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The Chairman speaks ...



The impressive rates of socio-economic growth recorded by our country in the recent years provide great hopes for greater achievements in the future. The government is targeting to put the economy on a nine percent growth trajectory by enhancing it from 7.4 percent recorded in 2009-10 and then to further push it up to double digits.

The country is in need of massive amount of capital for accelerating the growth to the targeted levels. It is in this context that we bring to you the lead study paper in this issue on 'Capital Formation and Economic Growth: Dynamics.'

High economic growth will always lead to much larger demand for energy. With an exploding demand for energy in India and a variety of choices in terms of supply possibilities, the issue is a topic for heated discussion at national and international forums. However, the Indian Government has consciously proceeded to explore the possibility of tapping nuclear energy for power generation. In this context, our second lead study paper 'Energy Requirements: Role of Nuclear Power' becomes topical.

The third paper also deals with economic growth. The remaining articles deal with diverse topics like creativity, stress, branding, advertising, service quality, productivity and the like.

We are sure you will find this issue informative and enlightening.

Dr. G.P.C. NAYAR
Chairman, SCMS Group of Educational Institutions

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Editorial



River of Time

'What is time? If nobody asks me, I know; but if I desired to explain it to any one who should ask me, then plainly I know not,' says St. Augustine.

We are creatures of time. We live our lives in time. Our attempts to grasp time itself seem to run into an impasse.

We think of time following by: We talk of the river of time. We talk of time passing by. We talk of time yet to come. The image is of the moving present.

One moment in this year is present as I write this. But it has no sooner come than it is gone. The special moment, the present, is moving inexorably onwards.

Time flows. What rate does it flow at? Time seems to have no option but to go as it does: one second per second.

The rate at which time flows is suspect. And also the direction it flows in. We imagine the present creeping up on events which are still in the future. Is time flowing not forwards but backwards?

The past has gone; the future is yet to be, so there is only the present.

We think of the present as singled out from all the others. It's the one that is special. It looks that it is the only one that really exists.

Philosophers generally incline to the view that it is best to avoid the metaphor of time's flow and the special nature of the present altogether. All events, past, present, and future exist like flies in amber, with greater or lesser distances between them.



If time's flow is unreal, then what is to prevent us thinking that current events may cause previous ones? Why not we think the later omlette caused the earlier eggs to be broken?

Despite what the philosophers say, one thing is sure in the modern world: the present is the one which is real. It goads us on. It sustains us. It gives us charge. It is the magical force that gives us drive in the sphere of business.

Dr. D. Radhakrishnan Nair

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Capital Formation and Economic Growth: Dynamics

Mishra P.K.

Abstract

The fundamental cause for the low national income and per capita income of the developing countries like India is the low rate of capital formation. This essentially indicates a positive relationship between capital formation and economic growth and particularly, the latter as a function of the former. Thus, this paper investigates the long-run relationship between capital formation and economic growth in India. The study provides the evidence of long-run unidirectional causality running from capital formation to economic growth. This empirical evidence suggests that capital formation in a developing country like India is an important policy instrument in influencing the real economic variables.

In the last few decades, numerous empirical studies have been undertaken to determine the key factors that drive economic growth of a country. In this context, the relation between capital formation and economic growth constitutes a large part of the total problem of economic growth. The economic growth of a country immensely needs capital formation to cater to the needs of financing development projects. Capital formation is a statistical concept, pioneered by Simon Kuznets in the 1930s and 1940s, used in national accounts statistics, econometrics and macro-economics. It is a measure of the net additions to the physical capital stock in an accounting period, or, a

measure of the amount by which the total physical capital stock increases during an accounting period; though it may occasionally also refer to the total stock of capital formed, or to the growth of this total stock. The use of the term

“capital formation” can be somewhat confusing, partly because the concept of capital itself can be understood in different ways. First, capital formation is frequently thought of as a measure of total “investment,” in the sense of that portion of capital actually used for investment purposes and not held as savings or consumed. But in fact, in national accounts, the concept of gross capital formation refers only to the accounting value of the additions of non-financial



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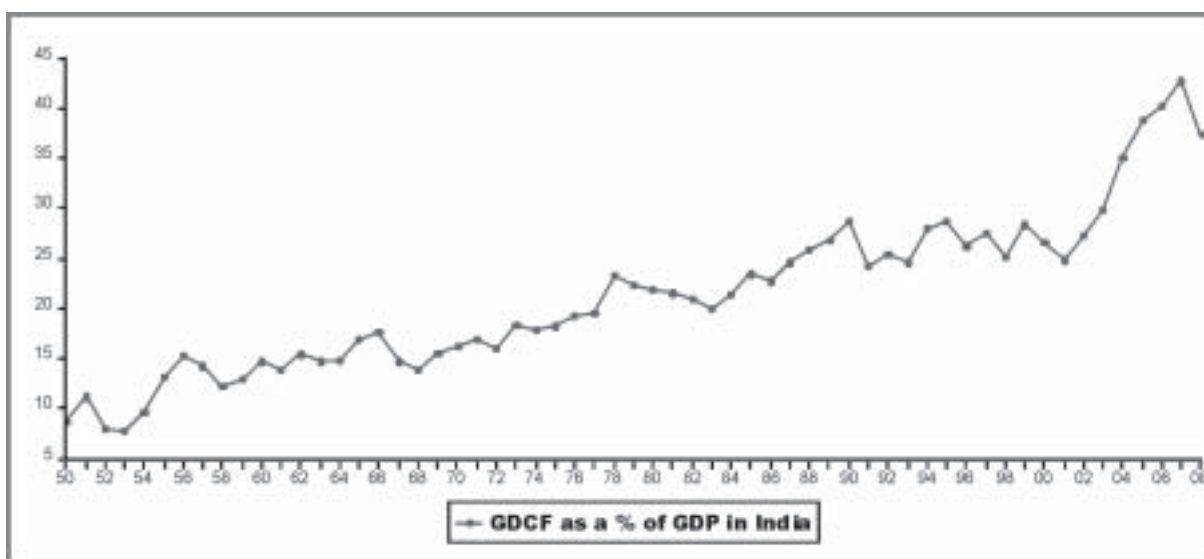
produced assets to the capital stock less the disposals of these assets. "Investment" is a broader concept that includes investment in all kinds of capital assets, whether physical properties or financial assets. Second, capital formation may be used synonymously with the notion of capital accumulation in the sense of a re-investment of profits into capital assets. But "capital accumulation" is not an accounting concept in modern accounts (although it is sometimes used by the IMF and UNCTAD), and contains the ambiguity that an amassment of wealth could occur either through a redistribution of capital assets from one person or institution to another, or through a net addition to the total stock of capital in existence. As regards capital accumulation, it can flourish, so that some people get much wealthier, even although society as a whole becomes poorer, and the net capital formation decreases. In other words, the gain could be a net total gain, or a gain at the expense of loss by others that cancels out (or more than cancels out) the gain in aggregate. Third, gross capital formation is often used synonymously with gross fixed capital formation but strictly speaking this is an error because gross capital formation refers to more asset gains than just fixed capital.

The importance of capital formation in securing an accelerated rate of economic growth can hardly be over-emphasized. The fundamental cause for the low national income and per capita income of the developing nations like India is the low rate of capital formation. This essentially indicates a positive relationship between capital formation and economic growth and particularly, the latter as a function of the former.

It is often argued that economic liberalization has ushered the Indian economy in rapid pace of growth and prosperity. It is also posited that economic liberalization has contributed greatly towards improving the productivity and efficiency of the economy. Thus, it would be logical to analyse the long-run relationship between capital formation and economic growth in India for the period 1950-51 to 2008-09 (covering the pre- and post-liberalization period).

