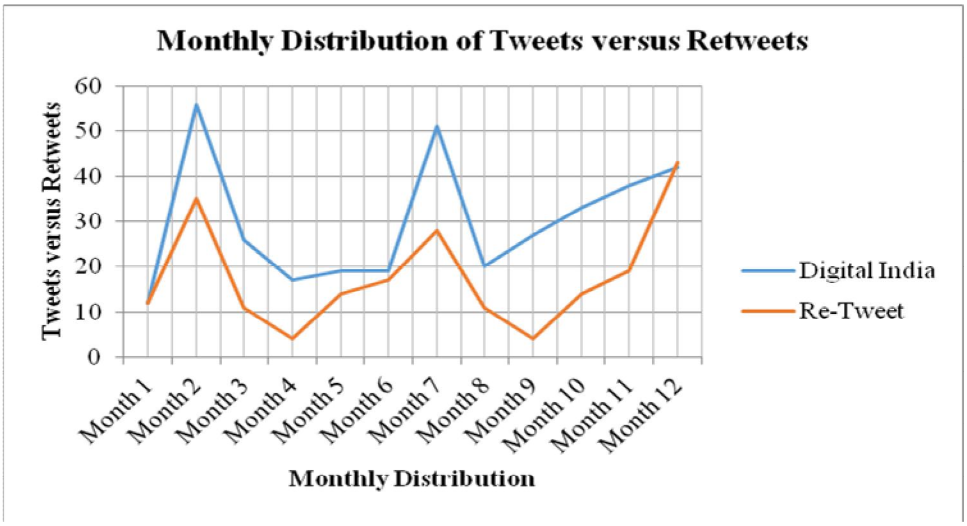

Figure-4

From the table and the figure above, the following pointers become clear:

i. When the monthly distribution of tweets and retweets are compared, it is found that there is an identical trend between the first month to the fourth month. Between the first and the fourth months, Digital Payment received the maximum highlight with 37 tweets. In terms of retweets as well, Digital Payment topped the charts with 31 posts.

ii. From the fourth month to the sixth month, we see a shift in the pattern of both the graphs. Between the fourth and the sixth months, the maximum posts by Digital India were on ICEGOV with the total count being nine tweets. During the same period, Digital Payment was mentioned in the maximum number of retweets with the number being seven posts.

iii. There is again an identical trend from the sixth month to the eighth month. Between the sixth and the eighth months, the maximum number of posts by Digital India were on the topic Digital India Promotion with 18 tweets. For retweets as well, the same topic was featured in the maximum number of posts with the count being eight.

iv. Lastly, both tweets and retweets moved upwards until the 12th month. Between the eighth and the 12th months, the maximum number of posts by Digital India were on GCCS with the count being 52 tweets. For retweets as well, the same trend was seen with the maximum number of posts being on GCCS with the count standing at 50.

5. Is there a correlation between the Digital India Tweets versus the Retweets by others on the Digital India page?

Monthly Distribution of Tweet Vs Retweets

Table-20

Tweets Vs. Re-Tweets	Digital India (x)	Re-Tweet (y)	Grand Total
Month 1	12	12	24
Month 2	56	35	91
Month 3	26	11	37
Month 4	17	4	21
Month 5	19	14	33
Month 6	19	17	36
Month 7	51	28	79
Month 8	20	11	31
Month 9	27	4	31
Month 10	33	14	47
Month 11	38	19	57
Month 12	42	43	85
Grand Total	**360**	**212**	**572**

Using the formula:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

From the table and the formula above, it becomes clear that the correlation (r) between x and y is 0.771453. It shows that there is a strong positive correlation between the number of tweets by Digital India and Retweets by others. In other words, it means that as the number of Tweets increases, the number of Retweets increases simultaneously.

CONCLUSION

A careful analysis of the Twitter page of Digital India from November 21, 2016 to December 20, 2017 throws up some interesting results. While there were multiple tweets by the page itself, many retweets were also endorsed by the page. The widespread engagement of the Twitterati is indicative of the buzz that the campaign has generated over the last few years since its inception. A cursory glance through the page would have anyone convinced that the primary motto of the campaign is the digital empowerment of the nation. While specific occasions might have inspired a number of directed tweets and retweets, the page has otherwise remained consistent in disseminating information about the various pillars under the landmark programme. The initiative emphasized on certain pillars more than the rest. A cashless economy, simplification of governmental procedures, economic prosperity of the nation and enhancing transparency and accountability have been the primary mottos of the programme. It can only be hoped that the official page of the programme would be able to engage an increasing number of people.

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MOTIVATIONAL FACTORS INFLUENCING TELECOM RETAILERS: A STUDY IN THE STATE OF JHARKHAND

Ajitabh Kumar Dubey[1] and Dr. Sudipta Majumdar[2]
Ph.D. Scholar[1] and Assistant Professor[2], Faculty of Management studies, ICFAI University Jharkhand, Ranchi

ABSTRACT

In present competitive environment,there is cut throat competition among organizations and brands to get customer share.Competitive scenario in Telecom Industry is not much different from other Industries.Channel Sales plays significant role for organizations to get edge over other. In Channel Sales, theretailer plays the critical role as they connect the organization with end customers. The retailers play the role of brand ambassadors and they communicate the customer offering, product advantages and also work as single point contact between the customers and the organizations. Hence retailer management is a key to success for organizationsinvolved in distribution channel.Telecom organizations in India runs monthly trade schemes,product specific trade scheme,high retailers' margin,lucrative tour programmes,credit support, manpower support, R&R program, long term retailer engagement program,separate retailer helpline numbers etc., to keep retailers motivated.But are these activities really motivating the retailers or there are some more factors which work as Motivators for retailers? On this backdrop, this research study tries to identify the factors which actually influence the motivation level of the telecom retailers using Exploratory Factor Analysis. The different factors of motivation of telecom retailers were identified from variousliteratures,in consultation with top level management of various organizations in the telecom circle of Bihar & Jharkhand and around 500 Retailers across various top towns of Jharkhand. The findings of this research study will help the telecom organizations to motivate their retailers effectively.

Keywords: Motivation, Telecom, Retailers, Factor Analysis

1. INTRODUCTION

In the present competitive environment, sales are considered as driver for organizations. There is cut throat competition among companies and a brand to get customer share. Competitive scenario in Telecom Industry is not much different from other Industry. Channel Sales plays significant role for organizations to get edge over other. In Channel Sales Retailers are the connection between organisation & customers. Hence understanding them and keeping them motivated is important for organisations.

Sales Force Motivation & Channel Motivation is a challenging task for organizations. Every organization fight to get larger customer shares and as customers are getting serviced through distribution chain of Retailers, Distributor, Distributor sales executives (DSEs) hence to keep them motivated is essential for success of any products or services. Actually, retailers play the role of brand ambassador of companies for customers and they communicate the customer offering, communications, product advantages, and work as service centre for customers.

Presently Telecom organizations in India run monthly trade schemes, product specific trade scheme, high retailer's margin, lucrative tour programmes, credit support, provide manpower support, R&R program, Retailer meet, long term retailer engagement program, provide separate retailer helpline numbers etc, to keep retailers motivated.

In today's corporate world all the organizations puts focus on Channel Management as in present dynamic and competitive environment keeping Channel People Motivated is a big challenging task.

As per market estimates around 70% of total sales of organizations in Telecom and many similar industry are done through channel sales hence it is critical for success of any organization. To extract maximum productivity or performance of Channels we need to keep them high on Motivation as Productivity is directly with motivation of People. There is no specific study done which has revealed the Factors of Motivation for the retailers. This study is an attempt to address this issue. This study has been done for retailers in top 10 towns of Jharkhand state.Various aspects of Motivation; factors of Motivation have been studied.

1. REVIEW OF LITERATURE

"A Construct validation of a scale for measuring work motivation" (George,1989) developed a work motivation scale using Alderfer's ERG model.This work motivation scale offers a simple and effective means of measuring the extent to which specific jobs satisfy those sets of motivational needs identified

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by Alderfer.Nine work motivation scales together with 2 life satisfaction measures were submitted to a Factor analysis using SPSS.

"A comparison of the perceptions of Sales Management and Salespeople Towards Sales force Motivation and De-motivation" (David and Roger,1994) has compared the degree of congruence between perceptions of sales management and their salespeople. As per study there is considerable difference between factors sales management perceived as motivator (and de-motivators) and those sales force regard as important for their motivation. Factor analysis was used for factor identification and then liner regression analysis was used to distinguish the factors.

"The cooperation/competitive strategy scale: A measure of motivation to use cooperative or competitive strategies for success" (Simmons et.al,2001) has constructed a scale to measure positive or negative attitudes towards success and towards competitive and cooperative success strategies. Factor analysis on 5factors of success and 3factors of fear-of-failure was conducted. Then with SPSS initial component analysis and both oblique and varimax rotation was done.

"Factors Influencing Salespeople Motivation and relationship with the organization in b2b sector"(Buciuniene& Vida,2009) study was designed to investigate the nature of salespeople-organization long term relationship dimensions (commitment to organization and psychological contract) and motivation dimensions (personal growth and ability, recognition of effort and results, financial compensation and incentives, leadership support, employee autonomy and team work)relationship in B2B organizations. Quantitative research was conducted involving 105 Lithuanian salespeople working in B2B sector at telecom and financial companies. Multiple regression analysis was applied to measure the impact of sales people motivation dimensions on the organizational commitment and psychological contract.