During initial years after independence, the Gross Domestic Capital Formation (GDCF) as a percentage of Gross Domestic Product (GDP) at current prices in India was at its lowest at 8.7 percent in 1950-51. This could be considered as a bane

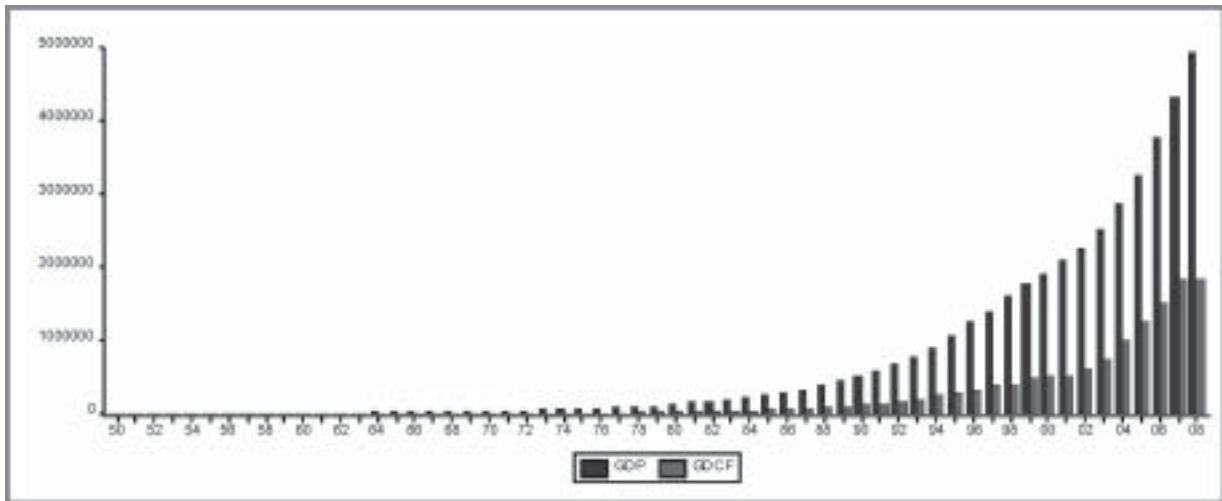
Fig. 1: Gross Domestic Capital Formation as a percent of GDP at Factor Cost and at Current Prices [1950-51 to 2008-09]



of British rule to India. The most surprising achievement was that this lowest rate of gross domestic capital formation could be made about doubled to 17.0 percent in 1966-67 due to the successful implementation of the strategies of five-year plans. However, the first decline in gross domestic capital formation was observed in 1968-69 to the level 13.8 percent. The reason for such decline was the wars India had fought against Pakistan and China (CSO, 2004). But this situation did not last long. Indian economy could make it to revive since 1969-70. The gross domestic capital formation increased to 17.0 percent in 1971-72. Remarkably, the gross domestic capital formation

reached a level of 23.4 percent in the year 1978-79. An adverse performance era was again observed when gross domestic capital formation started declining. It was 22.4 percent in 1979-80 which further declined to 21.9 percent in 1980-81. It had again declined to 20.0 percent in 1983-84 followed by a temporary increase to 23.4 percent in 1985-86. The year 1986-87 witnessed a further decline in gross domestic capital formation to 22.7 percent. And, from this year to 1990-91, the performance of gross domestic capital formation, although was on a positive front, showed a very slow growth. The gross domestic capital formation reached 28.8 percent in 1990-91.

Fig. 2: GDP and GDCF in India [1950-51 to 2008-09]



In the year 1991 India witnessed the implementation of the much awaited economic reforms, well known as New Economic Policies, to improve the macro-economic scenario of the country, both from the domestic and global perspective. These reforms took nearly four years to pull gross domestic capital formation to its previous level of 28.8 percent in the year 1995-96. Thereafter, the growth rate of gross domestic capital formation as percentage of gross domestic product at current prices was neither steady nor firm until it reached 29.9 in the year 2003-04. Since then it showed a substantial increase and reached the level of 42.7 percent in 2007-08. But in 2008-09 the GDCF as a percentage of GDP declined to 37.4 percent which may be due to global recession.

The estimates of Central Statistical Organization (CSO) shows that the Gross Domestic Capital Formation at current prices has increased from Rs.18,65,899 crore in 2007-08 to Rs.19,44,328 crore in 2008-09 and at constant (2004-05) prices, it decreased from Rs.16,22,226 crore in 2007-08 to Rs.15,57,757 crore in 2008-09. The rate of gross capital formation at current prices is 34.9 percent in 2008-09 as against 37.7 percent in 2007-08. The rate of gross capital formation at constant (2004-05) prices is 34.9 percent in 2008-09 as against 38.2 percent in 2007-08.

Thus, it is clear that the increase in gross domestic capital formation as a percentage of the gross domestic product at current prices is not unidirectional. Economists believe

that the current rate of capital formation is still far below to reach economic growth rate of the country a double digit figure.

It is with this backdrop, this paper is an attempt to investigate the long-run relationship between capital formation and economic growth in India for the period 1950-51 to 2008-09. In order to comply with this objective, the paper is structured as follows: following this brief introduction, Section II reviews the related studies; Section III describes the data and methodology of the study; Section IV makes the empirical analysis; and Section V summarizes and concludes the study.

Literature Review

Adam Smith (1776), Ricardo (1817), Harrod (1939), Kaldor (1963), Srinivasan (1964), Jorgenson and Griliches (1967), Kuznets (1973), Marx and Engels (1975), Kendrick (1976), Greenwood and Hercowitz (1991) and many other economists and social thinkers have emphasized the importance of capital formation on economic growth and development through their historic contributions.

Jorgenson and Griliches (1967), Lucas (1988), Blanchard and Fischer (1989), Barro and Sala-i-Martin (1995) have made it clear that capital formation is inalienably related to the issues of technological progress, innovations, and changes in productivity over time and hence, very significant for the economic growth and development of a country.

Maddison (1982), Klein (1983), and Uzawa (1996) explained the significance of capital formation in the international comparisons of economic growth and environmental issues.

Kormendi and Meguire (1985), Barro (1991), De Long and Summers (1991, 1992), and Levine and Renelt (1992) empirically assessed the relationship between fixed capital formation and economic growth in cross-country growth regressions and concluded that the rate of physical capital formation determines the rate of a country's economic growth. However, the cross-country time-series analysis of causality between fixed investment and growth by Blomstrom, Lipsey and Zejan (1996) raised doubts about this conclusion. Their findings suggest the existence of a one-way causal relationship running from growth to fixed

investment, which means that changes in capital formation rates have no influence on future growth rates.

Levine and Renelt (1992) use cross-country data to show that investment is the only variable that is robustly correlated with the growth in output. Whilst most argue the causal link is from investment to output, there is some evidence that output influences investment through an accelerator effect. The possible complex feedback effects and observed variations in productivity are consistent with the endogenous growth view.

King and Levine (1994) provide evidence that capital accumulation alone is neither a necessary nor sufficient condition for the "take-off" to rapid growth.

Hall and Jones (1999) argue that most cross-sectional variation in per capita output is due to variation in the productivity with which factors are combined, rather than differences in factor accumulation.

Ghali and Al-Mutawa (1999) examine the causal patterns between the share of fixed investment in GDP and the growth rate of per capita real GDP on an individual country basis, using time series on each of the group-of-seven countries - Canada, France, Germany, Italy, Japan, the United States and the United Kingdom. The empirical results suggest that the causal relationship between these variables may vary significantly across the major industrialized countries that presumably belong to the same growth group. Most importantly, no consistent evidence is found that causality is running in only one direction. Rather, causality between fixed investment and growth seems to have a country-specific nature and may run in either direction.

Ibrahim (2000) analyzes the productivity of public and private capital formation in a developing economy, Malaysia, using annual data from 1961 to 1995. The analysis is based on neo-classical growth regression, where the transition to the steady-state level of income per capita is modelled using an error correction framework. The results suggest that the public investment has been unproductive over the periods under consideration. Consistent with existing empirical studies, the private investment rate and the export performance of the country are positively related to economic growth.

Pahlavani, Verma and Wilson (2006) estimate the interdependencies between real capital formation, saving and output for Iran in the turbulent years 1960 to 2003. The Johansen FIML estimates for the non-stationary variables indicate significant Solow style relationships between output and saving in the long run, whilst investment is found to be imprecise. The short-run estimates further support the Solow model whereby changes to saving have transitory equilibrating effects on the growth in output. However, investment dynamically Granger causes the short run growth in output, consistent with endogenous growth explanations.

Ray (2007) studies the capital formation in the Indian economy over a 34 year period between 1970 and 2004 and special attention is paid towards any potential impact of economic liberalization on capital formation in India. Economic liberalization is found to have no statistically significant impact on capital formation.

The review of theoretical literature reveals the fact that capital formation is an important determinant of the economic growth of a country. But the existing empirical literature provides paradoxical evidence about the role of capital formation in influencing the economic growth of a nation. This unresolved issue provides only a broad guidance for researchers and policy makers, whose task is made even more difficult when studying developing countries with individual and specific characteristics like that of India. Furthermore, the empirical literature is very thin in investigating the relationship between capital formation and economic growth of a developing nation like India. Therefore, this study aims at examining the long-run relationship between capital formation and economic growth in India for the period 1950-51 to 2008-09.

Data and Methodology

The objective of this study is to investigate the long-run relationship between capital formation and economic growth in India for the period 1950-51 to 2008-09. To this end, the primary model showing the estimation of the long-run relationship between capital formation and economic growth in India is thus specified in its log-linear form as follows:

$$\log GDP_t = \alpha_0 + \alpha_1 \log CF_t + \epsilon_t \dots\dots\dots (1)$$

Where GDP_t as a proxy represents the Economic Growth; CF_t is the Gross Domestic Capital Formation; α' s are constants; t is the time trend; and ϵ is the random error term.

The study employed annual observation expressed in natural logarithms for the sample period spanning from 1950-51 to 2008-09. The variable Economic Growth has been measured by the GDP at factor cost and at current prices (GDP_t). Similarly, the variable Capital Formation has been captured by the Gross Domestic Capital Formation (CF_t). All the annual data pertaining to the study have been obtained from the Handbook of Statistics on Indian Economy published by Reserve Bank of India.

The estimation methodology employed in this study is the cointegration and error correction modelling technique. The entire estimation procedure consists of three steps: first, unit root test; second, cointegration test; third, the error correction estimation.

Unit Root Test

The econometric methodology first examines the stationarity properties of each time series of consideration. The present study uses Augmented Dickey-Fuller (ADF) unit root test to examine the stationarity of the data series. It consists of running a regression of the first difference of the series against the series lagged once, lagged difference terms and optionally, a constant and a time trend. This can be expressed as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \alpha_2 Y_t + \sum_{j=1}^p \alpha_j \Delta Y_{t-j} + \epsilon_t \dots\dots (2)$$

The additional lagged terms are included to ensure that the errors are uncorrelated. In this ADF procedure, the test for a unit root is conducted on the coefficient of Y_{t-1} in the regression. If the coefficient is significantly different from zero, then the hypothesis that Y_t contains a unit root is rejected. Rejection of the null hypothesis implies stationarity. Precisely, the null hypothesis is that the variable Y_t is a non-stationary series ($H_0 : \alpha_2 = 0$) and is rejected when is α_2 significantly negative ($H_a : \alpha_2 < 0$). If the calculated value of ADF statistic is higher than McKinnon's critical values, then the null hypothesis (H_0) is not rejected and the series is non-stationary or not integrated of order zero, I(0). Alternatively, rejection of the null hypothesis implies

stationarity. Failure to reject the null hypothesis leads to conducting the test on the difference of the series, so further differencing is conducted until stationarity is reached and the null hypothesis is rejected. If the time series (variables) are non-stationary in their levels, they can be integrated with I(1), when their first differences are stationary.

Co-integration Test

Once a unit root has been confirmed for a data series, the next step is to examine whether there exists a long-run equilibrium relationship among variables. This is called co-integration analysis which is very significant to avoid the risk of spurious regression. Co-integration analysis is important because if two non-stationary variables are co-integrated, a VAR model in the first difference is mis-specified due to the effects of a common trend. If co-integration relationship is identified, the model should include residuals from the vectors (lagged one period) in the dynamic VECM system. In this stage, Johansen’s co-integration test is used to identify cointegrating relationship among the variables. The Johansen method applies the maximum likelihood procedure to determine the presence of co-integrated vectors in non-stationary time series. The testing hypothesis is the null of non-cointegration against the alternative of existence of cointegration using the Johansen maximum likelihood procedure.

In the Johansen framework, the first step is the estimation of an unrestricted, closed p^{th} order VAR in k variables. The VAR model as considered in this study is:

$$Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \dots + A_p Y_{t-p} + BX_t + \epsilon_t \dots (3)$$

Where Y_t is a k -vector of non-stationary I (1) endogenous variables, X_t is a d -vector of exogenous deterministic variables, A_1, \dots, A_p and B are matrices of coefficients to be estimated, and ϵ_t is a vector of innovations that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right-hand side variables.

Since most economic time series are non-stationary, the above stated VAR model is generally estimated in its first-difference form as:

$$\Delta Y_t = \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-i} + BX_t + \epsilon_t \dots (4)$$

Where, $\Pi = \sum_{i=1}^p A_i - I$, and $\Gamma_i = -\sum_{j=i+1}^p A_j$

Granger’s representation theorem asserts that if the coefficient matrix Π has reduced rank $r < k$, then there exist $k \times r$ matrices α and β each with rank r such that $\Pi = \alpha\beta'$ and $\beta'Y_t$ is I(0). r is the number of co-integrating relations (the *co-integrating rank*) and each column of β is the co-integrating vector. α is the matrix of error correction parameters that measure the speed of adjustments in ΔY_t .

The Johansen approach to cointegration test is based on two test statistics, viz., the trace test statistic, and the maximum eigenvalue test statistic.

A. Trace Test Statistic:

The trace test statistic can be specified as:
 $\tau_{trace} = -T \sum_{i=r+1}^k \log(1-\lambda_i)$, where λ_i is the i^{th} largest eigenvalue of matrix Π and T is the number of observations. In the trace test, the null hypothesis is that the number of distinct cointegrating vector(s) is less than or equal to the number of cointegration relations (r).

B. Maximum Eigenvalue Test

The maximum eigenvalue test examines the null hypothesis of exactly r cointegrating relations against the alternative of $r + 1$ cointegrating relations with the test statistic: $\tau_{max} = -T \log(1-\lambda_{r+1})$, where λ_{r+1} is the $(r+1)^{th}$ largest squared eigenvalue. In the trace test, the null hypothesis $r=0$ of is tested against the alternative of $r+1$ cointegrating vectors.

It is well known that Johansen’s cointegration test is very sensitive to the choice of lag length. So first a VAR model is fitted to the time series data in order to find an appropriate lag structure. The Akaike Information Criterion (AIC), Schwarz Criterion (SC) and the Likelihood Ratio (LR) test are used to select the number of lags required in the cointegration test.

Vector Error Correction Model (VECM)

Once the cointegration is confirmed to exist between variables, then the third step requires the construction of error correction mechanism to model dynamic relationship. The purpose of the error correction model is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state.

A Vector Error Correction Model (VECM) is a restricted VAR designed for use with non-stationary series that are known to be cointegrated. Once the equilibrium conditions are imposed, the VECM describes how the examined model is adjusting in each time period towards its long-run equilibrium state. Since the variables are supposed to be cointegrated, then in the short-run, deviations from this long-run equilibrium will feedback on the changes in the dependent variables in order to force their movements towards the long-run equilibrium state. Hence, the cointegrated vectors from which the error correction terms are derived are each indicating an independent direction where a stable meaningful long-run equilibrium state exists.

The VECM has cointegration relations built into the specification so that it restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationship while allowing for short-run adjustment dynamics. The cointegration term is known as the error correction term since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments. The dynamic specification of the VECM allows the deletion of the insignificant variables, while the error correction term is retained. The size of the error correction term indicates the speed of adjustment of any disequilibrium towards a long-run equilibrium state.

In this study the error correction model as suggested by Hendry has been used. The general form of the VECM is as follows:

$$\Delta GDP_t = \beta_1 \sum_{i=1}^n \Delta GDP_{t-i} + \beta_2 \sum_{i=1}^n \Delta CFI_{t-i} + \lambda EC_{t-1} + \varepsilon_t \dots \dots (5)$$

Where Δ is the first difference operator; EC_{t-1} is the error correction term lagged one period; λ is the short-run coefficient of the error correction term ($-1 < \lambda < 0$); and ε is

the white noise. The error correction coefficient (λ) is very important in this error correction estimation as greater the co-efficient indicates higher speed of adjustment of the model from the short-run to the long-run.

Empirical Analysis

At the outset, the Pearson's correlation coefficient between economic growth as measured by GDP and capital formation as measured by GDCF has been calculated over the sample period and its significance has been tested by the t-test.

The value of Pearson's correlation coefficient (r) between these two time series over the sample period is 0.99. It shows that capital formation and economic growth are positively related in India and that to a very high degree of correlation is evident between these two variables. To test whether this value of 'r' shows a significant relationship between two time series, student's t-test has been used. The null hypothesis of the test is $r \neq 0$ against the alternative of $r = 0$. Since the t-statistic at 56 degrees of freedom is 52.539 and the critical value of t at five percent level of significance is less than it, the null hypothesis is rejected. So, it can be said that the correlation between capital formation and economic growth is statistically significant. Correlation, however, does not say anything about long-run relationship and thus, leaves unsettled the debate concerning the long-run relationship between capital formation and economic growth.

Before proceeding with the empirical analysis, it is required to determine the order of integration for each of the two variables used in the analysis. The Augmented Dickey-Fuller unit root test has been used for this purpose. And, the results of such test are reported in Table -1.