"Direct and Indirect effects of individual and environmental factors of motivation for self-employment"(Wang et.al,2010) has studied the factors which are responsible to do self-employment. There are 2 individual factors (entrepreneurial self-efficacy and risk taking) and 5 environmental factors (family self-employment background, social networks, social norms, legal support system and govt support).Survey was done in US College and feedback got captured on 7 point Likert scale. A confirmatory factor analysis using AMOS18 was conducted to test the measurement model.

"Development of a Multi-Dimensional scale for Measuring Food tourists Motivations"(Kim et. al.,2010) has develop an instrument to explore food tourists' motivations using push and pull theory.60 Push and Pull items identified through literature survey and 7point Likert Scale was used for capturing feedback on these items. Reliability of the data evaluated through Cronbach's alpha.Factor analysis with Varimax and Kaiser normalization was performed to identify Pull and Push Factors of Motivation.

"Measuring Tourist Motivation: Do scale matter?"(Huang, 2010) has increased the understanding of tourist motivation measurement by comparing two frequently adopted motivation measurement approaches: self-perception (SP) and Importance rating (IR) approaches. Both SP and IR approaches found to be highly reliable in terms of internal consistently. Respondents rate more positively in the SP scale then in IR scale. Both scales found to be appropriate for measuring tourist motivation. Factor analysis, ANOVA and regression analysis was used to generate the result.

"Impact of employee motivation on performance(productivity) in private organization"(Choudhary& Sharma,2012) has highlight the importance of employee motivation.As per them high productivity is a long term benefits of employee motivation.Motivated employee is a valuable asset which delivers huge value to organization in maintaining and strengthening its business and revenue growth.

"Motivating Salespeople:What really works"(Steenburgh and Ahearne,2012) has discussed about various kind of sales incentive plans for Stars, laggards and core performers.

"Organizational control and work effort –Another look at the interplay of rewards and motivation"(Kunz & Linder,2012) has study the impact of both monetary and non-monetary, affiliative rewards on willingness to exert work effort and a potential detrimental interaction with different forms of intrinsic motivation.Vignette experiments which are appropriate for analyzing the influence of social context on individual decisions and behavior. Likert Scale with factor analysis and regression analysis was used for finding the results.

"Improving Sales performance through sales force motivation strategies: A study of pharmaceutical firms in Nigeria"(John et. al,2012) has conceptualized three dimensions of motivation strategy that are critical for superior sales performance –Financial incentives, meetings with salespeople and involvement of salespersons in setting quotas. The results show a strong relationship between the dimensions of the motivation strategy and

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sales performance. Confirmatory Factor Analysis and three-stages Least square method was used to test dependence of factors of motivation on sales force performance.

“Work motivation and social communication among public managers”(Park and Rainey,2012), tests hypothesis about the effects of two types of work motivation(i.e., intrinsic and extrinsic motivation) and four types of social communication on three important work dispositions(i.e., job involvement, red tape and perceived organizational effectiveness) among manager employed in public agencies.Likert scale was used for measuring responses.Exploratory and Confirmatory factor analysis was used.ANCOVA and Intercepts-and-slopes-as-outcomes model was also used.

“Factors associated with the Motivation and De-Motivation of health force workforce in Nepal”(Ghimire et. al.,2013),has find out the factors determining motivation of health workforce in the public sector.The data collected was analyzed in SPSS.To test the association of factors with motivation bi-variant logistic regression analysis was used.

“Does motivation really count for sales force performance in pharmaceutical industry?”(Sahoo et. al, 2014), has analyzed the impact of sales force motivation on their selling performance. Exploratory factor analysis was used to identify the factors of motivation.Then these factors are put into ordinal regression with selling performance.So the objective of the research study is to identify the factors of Motivation for Telecom Channel Retailers.

3. RESEARCH METHODOLOGY

Research Framework			
Step-1	Identification of Retailers Factors of motivation	Techniques	Statistical Tools or Method Used
1a	Basis Feedback from Retailers	Personal Interview & Questionnaires	SPSS Analysis with Varimax Rotations
1b	Feedback from Company Persons		
1c	Telephonic interaction with sample Retailers		
1d	Literatures Survey		
Step-2	Capturing Retailer Feedback on Factors of Motivation	Techniques	
2a	Rating by Retailers on factors of Motivation	Questionnaires	

Stage 1: Various published indicators of performance by established bodies like COAI was used to identify two organizations in Jharkhand – one which were performing better than Tata Docomo and the other which were performing below Tata Docomo in terms of various parameters like Customer market Share (CMS), Revenue Market Share (RMS),Gross Acquisitions, Average Revenue Per User (ARPU), Growth in the last few years, Manpower Employed etc. So a total of three (3) organizations were selected for the study. The geographical extent of the study was limited to the state of Jharkhand.

Stage 2: Based on market feedback, literature survey & feedback from top officials of Telecom industry, Factors of Motivation for retailers are identified. A suitable questionnaire was developed for retailers of Channel sales to capture market feedback.

Stage 3: Factor Analysis with varimax rotation was done using SPSS to find key motivation factors for retailers(channel partners of the telecom business).

The sampling unit was Telecom Retailers of Jharkhand. Judgmental sampling technique was used. A structured closed ended questionnaire was prepared base upon literature review and in consultation with the industry experts.

TOWN WISE SAMPLE SIZE

Table 3.1:- Town-wise Sample

Classification	Retailer
Major Class I Town	300
Other Class I town	300
Total	600

OPERATOR WISE SAMPLE SIZE

Table 3.2:- operator wise sample size

Organization	Retailer	Total
Tata Docomo	200	350

Idea	200	350
Aircel	200	350
Total	600	1050

TOWN WISE OPERATOR WISE SAMPLE SIZE

Table-3.3: town wise, operator wise sample size

Towns	Aircel	Docomo	Idea	Grand Total
Bokaro	25	25	24	74
Chirkunda	14	14	14	42
Daltonganj	14	14	14	42
Deoghar	17	14	14	45
Dhanbad	25	25	26	76
Giridih	14	14	14	42
Hazaribagh	14	14	14	42
Jamshedpur	23	25	25	73
Phusro	14	14	14	42
Ramgarh	15	15	13	43
Ranchi	25	26	24	75
Grand Total	200	200	196	596

4. ANALYSIS OF FINDINGS-FACTORS OF MOTIVATION

Retailers' feedback on Factors of Motivation has been compiled and SPSS analysis has been done using Principal Factor Analysis and Varimax rotation to identify final factors of motivations.

20 Motivational Factors of retailers are studied but Post SPSS Analysis broadly they are **Categorised into 3 types of Factors only.** Other factors are actually identified as sub-factors of these 3 broader Factors which are following-

1. **Channel Policy:**Under this category there are 11 different factors of motivation-Margin of retailers, R&R for retailers, Target of retailers, claim settlement from company, conflict with company,expiry policy,Product & services,Network,Brand name,culture, Communication has been categorised as Channel policy of company.

2. **Channel Engagement process:** Under this category there are 5 different factors of motivation-Feedback taken from retailers, Service Oriented business,Performance feedback,Recognition from distributor & social recognition has been categorisedas Channel engagement process.

3. **Channel Support:** Under this category there are 4 different factors of motivation- DSE/Distributor support, Support from Company Sales Manager, Relationship with DSE/Distributor & Relationship with company Sales Manager has been categorised as Channel Support.

The detail of Factors & Categorisation has been given in following table.

Factors having Eigen Value>1 has been taken for analysis. For Sample Adequacy KMO test has been done.

Table-4.1: KMO &Bartlett's Test

		Retailers
KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.958**
Bartlett's Test of Sphericity	Approx. Chi-Square	**10448.447**
	Df	**190**
	Sig.	**.000**

KMO of >0.5 shows adequacy of samples taken for the survey.

Table-4.2: Total Variance Explained

Retailers									
Total Variance Explained									
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.745	58.724	58.724	11.745	58.724	58.724	5.652	28.260	28.260
2	1.630	8.152	66.875	1.630	8.152	66.875	4.574	22.869	51.129
3	1.048	5.240	72.115	1.048	5.240	72.115	4.197	20.986	72.115
4	.736	3.681	75.796						
5	.525	2.626	78.422						
6	.512	2.559	80.982						
7	.459	2.294	83.275						
8	.408	2.038	85.314						
9	.364	1.822	87.135						
10	.340	1.698	88.833						
11	.333	1.663	90.496						
12	.281	1.405	91.901						
13	.274	1.369	93.270						
14	.248	1.242	94.512						
15	.228	1.139	95.651						
16	.208	1.039	96.690						
17	.201	1.006	97.695						
18	.182	.911	98.606						
19	.167	.836	99.442						
20	.112	.558	100.000						

Table-4.3: Rotated Component Matrix

Retailers			
Rotated Component Matrix[a]			
	Component		
	1	2	3
Margin_Incentive	**.704**	**.039**	**.291**
Reward_Recognition	**.697**	**.468**	**.262**
Targets	**.609**	**.531**	**.223**
Claim_Settlement	**.828**	**.136**	**.275**
Conflict	**.730**	**.304**	**.292**
Expiry_Policy	**.692**	**.335**	**.208**
Products_Services	**.662**	**.253**	**.464**
Network	**.572**	**.154**	**.530**
Feedback_Taken	**.281**	**.728**	**.242**
Service_oriented	**.159**	**.878**	**.097**
Performance_Feedback	**.468**	**.667**	**.256**
DSE_Distsupport	**.352**	**.155**	**.743**
SM_CompanySupport	**.285**	**.343**	**.750**
Recognition_Distributor	**.159**	**.662**	**.507**
Social_Recognition	**.175**	**.847**	**.250**
Relationship_DSEDist	**.348**	**.238**	**.755**

Relationship_SalesMgr	**.343**	**.290**	**.767**
BrandName	**.552**	**.434**	**.442**
Culture	**.619**	**.440**	**.420**
Communication	**.572**	**.441**	**.443**

Table 4.4: Composition of the Factors

Factors of Motivation-Retailers		
Category-1	**Category-2**	**Category-3**
Channel Policy	**Channel Engagement process**	**Channel Support**
Margin_Incentive	Feedback_Taken	DSE_Distsupport
Reward_Recognition	Service_oriented	SM_CompanySupport
Targets	Performance_Feedback	Relationship_DSEDist
Claim_Settlement	Recognition_Distributor	Relationship_SalesMgr
Conflict	Social_Recognition	
Expiry_Policy		
Products_Services		
Network		
BrandName		
Culture		
Communication		

5. CONCLUSION

In context of Telecom retailers there are 20 different factors of motivation identified from various literature review and feedback from senior management of Telecom Industry. But post statistical analysis it was found that broadly there are3 Types of Motivation Factors of Telecom Retailers-**Channel Policy, Channel Engagement Process and Channel Support.**

If telecom organization can plan their Channel policy well, ensure execution of Channel Engagement process in market well and able to support their retailers on ground well it will have great impact of motivation of retailers. Retailers will get highly motivated and will give more business to company hence more market share for organization in comparison to their competitors.

In field it was found that many organizations has good Channel policy but due to poor Channel Support on ground which is identified as 3rd Factors of motivation retailers get annoyed and not want to do business with that organization. Here, the Role of Distributors, DSE& company sales managers are crucial as they are representative of company interacting with Retailers and giving service on day-to-day basis to these retailers.Also they ensure that all business hygiene’s are maintained so that retailers’ long term interests are protected.

The above study of Telecom retailers are done for pre-pay business as in Post-Pay there is no retailer channel is involved. As telecom industry is distribution based business hence findings are also relevant for retailers of other sectors like FMCG, Paint, lubricants etc. product also where retailers also play key role in customer sales and Services.

Managers of Telecom and other industry mentioned above can use the findings of this study in designing and developing their Channel Policy, can develop proper channel engagement process and ensure its implementation at ground level so that can get desired level of output from channel & Sales Team which will result in long term sustainable business, low employee and Distributor turnover and getting more market share.

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ONLINE SHOPPING IN INDIA: TRENDS AND CHALLENGES

Deepak Jha
Assistant Professor, Shankara Group of Institutions, Jaipur

ABSTRACT
There has been a tremendous rise in the number of internet users in developing countries around the world in recent years. The easy accessibility of the internet has reduced the distance between manufacturers and consumers. The overall space between the consumer and the retailer has shrink considerably leading to effective communication and transactions between them. India's e-commerce industry is expected to grow from US$ 38.5 billion as of 2017 to US$ 200 billion by 2026.This paper basically aims at understanding online shopping trends in India. It also focuses on factors responsible for growth of ecommerce industry in India and limitations to the development of e-commerce market in India.

INTRODUCTION
Online shopping is growing like the world's biggest shopping mall because of the technological advancement, convenience, better purchasing capacity, the availability of different search engines and easier payment mode satisfaction and security. Online shopping provides all types of goods available in the virtual world and customer can access these shops anytime without stepping out of their home. The advent of smartphones and penetration of internet among the lives of millions of people has led to an increase in electronic commerce around the world.

Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems.The Indian e-commerce industry has been on an upward growth trajectory and is expected to surpass the US to become the second largest e-commerce market in the world by 2034. E-commerce companies are gradually expanding to different cities, regions and even countries. They are also expanding their product range to cater to a larger amount of people.

REVIEW OF LITERATURE
Clemons et.al. (2016) conducted a study of consumers' attitudes toward the risks of online shopping around the globe. They interpreted that trust remains essential to understanding the growth of and limits to online shopping, and understanding national differences is critical as companies attempt to globalize their more localized online retailing strategies. Dong Ling Xu-Priour et.al.(2017) concluded that time orientations can be used as effective segmentation variables, which are useful in describing a universal typology among different types of online shopping behaviors.

Girish Mallapragada et.al. (2016) a website's scope in terms of product variety is associated positively with visit durations and basket values but negatively with page views. Ching-Ching Ke (2015) suggested that that different personality traits have different perceptions with regards to perceived risk in online shopping. Mrinal (2014) in a study found that online shopping in India is at a very nascent stage but is gradually gathering steam.

OBJECTIVES OF THE STUDY IS TO:
1. Analyse online shopping trends in India.
2. Examine major factors responsible for growth of ecommerce industry in India.
3. Scrutinise major challenges to the development of e-commerce market in India.

RESEARCH METHODOLOGY
This paper is based on secondary data collected through IBEF survey report, KPMG report, leading newspapers, Journals etc. This research mainly focuses on online shopping trends in India.

ONLINE SHOPPING AND INDIA
Online retail market in India has been emerging at an extraordinary rate. With the growing internet diffusion and broadband availability, and increasing usage of Smart phones and tablets, Indian population have started buying products online. According to a report by Gartner more than 30% of the traffic on online shopping portals is coming from smart phones and tablets. E-commerce industry has picked up pace and has been striding leaps and bounds over the past few years. This scenario is estimated to carry on as the market is expected to reach $14.5 billion by 2018.

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There has been an increase in the online transactions due to the growth of E- Commerce. Associated Chambers of Commerce and Industry of India (Assocham) has reported that the extent of the e-commerce industry is likely to grow at an annual rate of 35% to Rs.8,000 crore by 2018. Increase in online transactions can be attributed to the following factors:

1. Advances in technology,
2. Changing behavior patterns of the consumers
3. Sometimes situational influences

TRENDS IN ONLINE SHOPPING IN INDIA

After analysing data published in IBEF Survey Report (2018) following online shopping trends have been observed:

- By the year 2020, online shoppers are expected to go up to 175 million.
- Online shopping in India has increased because of the mobile – savvy shoppers.
- Because of the demographic and cultural differences men in India are more keen shoppers in comparison to women.
- Availability of discounts along with comfort of sitting at home and purchasing is an effective driving factor of Ecommerce. Availability of various websites gives customers a lot of options to choose from.
- Online transactions are increasing because of the Chabot and personal assistance.
- Availability of several brands and products from various sellers has helped in boosting online sales. A person can get go for the latest international trends without spending money on travel. Geographic limitation is curtailed and because of this a customer has a variety of choices.
- In India, major online shopping accounted in metro cities like Bengaluru, Mumbai, and Delhi, with population greater than 225,000.
- Most of the sales are generated from less densely populated regions. Nearly 60 per cent of Snapdeal’s purchases came from cities classified as tier II and III.
- Flipkart also noted that “sales of branded products across categories saw a sharp increase, as more of tier 2 and tier 3 Indian towns took to shopping online.”
- Although shoppers between 25 and 34 years of age were most active on e-commerce portals, a surprising number of older people also shopped online in 2016. However, the age group of 15-34 years are the major consumers of E-commerce. The popularity of web series among millennials is growing immensely.
- There are a lot of opportunities for e-retailers in India to capitalise upon with the gradually growing internet penetration in India.
- The penetration of online retail in India’s total retail market is expected to rise from 2.5 per cent in 2016 to 5 per cent by 2020.
- The online retail market in India increased from US$ 14.5 billion in 2016 to US$ 17.8 billion in 2017 and is estimated to reach US$ 28-30 billion by 2018.

MAJOR FACTORS RESPONSIBLE FOR GROWTH OF ECOMMERCE INDUSTRY IN INDIA

1. A sharp increase in the usage of smart phone, as an outcome of which a large number of transactions are carried out through mobiles and tablets
2. Increased internet access and the ever dropping rates of internet browsing. There are around 243 million internet users in India making it third largest number internet user base after USA and China
3. A constantly rising Indian middle class. A high percentage of this section loves to shop online supported by the lack of time to visit to the traditional retail stores
4. Although there is not much of a penetration in India when it comes to purchasing online through debit cards and credit cards but still there is a considerable increase in the use of plastic money.
5. Tier II and Tier III cities in India constitute a major percentage of consumer.

LIMITATIONS TO THE DEVELOPMENT OF E-COMMERCE MARKET IN INDIA

- Low internet penetration is one of the biggest challenges for E-commerce players. With only 243 million Internet users, India accounts for just around 19% of Internet penetration.
- Low usage of debit and credit cards. According to a report by IAMAI in 2013 only 53% of total online transactions of 800 million that were made using Debit/Credit cards
- The consumer mindset of not able to touch and feel the product before buying it online

CONCLUSION

Online retailers need to understand the fundamental issues related to online shopping and work on it. A huge market awaits the retailers to exploit, both for the benefit of the consumers and themselves. The need is to identify the customer preferences and cater to their needs accordingly.