It is clear from the Table-1 that the null hypothesis of no unit roots for both the time series are rejected at their first differences since the ADF test statistic values are less than the critical values at ten percent, five percent and one percent levels of significances. Thus, the variables are stationary and integrated of same order, i.e., I(1).

In the next step, the cointegration between the stationary variables has been tested by the Johansen's Trace and Maximum Eigenvalue tests. The results of these tests are shown in Table-2.

Table 1: Results of Augmented Dickey-Fuller Unit Root Test

Variables in their First Differences with trend and intercept	ADF Statistic	Critical Values	Decision
GDP_t	-6.62	At 1% : -4.13 At 5% : -3.49 At 10% : -3.17	Reject Null hypothesis of no unit root
CF_t	-8.23	At 1% : -4.13 At 5% : -3.49 At 10% : -3.17	Reject Null hypothesis of no unit root

Table 2: Results of Johansen’s Cointegration Test (GDP_t & CF_t)

Hypothesized Number of Cointegrating Equations	Eigen Value	Trace Statistics	Critical Value at 5%(p-value)	Maximum Eigen statistics	Critical Value at 5%(p-value)
None	0.421226	50.54571	25.87211(0.0000)	30.62319	19.38704(0.0008)
At Most 1	0.299359	19.92251	12.51798(0.0025)	19.92251	12.51798(0.0025)

Table 3: Vector Error Correction Model

$$\Delta GDP_t = 0.1018\Delta GDP_{t-1} + 0.0096\Delta CF_{t-1} - 0.0014EC_{t-1}$$

Coefficient	Independent Variable	Estimated Coefficient	t-value	p-value
β_1	ΔGDP_{t-1}	0.101799	0.71322	0.478671
β_2	ΔCF_{t-1}	0.009618	0.16821	0.867024
λ	EC_{t-1}	-0.001365	-5.87054	0.0000002

The Trace test indicates the existence of two cointegrating equations at five percent level of significance. And, the maximum eigenvalue test makes the confirmation of this result. Thus, the two variables of the study have long-run equilibrium relationship between them. But in the short-run there may be deviations from this equilibrium and we have to verify whether such disequilibrium converges to the long-run equilibrium or not. And, vector error correction model can be used to generate this short-run dynamics.

The estimation of an error correction model requires selection of an appropriate lag length. The number of lags in the model has been determined according to Akaike Information Criterion (AIC). The lag length that minimizes the AIC is one. Then an error correction model with the computed t-values of the regression coefficients is estimated and the results are reported in Table-3.

It is clear that a short-run increase of capital formation as measured by gross domestic capital formation per one percent induces an increase in economic growth by 0.96

percent in India. The estimated coefficient of error-correction term (EC_{t-1}) is statistically significant and has a negative sign, which confirms that there is not only any problem in the long-run equilibrium relation between the independent and dependent variables in 5 percent level of significance, but its relative value (-0.0013) for India shows the rate of convergence to the equilibrium state per period. Precisely, the speed of adjustment of any disequilibrium towards a long-run equilibrium is that about 0.13 percent of the disequilibrium in GDP is corrected each year.

Furthermore, the negative and statistically significant value of error correction coefficient indicates the existence of a long-run causality between the variables of the study. And, this causality is unidirectional in our model being running from the GDCF to the GDP. In other words, the changes in GDP can be explained by Capital Formation.

The coefficients of the first difference of GDP and CF lagged one period in Table-3 are statistically insignificant which indicate the absence of short-run causality from GDCF to

Table 4: Results of Granger Causality Test

Null Hypothesis	F-Statistic	Probability	Decision
Δ GDP does not Granger Cause Δ CF	0.47646	0.62377	Accept
Δ CF does not Granger Cause Δ GDP (Number of lags = 2)	2.75529	0.07326	Accept

GDP based on VECM estimates. In order to confirm the result of the short-run causality between GDP and GDCF based on VECM estimates, a standard Granger causality test has been performed based on F-statistics.

The result in Table-4 indicates that capital formation does not Granger because the GDP at the five percent level of significance. This result supports the previous result obtained from VECM that there is no short-run causality at the five percent level of significance. Based on this causality tests, changes in the capital formation cause changes in the GDP in the long-run, but not in the short run.

Conclusion

In this paper, the relationship between the capital formation and economic growth for a developing country like India is investigated using popular time series methodologies. In this study capital formation is measured in terms of Gross Domestic Capital Formation (GDCF) and economic growth in terms of Gross Domestic Product (GDP). The data properties are analysed to determine the stationarity of time series using the Augmented Dickey-Fuller unit root test which indicates that the two series are I(1). The results of the Cointegration test based on Johansen's procedure indicate the existence of the Cointegration between GDP and GDCF.

Therefore, the two variables have a long-run equilibrium relationship and it exists, although they may be in disequilibrium in the short-run. The vector error correction model based on VAR indicates that about 0.13 percent of disequilibrium is corrected each year. In addition, the negative and significant error correction term in GDP equation supports the existence of a long-run equilibrium relationship between GDCF and GDP. Furthermore, the estimates of the VECM indicate the existence of a unidirectional causality running from GDCF to GDP. The Granger causality test indicates that there is a causal relationship running from GDCF to GDP in the long-run but not in the short-run.

This result infers that the gross domestic capital formation may be a promising means of accelerating the pace of the growth of GDP in India. Therefore, capital formation can be considered an important policy instrument to have an effect on the real economic variables in India.

Keywords: Capital Formation, Economic Growth, India, Co-integration, Error Correction Model, Granger Causality

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Energy Requirements: Role of Nuclear Power

Magesh R. and Rajeswari M.

Abstract

The reforms initiated in India since the beginning of the nineties of the last century have led to rapid economic progress and better growth rates. In the first decade of this century the growth rates seem to be still better. Studies by several academics and consultants forecast continued higher growth rates. For a large country like India, no single energy resource or technology constitutes a panacea to address all issues related to our energy needs. Available sources are low carbon fossil fuels, renewable and nuclear energy and all these should be subject of increased level of research, development, demonstration and deployment. In the Department of Atomic Energy a study was conducted with the aim to quantify the likely growth in energy demand in India, and the role nuclear energy has to play in the decades to come. The ultimate objective was to formulate a strategic plan to meet the projected role to be played by nuclear energy.

Energy, particularly electricity, is a key input for accelerating economic growth. The present per capita electricity generation in India is about 600 kWh per year.

Since 1990s, India's gross domestic product (GDP) has been growing quite fast and it is forecast that it will continue to do so in the coming several decades. GDP growth has to be accompanied by growth in consumption of primary energy as well as electricity. India's population continues to rise and could reach 1.5 billion by the middle of the century. This calls for developing a strategy for growth of electricity generation based on a careful examination of all issues

related to sustainability, particularly abundance of available energy resources, diversity of sources of energy supply and technologies, security of supplies, self sufficiency, and security of energy infrastructure, effect on local, regional and global environment, health externalities and demand side management.

As elsewhere in the world, the energy and electricity growth in India is closely linked to growth in economy. One may notice this by comparing per capita electricity consumption and GDP in PPP US \$ (purchasing power parity US \$) of various countries in the neighbourhood as well as in other



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regions of the world. Key World Energy Statistics published by the International Energy Agency gives detailed information about electricity consumption in various countries and GDP in 1995 PPP US \$. India's electricity consumption based on data from utilities is given as 408 kWh per year per capita for the year 2001, while GDP per capita in PPP US \$ is given as 2138. Corresponding figures for Indonesia are 423 and 2684, for Thailand 1563 and 5833, for Malaysia 2824 and 7645, and for Singapore 7677 and 20426. For OECD countries these numbers are 7879 and 21785. Here one may note a correlation between per capita GDP and per capita electricity consumption.

At the time of independence in the year 1947, total installed electricity generation capacity was 1,363 MWe. It rose to 30,214 MWe in the year 1980-81, to 66,086 MWe in the year 1990-91 and to 138,730 MWe on 31st March 2003, the corresponding growth rates being 9.54 percent per year, 8.14 percent per year and 6.26 percent per year. The average growth rate over the entire period, thus, has been an impressive 8.6 percent per year. Various constraints, particularly poor hydrocarbon resource base, have forced an increased reliance on energy imports, which have grown at the rate of about 7.1 percent per year. The electricity sector also has experienced severe shortages during the above period despite an impressive growth. During the year 2000-01, there was an average electricity shortage of 7.8 percent and a peak power demand shortage of 13 percent. It has now increased to 10 percent and 15 percent respectively.

The present study has been carried out with this objective. In this study, after making brief remarks on the population projection, we review projections about India's energy demand growth rates based on other studies and present our projection about electricity growth rate and a strategy to meet the projected demand.

Research Background

1.1 Population Projection

According to the recent census, India's population has increased from 0.843 billion in the year 1991 to 1.027 billion in the year 2001. It represents an average annual growth rate of 1.99 percent per year for the ten years. According to a study published by the United Nations, depending on the population growth scenario, India's population will cross 1.88 billion (high variant), 1.57 billion (medium variant) or 1.2 billion (Low variant) in the year 2050.

1.2 Primary Energy and Components

During the fiscal year 2002-03 the estimated total available energy was 18.96 EJ (Domestic 15 EJ, Imported 3.96 EJ). Out of the total, about 71 percent (13.46 EJ) was the commercial component and 29 percent (5.49 EJ) non-commercial. During the year 2001, the commercial primary energy consumption in the world was about 382 EJ. India's consumption was merely 3.4 percent (U.S.A. 24.5 percent) of world's commercial energy consumption.

1.2.1 Coal and Lignite

India has large reserves of coal and is the third largest coal producing country of the world. As per the estimates of the Geological Survey of India, total gross in situ coal reserves in the country are 245.53 BT (Proven: 93.79, Indicated: 109.50 and Inferred: 42.24). India's requirements of coking coal are almost entirely fulfilled by imports.

1.2.2 Oil and Natural Gas

The Ministry of Petroleum and Natural Gas has set strategic goals for the next two decades (2001-2020) of 'Doubling Reserve Accretion' to 12 BT (O+OEG)' and 'Improving Recovery Factor to the order of 40 percent.' Considering that India is one of the least explored countries for oil and gas and the present thrust by GOI in this area, it is assumed that cumulative availability of hydrocarbons up to the year 2052 would be nearly 12 BT of (O+OEG).

1.2.3 Hydro Energy

A vision paper prepared by the Ministry of Power envisions harnessing of entire balance hydro power potential of India by the year 2025-26. It is proposed to add 16 GWe of new capacity in the Tenth Plan and 19.3 GWe in the Eleventh Plan.

1.2.4 Non-conventional Renewable Energy

The estimated potential of non-conventional renewable energy resources in our country is about 100 GWe. Wind, small Hydro and Biomass Power/ Co-generation have potentials of 45 GWe, 15 GWe and 19.5 GWe respectively; Solar PV, Solar Thermal and Waste-to-Energy being the other important components. The medium term goal is to ensure that 10 percent of the installed

capacity to be added by the year 2012, i.e. about 10 GWe, comes from renewable sources.

1.2.5 Nuclear Energy

These are Reasonable Assured Resources (RAR), Estimated Additional Resources-I (EAR-I), Estimated Additional Resources-II (EAR-II) and Speculative Resources (SR). Uranium reserves in India pertaining to categories RAR, EAR-I and EAR-II are estimated to be about 95,000 tonnes of metal.

This uranium on multiple recycling through the route of Fast Breeder Reactors (FBR) has the potential to provide about 42,200 GWe-yr assuming utilization of 60 percent of heavy metal, percentage utilization being an indicative number. Actual value will be having the potential of about 150,000 GWe-yr, which can satisfy our energy needs for a long time.

A three-stage nuclear power programme has been chalked out in the Department of Atomic Energy to systematically exploit all these resources. It is planned to install a nuclear power capacity

of about 20 GWe by the year 2020. It is envisaged that four more such units will be constructed by the year 2020 as a part of the programme to set up about 20 GWe by the year 2020.

1.2.6 New Fuel Resources and Technologies

With enhanced exploration and mining, in tune with the trend so far, it is likely that new deposits of coal and hydrocarbons will be discovered and situ coal gasification.

1.3 Identified Problem (Electricity Demand)

Many national and international agencies have made projections of energy demands of India. We first present a survey of various studies and then give our projections.

1.3.1 A Survey of Various Studies

There is a considerable spread in energy demand forecasts made for India by various investigators. Some important forecasts/scenarios are summarized in Table 1.

Table 1: A Survey of Energy Growth Rate Projections for India

	Investigator	Period of Projection	Primary Commercial Energy Growth Rate (%/Y)	Electrical Energy Growth Rate (%/Y)
1	SCE-India	2002-2012	4.3	
2	TERI-India	1997-2019	4.5	5.7
		2020- 2047	3.7	3.9
3	IEO-USA ¹	1997- 2020	4.5	4.5
4	EAGJ-Japan	1990- 2025	3.9	....
		2026- 2050	2.4	....
		2051-2100	1.8	....
5	IEEJ-Japan	1999-2020	5.2	5.4
6	RS&RAE-UK	until 2026	....	4.0
		until 2050	....	3.0
		2051-2100	....	2.0
7	CEA-India	1997- 2012	....	6.5
8	Present Study	2002- 2022	4.6	6.3
		2022-2032	4.5	4.9
		2032-2042	4.5	4.5
		2042- 2052	3.9	3.9

The Energy and Resources Institute (TERI) carried out an analysis of the Indian energy scenario and suggested strategies for sustainable development. In their base case scenario the primary energy growth rate was taken as 4.4 percent per year during the period 1997-2019 and 3.6 percent per year during the period 2020-2047.

The International Energy Outlook 2002 (IEO) of the United States predicts for India a reference primary energy consumption growth rate of 3.6 percent per year during the period 1997 to 2020.

Under the project "A Long-term Perspective on Environment and Development in the Asia-Pacific Region" of the Environment Agency of the Government of Japan the primary energy consumption growth rates, for India, were projected to be 3.9 percent per year till the year 2025, 2.6 percent per year till the year 2050 and 1.8 percent per year till the year 2100 under their high estimate category. Similar growth rates have been assumed for India in another study "US-Japan Energy Cooperation to Help Achieve Sustainable Development in Asia."

The primary and electricity energy growth rate forecasts made by the Institute of Energy Economics of Japan (IEEJ), for India, are 5.2 percent per year and 5.4 percent per year respectively for the forthcoming twenty years. The Royal Society and The Royal Academy of Engineers of the United Kingdom in their study on the role of nuclear energy in generating electricity have referred to Morrison's projections of world energy requirement. For the developing nations, those are based on four percent per year until the year 2026, three percent per year until the year 2050 and two percent per year for the rest of the century.

In India, Central Electricity Authority (CEA) undertakes periodic electric power surveys (EPS) to make projections of the energy requirements of the country. These estimates guide the planning process for the capacity additions. CEA released its report on the 16th electric power survey in January 2001 and projected electricity growth requirement, for the period 1997-2012, to be about 6.5 percent per year and 7.4 percent per year in its two scenarios. Beyond the year 2050, most of the energy growth forecasts are around one to two percent per year.

1.3.2 Demand Projection: An Overview

Energy-GDP elasticity, the ratio of the growth rates of the two, remained around 1.3 from early fifties to mid-seventies. Since

then it has been continuously decreasing. Electricity-GDP elasticity was 3.0 till the mid-sixties. Extrapolating the electricity intensity fall from past data till the year 2022 and subsequently a constant fall of 1.2 percent per year the growth rates of the primary energy and electrical energy have been estimated by us as follows.

Based on the growth rates, per capita electricity generation would reach about 5300 kWh per year in the year 2052 and the total about 8000 billion kWh. By then the cumulative energy expenditure will be about 2400 EJ. The ratio of thermal equivalent of electrical energy to the primary commercial energy will rise from about 57 percent in the year 2002-03 to about 65 percent in the year 2052-53, the target of generating about 8000 billion kWh per year by 2052 is achievable.

1.4 Need for the study (Meeting the demand projection)

The present status of various fuel-resources in India is given in Table 2.

The domestic mineable coal (about 38 BT) and the estimated hydrocarbon reserves (about 12 BT) together may provide about 1200 EJ of energy. To meet the projected demand of about 2400 EJ, one has to tap all options including using the known fossil reserves efficiently. Reference scenario assumes that while import of reactors having an installed capacity of 8000 MWe by the year 2020 included in the plans of the Department of Atomic. Reference scenario also assumes that fast breeder reactors to be set up beyond 2020 would be based on metal fuels having short doubling time. Other cases considered included no imports of reactors beyond the two already contracted, and development of ADS by 2030.

1.4.1 Imports

At present, India imports about 30 percent of its commercial energy. It is desirable that in future also the import content is limited to about the same level. India is importing coal, hydrocarbons as well as enriched uranium. Possibilities for importing gas through a pipe line from Central Asia or Middle East are being talked about, but in view of strategic constraints no firm plans are in place. It is worthwhile to compare import of nuclear fuel with the import of other forms of fuel (Table3).