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A STUDY OF DETERMINANTS INFLUENCING PURCHASE OF HEALTH INSURANCE AMONG RESPONDENTS FROM MUMBAI

Shivani Naik Devrukhkar
Assistant Professor, M. L. Dahanukar College of Commerce

INTRODUCTION

The history of health insurance in India dates back to 1912, when the first Insurance Act was passed. In 1947, the "Bhore Committee Report" made recommendations for the improvement of health care services in India. In 1948, the Central Government introduced the Employees' State Insurance Scheme (ESIS) for blue-collar workers employed in the private sector. In 1954, The Central Government Health Scheme (CGHS) for central government employees and for their families was introduced. In 1986, Mediclaim was introduced. The year 1999 marked the beginning of a new era for health insurance in the Indian context. With IRDA, the insurance sector was opened to private and foreign participation. In 2003, attempts were made by government to introduce health insurance for informal sector.

Since the inception of the concept of health insurance in India in 1912, a survey by BigDecisions, a personal finance advisory platform, shows that 82.2% of urban middle-income Indians do not have health insurance, as in 2016. Of the 17.8% who have health cover, it is adequate to meet less than 67% of their expenses related to potential medical contingencies. That means over 33% of urban India is underinsured. Underinsurance level for families of 4 or more is at a staggering average of 49%.

It is reported that nearly three fourth of health related expenses are met by personal savings (IRDA, 2010), often landing the poor in long term financial indebtedness. Health insurance is no longer a luxury for Indians, but has become a need. Even with the increasing disposable incomes, ordinary families are finding it difficult to meet the medical expenses due to the increasing cost.

In spite of this, the managers of health insurance companies are of the opinion that the response to health insurance schemes by consumers of the state is not very encouraging. This triggers a need to learn the reasons for the purchase behavior of consumers: why people buy health insurance, the reasons for not purchasing health insurance, and the factors that influence purchase decisions like amount of cover, brand selection, re-purchase, etc. This study will help understand the relation between factors such as awareness, perception, financial capability on the purchase decision of consumers with emphasis on urban households. In addition to this, the latest development related to health insurance i.e. the government's plan to provide universal healthcare through a 'National Health Protection scheme' which provides Rs.5 lakh per family for secondary and tertiary care hospitalization, will also be explored. The respondents which will be a mix of different income and demographic segments will also be probed to understand their awareness related to government proposed schemes and their influence on prospective buyers. The result of this research may prove beneficial to

a. insurance companies which seek to understand expectations of customers from health insurance products and reasons for inability to purchase.

b. researchers who aim to further explore the dynamics of consumer perception and buying behavior

c. consumers seeking health insurance products which suit their needs.

d. Policy makers and third party administrators in reviewing and amending their terms in accordance with ever changing consumer demands.

RESEARCH PROBLEM

According to a survey by National Sample Survey (NSS), Over 80 per cent of India's population is not covered under any health insurance scheme. The data reveals that despite a decade of the Centre-run Rashtriya Swasthya Bima Yojana (RSBY), only 12 per cent of the urban population had access to insurance cover.

Further, it was found that coverage is correlated with living standards, as in urban areas, over 90 per cent of the poorest residents are not covered, while the figure is 66 per cent for the richest residents. According to the report, "The poorer households appear unaware or are beyond the reach of such coverage, both in rural and urban areas."

According to WHO statistics, hospital admissions about 47% in rural areas and 31% in urban areas respectively, were financed by loans and sale of assets. WHO says, 3.2% Indians will fall below the poverty line because of high medical bills. About 70% of Indians spend their entire income on healthcare and purchasing drugs. Health insurance sector in India has witnessed a sea-change recently. The high cost of medical treatment induced the public to think about health insurance plans. As health is important without any medical coverage people use their earnings and assets to cover medical costs. Despite the perils of lack of health insurance, the percentage of urban population covered under health insurance is dismal. It is even more surprising to see the poor ratio of health insurance holders despite of the launch of government fundedhealth insurance schemes.

REVIEW OF LITERATURE

Jayaprakash, S in his study, "An explorative study on health insurance industry in India" states that unlike in developed countries, Indians lack the sense of preventive health care and health consciousness. As a result, they face financial burden in the form of out-of pocket expenses to pay for curative health care.

Whereas, **Sunitha, C.K** in her research "Emerging trends in health insurance" proposes that non-availability of necessary finance is a major obstacle in the health care attainment of people in many developing countries, including India. It has been reported that 40 per cent of the hospitalized Indians had to borrow money or sell assets during the decade 1986-96. There was a doubling in the number of persons who were unable to seek healthcare due to financial reasons (NSSO 1996), and almost 24 per cent of the hospitalized Indians fall below poverty line because they are hospitalized (**Peters et al 2002**).

This uncovers a vicious cycle. People cannot buy health insurance due to financial constraints, but in the event of health emergency end up spending exorbitant amounts which further deteriorates their financial ability to invest in health insurance. Consumers spend a huge amount on curative health services but hesitate to spend much smaller amounts regularly to make arrangements for future health expenses. This infers that financial difficulties may not be the only reason restricting people from opting for health insurance.

Delving further into this, **Bhat and Jain (2006)** highlighted the factors that determine the coverage of health insurance, Income, age, knowledge about insurance, perception regarding future healthcare expenditure and number of children in a family are the factors which were found to affect the purchase of health insurance scheme.

Kundu Soma (2009) through his journal has tried to explore the different financial avenues that are available to the patients for meeting their healthcare expenditure. But because of increase in healthcare expenses, healthcare treatment is becoming unaffordable for poor. With the increase in the demand of healthcare services from the low income group, health insurance can prove to be efficient tool for financing healthcare in a county.

Siddharth Agarwal (2007) examined several health insurance schemes with regard to extending health insurance coverage to poor house hold and those working in informal sectors.

Srabanti Chakravarthi (Mukherjee) (2005) in her research titled 'Reasons behind low penetration of health insurance schemes in India´, Insurance Chronicle, August2005, has provided a macro view of health insurance schemes in India and throws light on reasons why buyers hesitate to buy health insurance despite of the numerous schemes launched by the government.

Research Gap Analysis

The various studies on health insurance only briefly suggest some factors affecting health insurance purchase. However, there is a need for in-depth understanding of various demographic factors such as age, gender, educational qualification, family size, etc; economic factors such as income, spending habits, etc and personal factors such as awareness and perception and their impact on customer purchase decision.

OBJECTIVES OF THE RESEARCH

- To understand health insurance scenario in urban areas with regards to Mumbai
- To ascertain the factors determining the purchase decision related to health insurance
- To assess the extent of influence exerted by dominant factors on purchase decision of health insurance policies

HYPOTHESIS

Hypothesis – 1

Ho- There is no significant impact of demographic factors on the awareness about health insurance

H1 - There is a significant impact of demographic factors on the awareness about health insurance

Hypothesis – 2

Ho- There is no significant impact of economic factors on the awareness about health insurance

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H1 - There is a significant impact of economic factors on the awareness about health insurance

RESEARCH METHODOLOGY

In order to conduct research, following methodology will be adopted.

a) Universe: Since, health insurance purchase decision is based primarily on ability to spend; the population would be any employed consumer from Mumbai.

b) Sample Size: For enhanced accuracy, the research will be based on 175 respondents across different demographic and geographic sections in Mumbai.

c) Techniques of data collection: Study will be based on both primary and secondary sources.

LIMITATIONS OF THE PRESENT STUDY

The inferences drawn would be purely based on the responses received from respondents, the possibility of biased opinion cannot be ruled out. There is geographical limitation for this study as it is confined to Mumbai and its suburban area. However, every possible effort is taken to make the study useful for further research.

Analysis and Findings

Demographic & Economic Profile of Respondents			
		Frequency	Percentage
Age	0 TO 20 YEARS	5	3
	20.1 TO 30 Years	81	46
	30.1 T0 40 Years	51	29
	40.1 TO 50 Years	18	10
	50.1 TO 60 Years	14	8
	Above 60 Years	7	4
	Total	175	100
Gender	Male	110	63
	Female	65	37
	Total	175	100
Marital Status	Married	102	58
	Unmarried	74	42
	Total	175	100
Education	Illiterate	0	0
	Primary school	2	1
	Secondary school	5	3
	Higher Secondary	14	8
	Graduate	54	31
	Post Graduate	93	53
	Doctorate	7	4
	Total	175	100
Occupation	Students	35	20
	Government employee	39	22
	Private services	82	47
	Own business	14	8
	Labourer	0	0
	Retired	2	1
	House wife	4	2
	Total	175	100
Income	Less than 10000	37	21