Table 2: India’s Energy Resource Base

	Amount	Thermal Energy	Electricity Potential		Amount
Fossil					
Coal ^{1[9]}	38 - BT	667	185,279	21,151	7,614
Hydrocarbon ^{2[10]}	12 - BT	511	141,946	16,204	5,833
Non-Fossil					
<i>Nuclear^{3[11]}</i>					
Uranium-Metal	61,000 - T				
In PHWR		28.9	7,992	913	328
In Fast Breeders		3,699	1,027,616	117,308	42,231
Thorium-Metal	2,25,000 -T				
In Breeders		13,622	3,783,886	431,950	155,502
<i>Renewable</i>					
Hydro ^{4[12]}	150 - GWe	6.0	1,679	192	69
Non-conv. Ren. ^{5[13]}	100 - GWe	2.9	803	92	33

Figure 1: Resource Projection

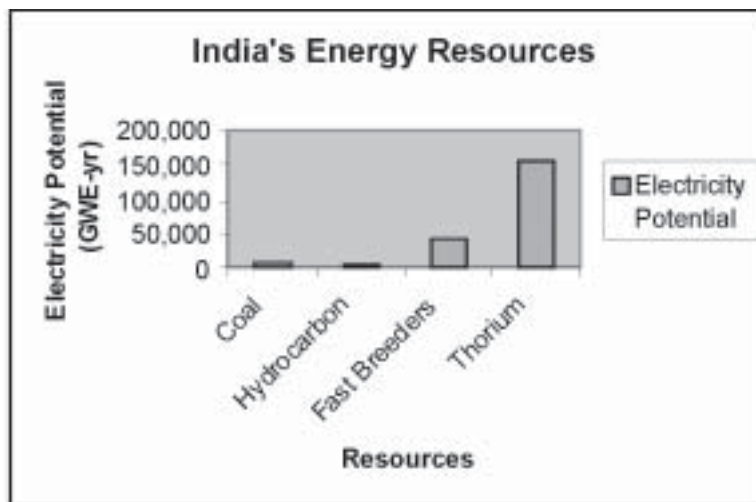


Table 3: Cost of Imported Fuel

Fuel	Rs./Tonne	Billion US \$/EJ
Naphtha at Indian port	13,470	5.86
L.N.G. at Indian port	12,500	5.80
Coal at Indian port	2,346	1.67
Nat.-U (U ₃ O ₈) at International market	11,00,000	0.04

1.4.2 Economics and Environment

An internal study done by Nuclear Power Corporation of India Ltd. (NPCIL) indicates that nuclear power is competitive as compared to coal fired thermal power, when the nuclear plant is about 1000 km from the pit-head.

1.5 Objective and Scope

The existing capacity of electricity generation is unable to cope with the demand and thus results in shortage of power. There are three resources of power generated in India (eg) Hydral Thermal and Nuclear. Hydral power has its own limitations which depend on seasonal rain. In Thermal power depletion of cold resources limits its capability. Where as the Nuclear power which is eco-friendly, employees less man power due to automation and availability of abundant resources of Uranium and Thorium internal sources and externally by the reason 123 agreement is the valuable option in full-filling the energy demand under rapid industrialists.

2. Literature Survey

Estimated from data given in 'Energy' published by Centre For Monitoring Indian Economy Pvt. Ltd., Mumbai: April 2002.

A.K. Nema, B.K. Pathak and R.B. Grover. "India – Nuclear Power for GHG Mitigation and Sustainable Energy Development." *Nuclear Power for Greenhouse Gas Mitigation*. International Atomic Energy Agency, November, 2000.

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Human Development Report, Page 213-215, Oxford University Press – 2002. This report is in 7 volumes. The volume 1 is the general report and can be downloaded from Tenth Plan Proposals, Report of Working Group R & D Sector, <http://www.cea.nic.in/hpid/preliminary_ranking_study_of_hyd.htm> June 2001, DAE, GOI Edwin Cartlidge, "Nuclear Alchemy." *Physics World*. June 2003, Page 8.

Disha-Green India 2047, Page 249, TERI 2001.

3. Methodology

3.1 Type of the Project

Explorative type using secondary data from the departments of Government of India.

3.2 Target Respondents

Various State Governments experiencing the power crisis.

3.3 Assumption Constrain and Limitation

As most of the Hydral power situated in the North East region. Hydral Power as its limitations and past depletion of fossil fuel limits the thermal power expansion.

3.4 Sampling Methods

Secondary data in the form of tables collected from the departments of Government of India.

3.5 Tools for Analysis

Statistical tools using graphs, charts bar-graph and excel analysis.

4. Data Analysis and Interpretation

4.1 Analysis

Analysis of tables using the statistical tools such as charts from the MS 2007 and SPSS software.

4.2 Projection of demand and various resources to meet the projected demand.

Table 4: Population Projection

Year	Av.Gr. Rate *(%/yr)	Population**(Billion)
1991	1.99	0.843
2001	1.50	1.027
2011	1.02	1.19
2021	0.70	1.32
2031	0.40	1.41
2041	0.20	1.47
2051	0.00	1.50

Table 5: External Costs

Fuel	Costs (mEcu/kWh)	Equivalent lives lost (per GWe-year)
Coal	18 -150	213
Lignite	35 - 84	138
Oil	26 -109	213
Gas	5.0 - 31	27
Wind	0.5 - 2.6	5
Hydro	0.8 - 7	2
Biomass	1.2 - 29	51
Nuclear	2.5 - 7.3	1

Adapted by IAEA (H-H Rogner) from European Commission Externa Project 1998

Table 6: Capacity Factors and Thermal to Electrical Energy Conversion Efficiency

Year	Capacity Factor				Efficiency
	Thermal	Hydro	Non-conv	Nuclear	
2002	0.7	0.38	0.14	0.80	0.30
2022	0.7	0.46	0.33	0.80	0.36
2032	0.7	0.46	0.33	0.80	0.36
2042	0.7	0.46	0.33	0.85	0.36
2052	0.7	0.46	0.33	0.85	0.38

The efficiencies quoted here have been used for calculation of Primary Energy-equivalents of hydro, nuclear and non-conventional renewable electricity produced.

Table 7: Primary and Electrical Energy – Projected Growth

Year	Popul- ation	Coal + Lignite	Hydro- carbon	Hydro	Nucl- ear	Non- conv-	Prim. Energy Ren	Electricity			Elec/ Pri- mary %
	Billion	EJ	EJ	EJ	EJ	EJ	EJ	EJ (ET)	TWh	Per Cap kWh	
2002	1.04	6.40	6.02	0.79	0.23	0.03	13.46	7.65	638	614	57
2022	1.33	11	13	4.6	2.1	1.6	33	22	2154	1620	66
2032	1.42	19	19	6	4.4	2.0	51	35	3485	2454	68
2042	1.47	31	30	6	9.8	2.4	80	54	5438	3699	68
2052	1.50	47	41	6	19.4	2.7	117	75	7957	5305	64

For calculating primary energy in EJ equivalent to electrical energy generated by hydro, nuclear or non-conventional renewable sources, efficiencies given in Table 7 have been used. ET stands for equivalent thermal.

Figure 2: Projected and installed Power Capacity

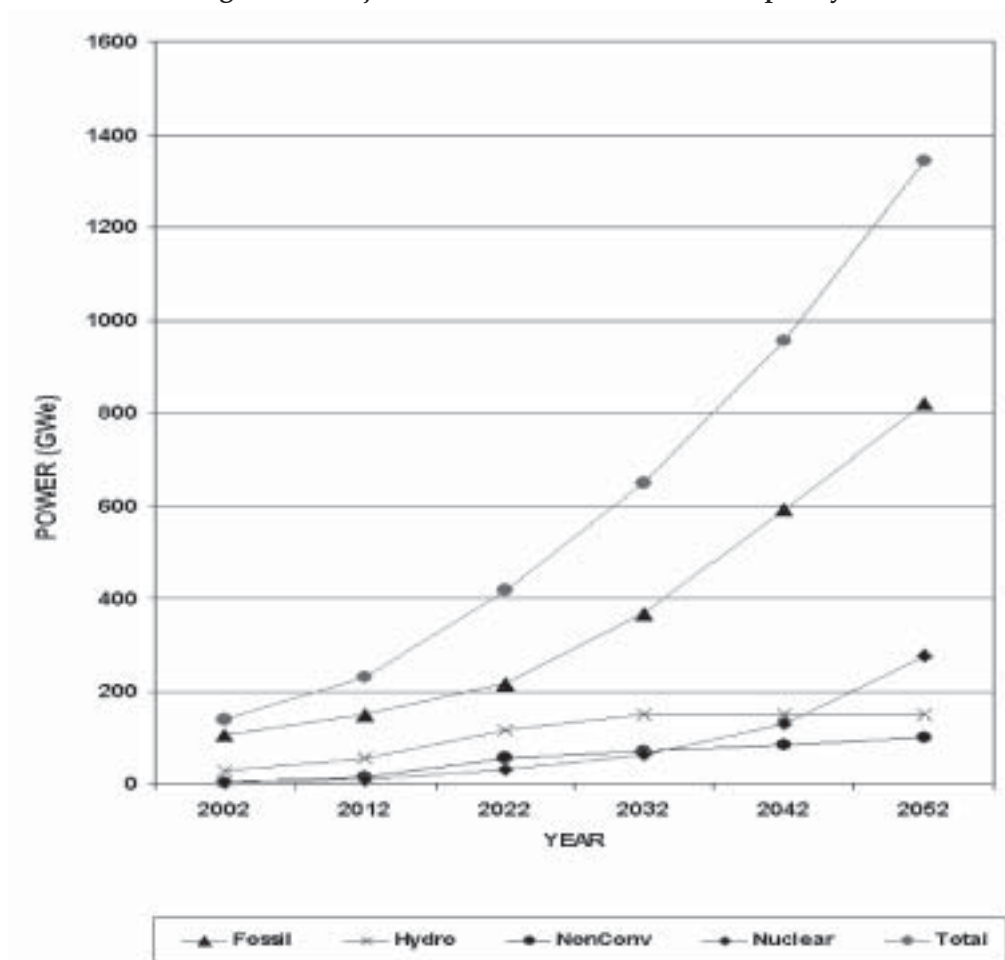


Table 8: Installed Electrical Capacities – Fuel Mix
(Including estimated captive power)

	Coal		Hydro-carbon		Hydro		Non-conv Renewable		Nuclear		Total
	GWe	%	GWe	%	GWe	%	GWe	%	GWe	%	
2002	71.92	51.84	32.81	23.65	27.78	20.02	3.5	2.52	2.72	1.96	138.73
2022	156	37	60	14	115	28	56	13	29	7	417
2032	266	41	101	15	150	23	68	11	63	10	648
2042	436	46	155	16	150	16	82	9	131	14	954
2052	615	46	204	15	150	11	100	7	275	20	1344

Figure 3: Projected Annual Electricity Generation

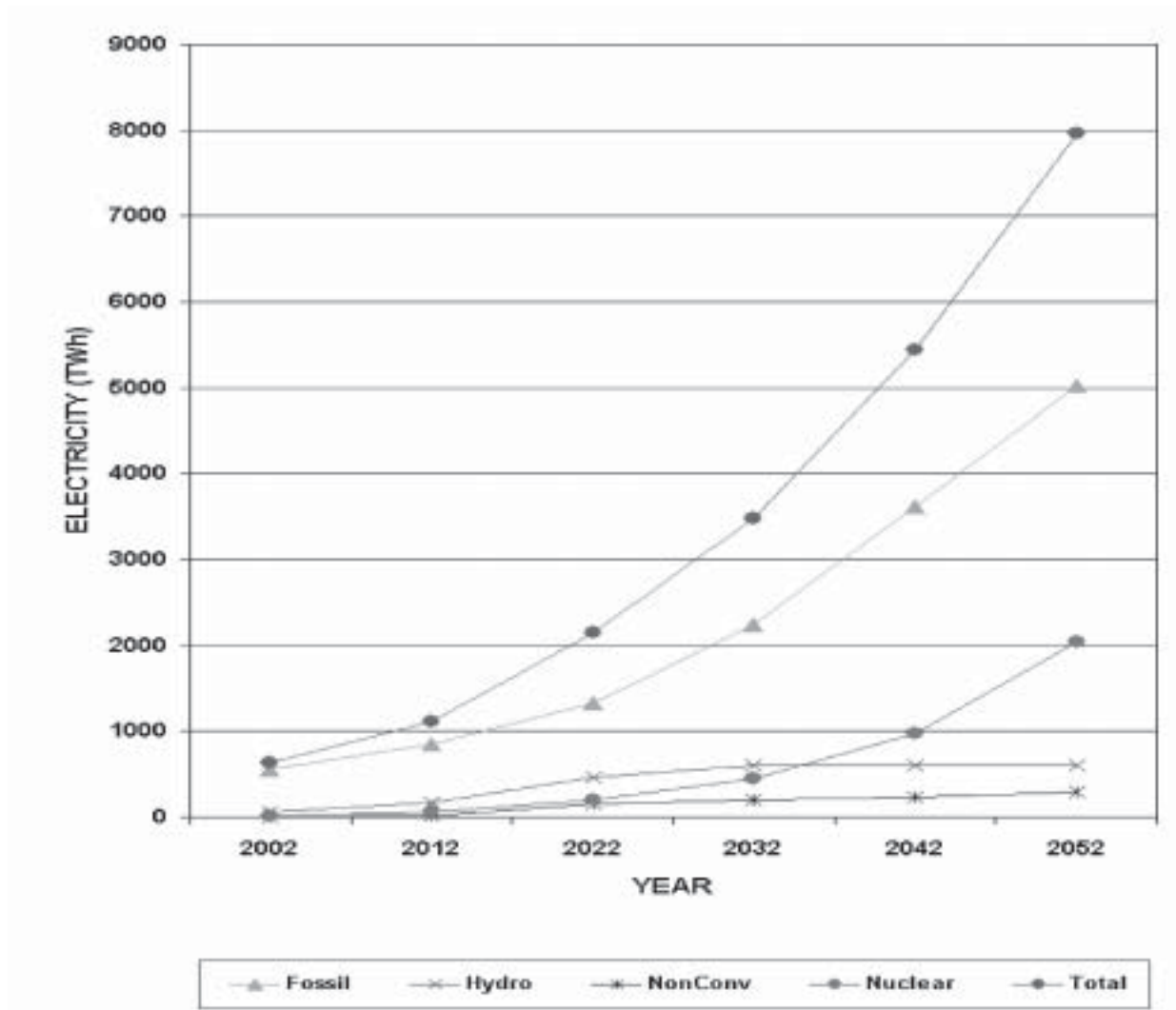


Table 9: Electricity Generation – Fuel Mix
(Including estimated captive power generation)

Year	Coal		Hydro - carbon		Hydro Renewable		Non-conv		Nuclear		Total	Per Cap Elec Gen
	TWh	%	TWh	%	TWh	%	TWh	%	TWh	%			TWh	kWh
2002	425.74	66.69	125.08	19.61	65.66	10.29	2.66	0.42	19.24	3.01	638.38	614
2022	957	44	369	17	460	21	162	8	206	10	2154	1620
2032	1630	47	618	18	600	17	197	6	441	13	3485	2454
2042	2673	49	950	18	600	11	237	4	978	18	5438	3699
2052	3774	47	1250	16	600	8	289	4	2044	26	7957	5305

Table 10: Cumulative Nuclear Power Installed Capacity

Year	PHWR, AHWR and FBR based on Pu from PHWR			LWR and FBR based on Pu from LWR			Sub Total		Grand Total (GWe)
	Thermal (GWe)	Fast (GWe)		Thermal (GWe)	Fast (GWe)		Oxide (GWe)	Metal (GWe)	
		Oxide	Oxide		Metal	Oxide				Oxide	Metal
2002	2.40	0.00	0.00	0.32	0.00	0.00	2.72	0.00	2.72
2022	9.96	2.50	6.00	8.00	0.00	3.00	20.46	9.00	29.46
2032	9.40	2.50	33.00	8.00	0.00	10.00	19.90	43.00	62.90
2042	7.86	2.50	87.00	8.00	0.00	26.00	18.36	113.00	131.36
2052	4.06	2.50	199.00	8.00	0.00	61.00	14.56	260.00	274.56

If only the already negotiatd 2 GWe LWRs are imported then the installed capacity in 2052 will be 208 GWe instead of 275 GWe.

Table 12: FBR Breeding Characteristics and Cycle Fissile Inventory

Fuel Type	Fissile Breeding		Cycle fissile inventory for one year out of pile period (T)
	System Doubling Time (yr)	System Growth Rate (%/yr)	
Oxide	18.8	3.8	4.7
Carbide	11.0	6.5	3.9
Metal	8.9	8.1	3.7

Source: INFCE Studies- see Annex 2

1. Reactor Unit Installed Capacity= 1 GWe
2. Reactor Capacity Factor = 0.75

3. Fuel Discharge Burn-up: Maximum = 100 GwD/T, Average = 67.5 GwD/T
4. Out-of-pile time period includes transportation, intermediate storage, pretreatment, reprocessing, fabrication etc. of the fuel.