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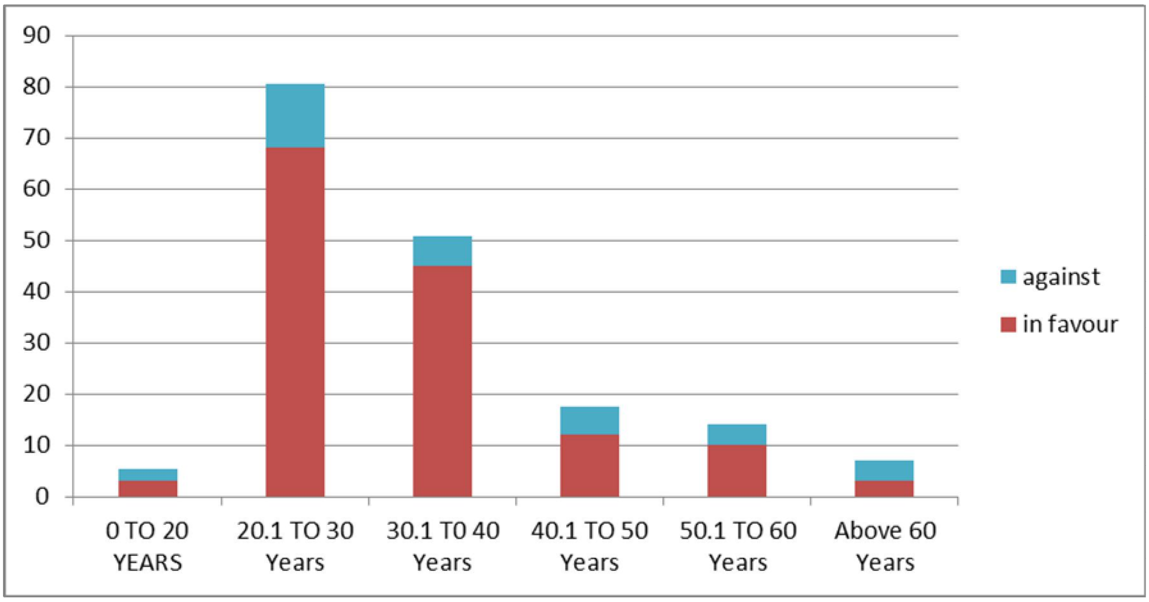
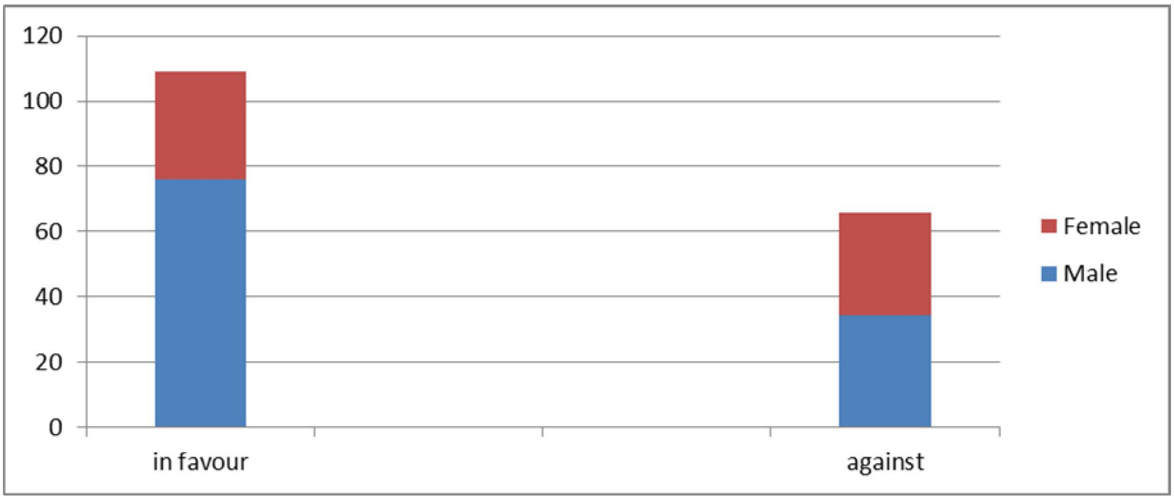
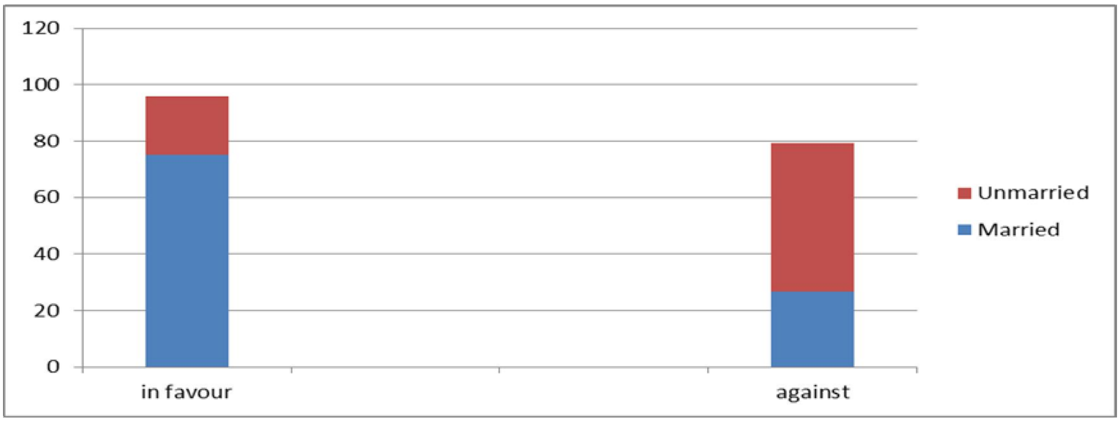
	10001 to 20000	46	26
	20001 to 40000	44	25
	40001 to 80000	39	22
	Above 80000	11	6
	Total	175	100



In the above figure, the age group of 30-40 years shows maximum inclination towards health insurance.



This figure suggests that Male respondents display more inclination towards health insurance products



The respondents who were married showed more interest in purchase of health insurance

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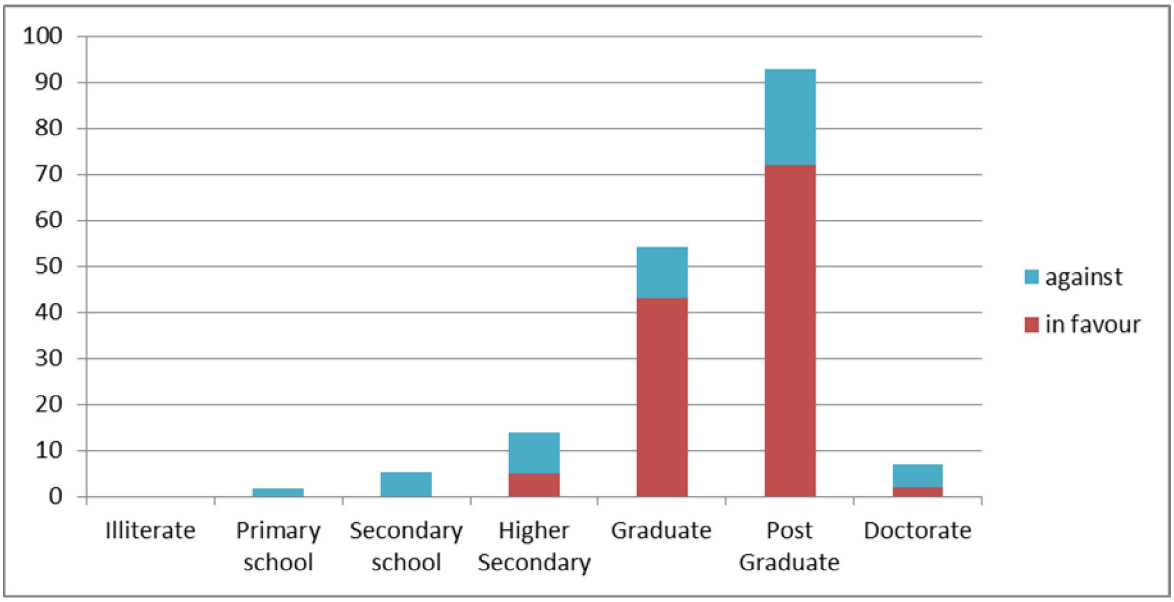
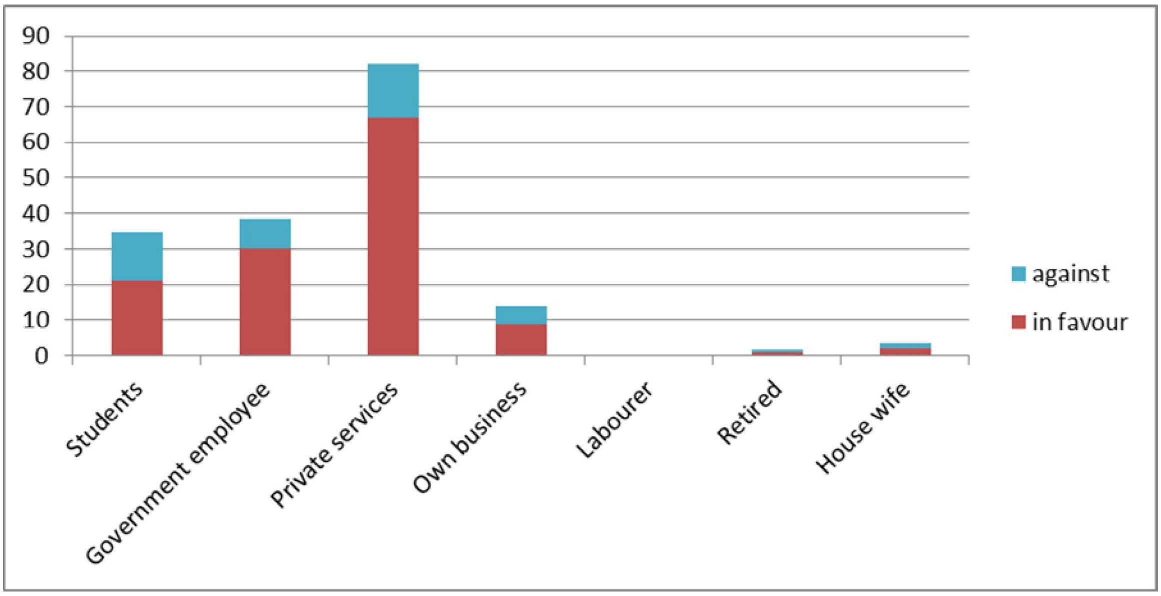
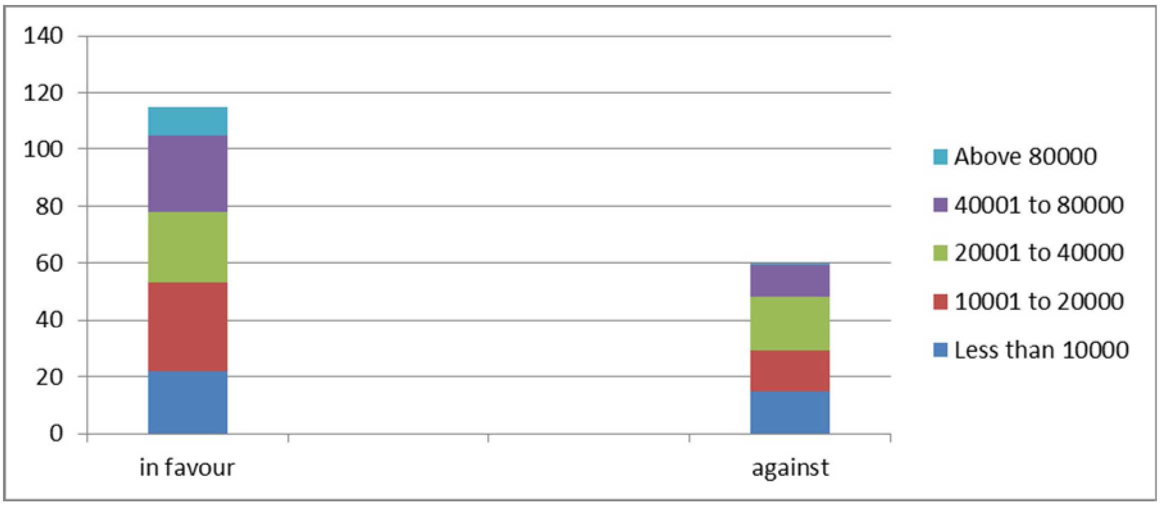


The respondents in Graduate and post graduate category displayed more willingness in buying health insurance.



Private sector employees are observed to be more inclined towards purchase of health insurance.



These findings point towards the fact that demographic, social and economic factors have an impact on purchase of health insurance. Hence, the Ho, stands rejected.

CONCLUSION

Respondents in age category of 30-40 seem more inclined towards purchase of health insurance. This was also due to the rise in the disposable income, awareness of available options and increasing responsibilities. Male respondents showed more inclination towards health insurance products mainly as expressed by respondents themselves as they were the bread winners and primary decision makers as opposed to female counterparts who were required to consult their family members before deciding on purchase of health insurance products. The respondents who were married showed more interest in purchase of health insurance as this was in tandem with protection of family members. The respondents in Graduate and post graduate category displayed more willingness in buying health insurance; this showed a link between education and higher awareness and understanding of health insurance products. Private sector employees are observed to be more inclined towards purchase of health insurance. On probing it was revealed that their interest in health insurance also exceeded that of government employees since health insurance was provided to most government employees whereas for majority of private sector employees, the health insurance was not covered by their employers and hence these employees seemed incharge of decision related to their health insurance. Thus, a blend of various demographic, economic and societal factors influences the purchase and interest among people towards health insurance.

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A COMPARATIVE STUDY OF PERFORMANCE OF TOP MUTUAL FUNDS IN INDIA

Prof. Felix Anthony Samy
Shri Ram College of Commerce, Bhandup, Mumbai

ABSTRACT

Investing through mutual funds has gained interest in recent years as it offers optimal risk adjusted returns to investors. The Indian market is no exception and has witnessed a multifold growth in mutual funds over the years. As of 2016, the Indian market is crowded with over two thousand mutual fund schemes, each promising higher returns compared to their peers. This comes as a challenge for an ordinary investor to select the best portfolio to in- vest making it critical to analyse the performance of these funds. While understanding and analysing the historical performance of mutual funds do not guarantee future performance, however, this may give an idea of how the fund is likely to perform in different market con- ditions. In this research we address multiple research issues. These include measuring the performance of selected mutual schemes on the basis of risk and return and compare the performance of these selected schemes with benchmark index to see whether the scheme is outperforming or underperforming the benchmark. We also rank funds on the basis of per- formance and suggest strategies to invest in a mutual fund and therefore, our findings have significant relevance for investing public.

Keywords: Mutual fund, risk factor, Risk-return investment, safety, security

INTRODUCTION

Mutual Funds have become a widely popular and effective way for investors to participate in financial markets in an easy, low-cost fashion, while muting risk characteristics by spreading the investment across different types of securities, also known as diversification. It can play a central role in an individual's investment strategy. They offer the potential for capital growth and income through investment performance, dividends and distributions under the guidance of a portfolio manager who makes investment decisions on behalf of mutual fund unit holders.

Over the past decade, mutual funds have increasingly become the investor's vehicle of choice for long-term investment. It becomes pertinent to study the performance of the mutual fund. The relation between risk-return determines the performance of a mutual fund scheme. As risk is commensurate with return, therefore, providing maximum return on the investment made within the acceptable associated risk level helps in segregating the better performers from the laggards. Many asset management companies are working in India, so it is necessary to study the performance of it which may be useful for the investors to select the right mutual fund.

A mutual fund is a common pool of money into which investors with common investment objectives place their contributions that are to be invested, in accordance with the stated objective of the scheme. The investment manager invests the money collected into assets that are defined by the stated objective of the scheme. For example, an Equity fund would invest in Equity and Equity related instruments and a Debt fund would invest in Bonds, Debentures, Gilts etc.

The most important variable that decides whether you will meet your target or not is the nature of the actual investments. The first step in getting this right is to decide what kind of asset class you need to invest in. Asset class refers to debt or equity. This is the primary decision you will have to make.

OBJECTIVES OF THE STUDY

The main reasons behind studying this topic are:

1. To evaluate and compare the performance of equity diversified mutual fund schemes of selected companies
2. To compare the performance of equity diversified mutual fund schemes of selected companies' vis-à-vis the market.
3. To study change in investment pattern.

RESEARCH METHODOLOGY

Secondary data is taken as a basis of analysis in this research. Top five asset management companies is selected as per AUM as on March 4, 2014.. Five equity diversified mutual fund schemes, debt mutual funds and hybrid funds etc each from selected AMCs is selected randomly. Daily data about the closing Net Asset Value of the selected schemes has collected from the websites www.indiainfoline.com andwww.nseindia.moneycontrol.com. The most popular and widely tracked NSE SENSEX is used as a proxy for the market. The reference period for the data is taken from March 2009 to March 2014.

DATA ANALYSIS & INTERPRETATION

a) Equity diversified (Table 1)

Scheme name	Asset (Rs. Cr)	NAV	1w%	3w%	6w%	1y%	3y%	5 y%
ICICI Pru Exp&Other Services- DP (G)	7.31	28.59	1.1	4.6	15.3	31.1	45.0	--
ICICI Pru Exp&Other Services- RP (G)	183.34	28.39	1.1	4.6	15.1	30.6	44.2	82.5
ICICI Pru US Bluechip - Direct (G)	11.65	15.82	0.6	1.1	4.0	15.7	42.9	--
ICICI Pru US Bluechip Equity (G)	180.65	15.70	0.6	1.0	3.8	15.3	42.3	--
Birla SL Intl. Equity A -Direct (G)	8.62	15.96	0.1	-0.4	3.7	11.8	30.7	--

Interference

Table 1 depicts the performance of selected equity diversified schemes return for a period of 2009 to 2014. It also depicts the average Portfolio return and scheme return performance in comparison to the benchmark.

The fifth column shows the schemes-wise return for five years in which gives highest return of 82.5% in the year 2014 by ICICI Pru Exp & Other Services-RP (G)and also from the inception. It is followed by ICICI Pru Exp &Other Services-DP (G), ICICI Pru US Bluechip - Direct (G), ICICI Pru US Bluechip Equity (G) and Birla SL Intl. Equity A -Direct (G) with 45.0, 42.9, 42.3, 30.7 return respectively.

In all five years duration ICICI Pru Exp &Other Services-RP (G) is performed well compared to others schemes.

b) Debt Long Term (Table 2)

Scheme name	Asset (Rs.Cr)	NAV	1w%	3w%	6w%	1y%	3y%	5 y%
L&T Gilt Fund - Direct (G)	38.90	29.58	0.2	2.1	2.3	5.3	9.6	--
ICICI Pru Long Term Plan (G)	57.26	13.80	0.2	0.7	2.6	5.3	9.6	20.4
ICICI Pru Long Term - Direct (G)	3.04	13.80	0.2	0.7	2.6	5.3	9.6	--
Templeton Corporate Bond-Direct (G)	36.96	12.48	0.2	1.0	2.8	6.4	9.4	--
ICICI Pru Long Term Plan-PP (G)	5.02	13.63	0.1	0.7	2.5	5.2	9.3	19.8

Interference

Table 2 depicts the performance of selected Debt Long Term return for a period of 2009 to 2014. It also depicts the average Portfolio return and scheme return performance in comparison to the benchmark.

The fifth column shows the schemes-wise return for five years in which gives highest return of 20.4% in the year 2014 by ICICI Pru Long Term Plan (G)and also from the inception followed by ICICI Pru Long Term Plan-PP (G) with return of 19.8% . It is followed by L&T Gilt Fund - Direct (G), ICICI Pru Long Term - Direct (G) and Templeton Corporate Bond-Direct (G), with 9.6, 9.6 and 9.4% for third year return respectively.

In all five years duration, ICICI Pru Long Term Plan (G) and ICICI Pru Long Term Plan-PP (G is performed well compared to others schemes.

c) Hybrid: Top 5 funds in India (Table 3)

Scheme name	Asset (Rs.Cr)	NAV	1w%	3w%	6w%	1y%	3y%	5 y%
FT (I) FF US Opp. -Direct (G)	47.14	17.97	1.0	2.2	7.8	21.3	55.1	--
FT (I) Feeder-Franklin US Opp. (G)	455.13	17.77	1.0	2.1	7.5	20.6	53.5	--
DSP BR US Flexible* Eqty-Direct (G)	46.81	15.25	--	1.6	7.1	16.5	44.8	--
DSP BR US Flexible* Equity Fund (G)	36.09	15.14	--	1.5	7.0	16.2	43.8	--
DWS Top Euroland Offshore Fund (G)	3.96	13.18	-0.4	0.9	3.1	17.1	29.3	53.4

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Interference

Table 3 depicts the performance of selected Hybrid: Top 5 funds in India for a period of 2009 to 2014. It also depicts the average Portfolio return and scheme return performance in comparison to the benchmark.

The fifth column shows the schemes-wise return for five years in which gives highest return of 20.4% in the year 2014 by DWS Top Euroland Offshore Fund (G). It is followed by FT (I) FF US Opp. -Direct (G), FT (I) Feeder-Franklin US Opp. (G), DSP BR US Flexible* Eqty-Direct (G) and TDSP BR US Flexible* Equity Fund (G) with 55.1, 53.5, 44.8 and 43.8 % for third year return respectively.

In all five years duration, DWS Top Euroland Offshore Fund (G) is performed well compared to others schemes.

INTERPRETATION

Different types of mutual funds have different levels of volatility or potential price, and those with the greater chance of losing value are also the funds that can produce the greater returns for you over time. So risk has two sides: it causes the value of your investments to fluctuate, but it is precisely the reason you can expect to earn higher returns.

Conventionally, the difference between debt and equity is the risk involved. Debt is that encompasses bank deposits, government-backed deposits, other deposits as well as mutual funds that invest in debt paper.

Equity means stocks as well as equity mutual funds. Everyone knows that debt is less risky than equity, and that's true. However, for the purpose of planning a targeted investment, it's more useful to think of debt and equity in a different manner.

The important difference between the two is that their risk and return curve varies in a very different way over different time-scales. Debt returns are predictable and there are many government-guaranteed deposits available to the Indian investor.

Risk then, refers to the volatility - the up and down activity in the markets and individual issues that occur constantly over a period of time. This volatility can be caused by a number of factors - interest rate changes, inflation or general economic conditions. It is this variability, uncertainty and potential for loss, that causes investors to worry.

We all fear the possibility that a stock we invest in will fall substantially. But it is this very volatility that earns higher long-term returns from these investments, than from a savings account.

RECOMMENDATIONS

Debt returns are low, barely matching or only slightly exceeding the rate of inflation. Equity returns have the potential of being much higher but can be volatile. However, the volatility of equity is a relatively short-term phenomenon.

For periods exceeding three to five years, equity investments are extremely likely to give strong positive returns. This is especially true if stick to a broad selection of the relatively large-cap companies and if you invest gradually, as in through an SIP.

Speaking in terms of risk, this means that instead of saying that equity has higher risk, we should actually be saying that equity's risk drops over time and at a long enough timescale, the returns- to-risk ratio becomes far more attractive than debt. And there's the point about how all this fits into your targeted investment goals. The formula is simple — debt for the short-term, and equity for the long-term.

Managing director, Vivek Kudva India and central and Eastern Europe, Middle East and Africa, Franklin Templeton Investments is of the opinion that “There has been a substantial increase in interest for fixed income mutual funds (especially among high net worth individuals)—a reflection of the growing awareness of the category. Over the last year or so, corporate bond funds focused on high coupons had seen increased flows. In recent months, there has been a shift in favour of long bond funds with relatively higher maturities (both gilts and corporate bonds), as investors were looking to take advantage of the expected fall in interest rates. On the equity side, sharp rallies have resulted in profit booking in equity funds while periods of market corrections have seen positive net flows.

CONCLUSION

Local investors rushed to exit equity funds in January and shifted focus to debt in anticipation of a low interest rate regime in the coming quarters.

Mutual fund investors pulled out a record Rs.4,713 crore from equity schemes of asset management companies (AMCs), the highest in any January and also the highest monthly redemption of equity schemes in 27 months.

While equities saw the highest monthly redemption ever, AMCs' debt schemes attracted Rs.43,804.7 crore—the highest inflow in any January.

Overall, all selected mutual fund companies have positive return during 2009 to 2014.. ICICI mutual fund has performed well. Birla SL Intl. Equity A -Direct (G) and DWS Top Euroland Offshore Fund (G) mutual fund have lower level of risk compare to Franklin and DSP.

The rise in stock prices encouraged investors to book profits and shift money to debt schemes because the latter will generate healthy returns when interest rates soften, fund managers said. Clearly, investors are not convinced the stock market will continue to rise, with key indices touching a new high this year.

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LOST PARADISE AT KANGRA- NURPUR FORT

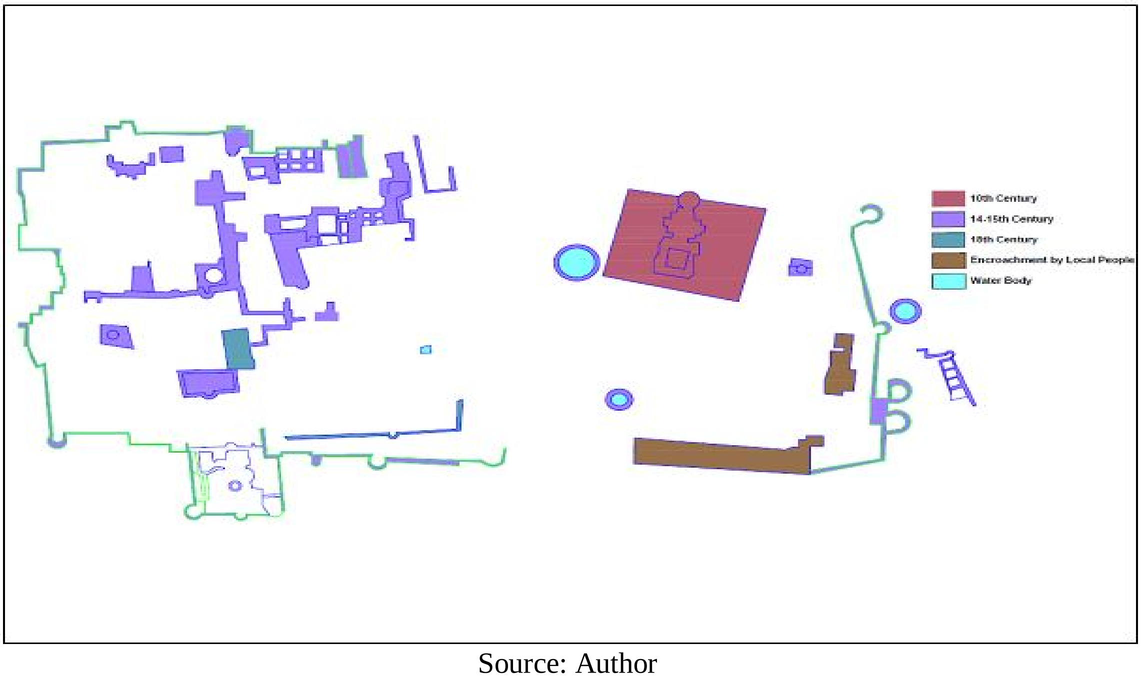
Ar. Akanksha Singh and Ar. Shivani Singh
Assitant Professor, School of Architecture & Planning, K. R. Mangalam University, Gurugram

ABSTRACT
The region of Kangra is famous for rich cultural and built heritage in the form of forts, temples and the different rulers time to time. Nurpur Fort is among one of the most beautiful and ancient fort situated in Kangra District. The known accounts or literary sources of the region clearly indicate that it came into existence in 10th century till 19th century. Even as Forts are increasingly being acknowledged today as cultural and historical assets, large corpus of surviving ranging from apathy and neglect to vandalism, destruction and lack of knowledge about the historic richness of this fort. The preservation of such sites, by exploring the implications on management, has become an issue of utmost importance and rather a common ground should be explored leading to a shared respect of heritage sites.

Keywords: Council, destruction, restoration, tourism, vandalism.

INTRODUCTION
Nurpur is a city and a municipal council in Kangra district of Himachal Pradesh. The Kingdom was circumscribed on the north by Kangra and Chamba, on the south by the Punjab plains, and on the west by the Ravi River. It was formerly ruled by the Pathanian clan of Tomara Rajputs since 11th century AD by Rana Bhet or Jat Pal, younger brother of Raja Anangpal II, the Ruler of Delhi, who established himself at Pathankot and subsequently moved to the hills. The capital of the kingdom was at Pathankot formerly known as Paithan in the medieval times, which is now located in Punjab. After crossing the Beas River he captured a fort called Bhet. Later he came upon the city of Pathankot (possibly ancient Pratisthana), and following the traditional custom of Rajputs, in which the King almost in all illustrations acquires his name from the name of the country where he exercised his hegemony, he came to be known as a Pathania Rajput, instead of a Tomara .Pathania is the epithet of the branch of the Tomara (Tanwar, Tuar) Clan of Chandravanshi, Dogra Rajputs, descended from Lord Arjuna, the hero of Mahabharata.It is one of the ruling Rajput clans of India. They mostly live in and around Himachal Pradesh, in North India. The Pathania clan entrenched the Kingdom of Nurpur in Himachal Pradesh, in the 11th century and ruled it until 1849 A.D. Later the capital was transferred from Pathankot to Dhameri (current Nurpur) during the reign of Raja Basu Dev(1580-1613).

Figure-1: Map contains layers of Pre Historic Period till Current Scenario



Source: Author

HISTORICAL BACKGROUND
Raja Bhakht Mal (1513-1558) was succeeded by Raja Pahari Mal (1558/1580), his brother and latter by his son Basu Dev. Subsequently under the rule of Raja Basu capital moved to Nurpur maybe after the completion of the Fort, as the known accounts or literary sources distinctly indicate it was originally known as Dahmeri or

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Dhamala(According to Randhawa), situated on the left side of the river Ravi. Earlier during the reign of Raja Jaspal(1313-1353) to Raja Pahari Mal(1558-1580) Dahmeri was supposed to be a peaceful territory. In all prospect the existing fort overlooking the Jabbar Khad, tributary of the Chakki, was built on the ancient fort by Raja Basu Dev(1580-1613) and destroyed by army of Jahangir when the rebellious Suraj Mal(1613-1618), son of Raja Basu Dev, was suppressed by the Emperor. Also as quoted by some of the local natives of Nurpur that the name was given in honor of NurJahan, the Mughal Queen of Jahangir's visit way back from Kangra by Raja Jagat Singh(1618-1646) who was contemporary of the Ruler. NurJahan was so impressed by the natural beauty of the place that she bestowed to build the palace in Nurpur. Raja Jagat Singh knew that if the palace of the Emperor will be built here , he may not be able to carry administrative work independently .So he astutely occupied laborers suffering from some disease and on asking by the Queen that why only diseased people are working , raja told her its due to the bad climate of Nurpur. Petrified she left the idea of settling down and the work was ceased.

Figure 1 shows, the old Nurpur state provides examples of fortification in the provinces of the Mughal Empire which manifest differences from princely practice. Nurpur's rulers were at the height of their powers in the 16th and 17th centuries. At Nurpur town, their capital, they built themselves a fine residential castle with impressive-looking defenses. The main gateway and some of the parts are still enduring.

Today the fort lies in ruins partially demolished but the fort was adjoined to the Old fort by the succeeding Rajas as is evident from the existing fragments of the work as figure 2 shows.

In around 1886 Nurpur fort was excavated by Mr. C.J.Rodgers, Archeological Survey of Punjab, he founded a large structure as basement of a large temple which according to him belongs to some ancient period. The superstructure was composed of decorative floral carvings and sculptures of godly images. It is believed according to be built by Raja Basu and may be destroyed a few years after construction.

Figure-2: Existing ruins at Nurpur fort

Source: Author

Then there is temple (shown in figure 3) known famously as *Thakurdwara* or the Brij Raj Temple which is God Krishna's temple. It is in a much more good condition than the earlier temple. It contains very interesting and fine wall paintings. It is believed to be built by Raja Jagat Singh (168-1646) but according to Khandalavala it was built during the reign of raja Mandhata(1661-1700).

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Figure-3: Existing Brij Raj temple or *Thakurdwara*

Source: Author

Between Rana Bhet and the last Raja of the family thirty generations slipped away. Traces of Lodi dynasty (1451 to 1526) can also marked in the fort in the form of Tomb as shown in fissure 5. During these centuries the rajas of Nurpur were marked by series of rebellions against the foreign invaders, the Great Mughal of Delhi or British army in between of cooperation as shown in figure 6.

Figure 5: Tomb of Lodhi Dynasty

Figure 6: Remains of Mughal & British era

Source: Author

Current Condition of Nurpur Fort

Figure-7: Entrance Gate of fort

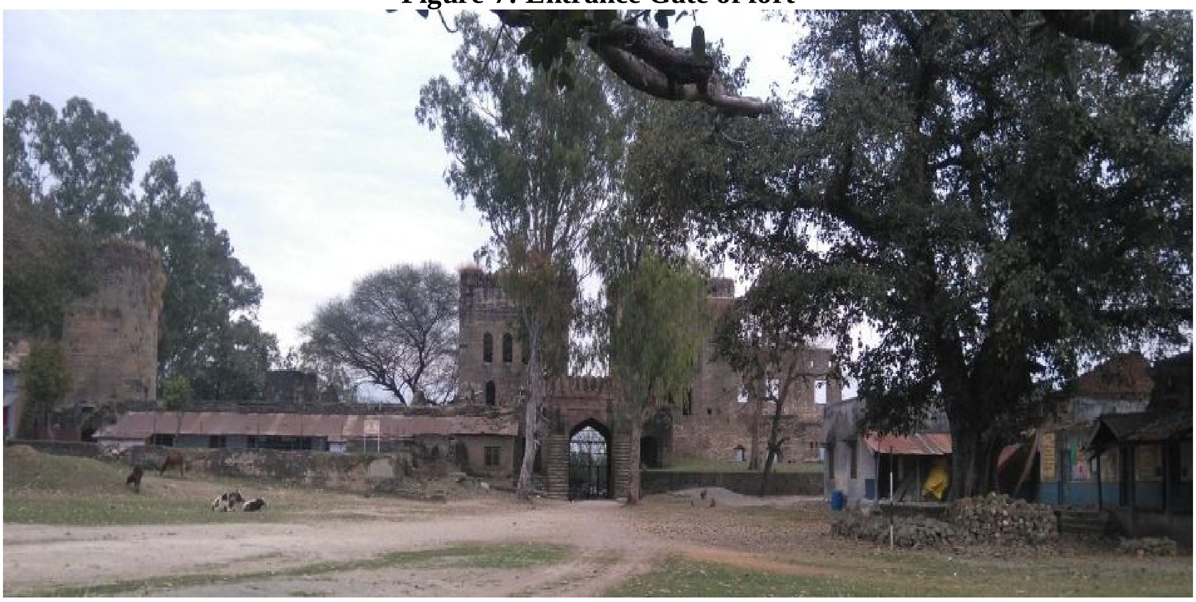

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Figure-8: School premise -encroachment at the fort.

Source: Author

Nurpur Fort is losing its historic value because people are not aware about its historic significance that this fort contains assorted layers of old stories of Rajputs and Mughals under the fortification of this fort and even local government and ASI is not taking interest to restore and to conserve this patrimony.

This Fort is now totally abundant and lies in ruins and some of the areas are encroached by local people of this area in the form of Primary School (figure 8) which is newly constructed inside the fort. The structure of Nurpur Fort in ruins contains a temple and Thakurdwara. Firstly the remains of the temple were excavated from rubble in 1886 by C. J. Rodgers, Archeological Survey to Punjab Government. Only basement appeared after the excavation. It is lavishly decorated with carvings of various floral designs and portrayal of Godly image. The style has been virtue of Hindu-Mughal period.

The temple, popularly known as *Thakurwara* or today is known as Swami Brijraj temple which is a double storied. This temple contains a hall the walls of which are divinely decorated with the paintings of Krishna leela (figure 9) with Gopis and Gwalas. In the small chamber of the hall there is a projection on which an image of Lord Krishna carved out of black marble is placed. The verandah on the ground floor has profusely been painted but many of them have been white washed. Some people have made their residence inside the temple and they are unaware of the importance of this place as shown in figure 10.

Figure-9: Decorative wall painting of Krishna leela at Brijraj temple.

Source: Author

Figure-10: encroachment inside the temple.

Source: Author

It is written in records of ASI that in an earthquake of year 1905 outer walls of this fort and some towers were destroyed and again in year 2012 this fort came under the vision of ASI and some work was also started to restore this fort but it still incomplete and not in proper manner because they white washed one of the tombstone which does not match to the criteria of conserving any historical monument. (figure 11)

Figure-11: incomplete restoration work.

Source: Author

An existing well can be seen in deteriorated condition. There is no signage board which can give proper information to visitors about this fort and there is no guard who can take care of this fort.

CONCLUSION

The purpose and significance of conservation of this fort is to aware people about the importance of Ancient architecture, Rajputana architecture and Mughal Architecture.

According to general rules of heritage buildings with of Grade II importance are preserve the structure with the complete maintenance of the original identity of fort. The aim of conservation is not to solidify a settlement in time or to leave it as an open air museum to portray life of different centuries.

Increasing tourism to historic place has resulted in making awareness in people towards architectural and historic knowledge. Even in Kangra Fort (near Nurpur) ASI should develop some light and sound show and restore its antiquity in form of museum. These activities are an essential element of constructing the identity of site. The most essential challenge for management of consequential site is to successfully preserve the original fabric of the place while at the same time providing a enlightened experience for the visitors as well.

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