Conclusions

Summary of Findings

The outcome of studies gives the following findings.

- ◆ Nuclear power is the viable option in fulfilling the energy demand due to higher population growth and also as a growing economy where GDP is likely to rise in future which can be achieved through the following ways.
- ◆ Increase the generation of nuclear power from PHWR reactor by import of Uranium from external sources as a short term measure.
- ◆ Exploring and expansion of mining the natural Uranium available in our country.
- ◆ Importing of more BWR reactors from Russia for the augmentation and also as alternate fuel sources.
- ◆ Full fledged extension of FBR which constitute second generation of power reactors.
- ◆ Research output from Thorium reactors should be transformed into commercial version thereby closed fuel cycle can be established.
- ◆ The closed fuel cycle can be attained and thereby reduce the import of fissile material for PHWR and BWR.
- ◆ Utilization of 123 agreements to obtain fuel and technology for fuel reprocessing.

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Urbanization and Economic Growth in South Asia

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A b s t r a c t

This paper attempts to estimate and analyze the impact of urbanization on economic growth in five South Asian countries: Bangladesh, India, Nepal, Pakistan and Sri Lanka. A simultaneous equations model in which economic growth and urbanization are treated as endogenous variables is developed. Annual time-series data is used and the model is estimated for each country and for the panel. The overall results suggest that urbanization plays a positive role in economic growth. The findings also suggest that economic growth has a positive effect on urbanization.

U ntil the beginning of industrial revolution, most of the human population lived in rural settings and were engaged in agriculture. With industrial development

the trade centers developed, which later turned into urban centers. The rapid growth of manufacturing and trade in the last century has been instrumental for the creation of major urban centers around the world. Many of those urban centers developed into mega cities (cities with a population eight million or more). At present about three billion people (48 percent of the world population) live in

urban settlements. The United Nations predicts that almost all of the population growth during the years 2000 to 2030 will be concentrated in smaller urban cities (population less than

500,000). The United Nations also predicts that in between the years 2000 and 2030 both the overall world population as well as urban population will keep growing (see Table 1). The growth rate, however, will decline but most of the growth in population will be in the less developed regions of the world. And it is likely that significant portions of this additional population will be living in urban areas.



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Table 1: Total and Urban Populations by Regions, 1950-2030

Average Annual Rate of Growth (Percent)			
		1950-2000	2000-2030*
Total population	World	1.76	0.97
	More developed regions	0.77	0.13
	Less developed regions	2.10	1.15
Urban Population	World	2.72	1.83
	More developed regions	1.45	0.47
	Less developed regions	3.73	2.29

* Projected values by the United Nations., Source: [United Nations](#) - World Urbanization Prospects: The 2003 Revision.

Jacobs (1984) in his popular book *Cities and Wealth of Nations* argues that urban economies are the backbone and the engine of economic growth. When countries become more reliant on manufacturing and services and less on agriculture, urban centers develop and they become hubs for trade, encourage human capital development and foster innovations. Since the 1950s, developing countries have seen an increasing trend of urbanization. For example, in 1900 none of the top ten populated cities in the world were in developing countries. In 1950 Shanghai, Buenos Aires and Calcutta joined the top ten populated cities in the world. In 1992 seven out of top ten cities, were in developing nations and it is expected that by 2015 almost all of the most populated cities except Tokyo and New York will be in developing countries (see Table 2). Between 1950 and 2000, urbanization - defined as the share of urban to total population has increased by 124 percent in developing countries. In contrast, urbanization has increased by only 38 percent in industrialized nations during the same period (United Nations, 2002). This basically indicates that the gap of urban to total population among the developed and developing countries is narrowing significantly. Even though the gap in urbanization is converging between these two groups of countries the economic growth rates between these two groups is not converging at the same rate (Bertinelli and Strobl, 2003).

There are several literatures on the relationship between urbanization and economic growth. Most of them focus on

the degree of urbanization. For example, some of the early literature on this issue such as Kamerschen (1969) and Gugler (1982) argue that countries in early stages of development suffer an imbalance in both the size and the distribution of their urban population. What they imply is that the developing countries have higher percentages of population living in urban areas than warranted at this stage of development. This term is often referred to as *over-urbanization*. The opponents of *over-urbanization* argue that the process of urbanization and industrialization does not necessarily have to take the same path as industrialized nations took in their early stage of development. They argue that the distribution of a population across cities (i.e. the degree of *urban concentration*) may be more important than the urbanization itself since several studies point to the fact that there are increasing concentrations of people at the city level (see Durnthan and Puga, 2004).

Although there is no dearth of literature on urbanization and economic development, only a few of them have attempted to estimate the impact of urbanization on economic growth. One such study showed that urbanization has a positive effect but urban primacy (very large cities) has a negative effect (Moomaw and Shatter 1993) on economic growth. It is argued that the large social overhead cost that exists with urban primacy outweighs the production efficiency that urbanization creates. This may cause for a negative impact of urban primacy on economic growth. McCosky and Kao (1999) studied the impact of urbanization on economic growth in both

Table 2: Ten Top Urban Regions for 1900, 1950, 1992, and 2015 - Projected
(population in millions of people)

1900		1950		1992		2015*	
London	6.6	New York	12.3	Tokyo	25.8	Tokyo	26.4
New York	4.2	London	8.7	Sao Paulo	17.0	Bombay	26.1
Paris	3.3	Tokyo	6.7	New York	16.2	Lagos	23.2
Berlin	2.4	Paris	5.4	Mexico City	15.3	Dhaka	21.1
Chicago	1.7	Shanghai	5.3	Shanghai	14.1	Sao Paulo	20.4
Vienna	1.6	Buenos Aires	5.0	Bombay	13.3	Karachi	19.2
Tokyo	1.5	Chicago	4.9	Los Angeles	11.9	Mexico City	19.2
St. Petersburg	1.4	Moscow	4.8	Buenos Aires	11.8	New York	17.4
Philadelphia	1.4	Calcutta	4.4	Beijing	11.4	Jakarta	17.3
Manchester	1.3	Los Angeles	4.0	Rio de Janeiro	11.3	Calcutta	17.3

* Projected values by the United Nations. Source: United Nations - World Urbanization Prospects: The 1999 Revision

industrialized and developing countries using time series data. Their findings suggest that urbanization and economic growth are cointegrated, but the nature of the relationship varies across the countries. Bertenelli and Strobl (2003) investigated the effects of urban concentration and urbanization on economic growth using semi-parametric estimation techniques on cross-country data. They discovered an existence of an *urban-concentration trap*, which is defined as a situation where marginal increases in urban concentration reduced economic growth. *Urban-concentration trap* can take place when the level of human capital and urbanization is not sufficient for growth to occur because of the existence of low level of technology.

In less developed countries the urban centers are more endowed with capital than the rural areas. As such, the urban population growth should create a catch-up effect leading to an increase in the growth rate of the economy. In addition, development of large cities may help to increase the productivity in analogous with the properties of increasing returns to scale of a firm. There is a dearth of empirical studies on this issue. Most of the above mentioned studies focus on the industrialized nations and their findings, which may not be robust in regards to developing countries. In addition, these studies ignore that urbanization itself is be a function of economic growth (see Henderson, 2004). Therefore, urbanization and economic growth are simultaneously

determined. In this study we develop and estimate a simultaneous equations model in which, both urbanization and economic growth are simultaneously determined in order to analyze the impact of urbanization on economic growth. This study is confined to five South Asian countries: Bangladesh, India, Nepal, Pakistan and Sri Lanka. First, the model is estimated for each of these countries separately. Second, panel estimation is conducted. Although it would be desirable to use the degree of *urban concentration* as one of the variables in the model, given the limitation of the time series data, we have used the percentage of a population living in the urban area as a measure of urbanization.

The organization of the paper is as follows. In section II we discuss the theoretical background, methodology, and data and its summary statistics. In section III, we report the empirical findings and analysis. Finally, in section IV the summary, conclusion and limitations of the study are reported.

II. Theoretical Background, Methodology and Data

In order to estimate the impact of urbanization on the economic growth we have developed the following simultaneous equations model:

$$PCYG = b_0 + b_1 GE + b_2 INFL + b_3 KS + b_4 PCYG_{-1} + b_5 UR + u \quad (1)$$

$$UR = c_0 + c_1 PCYG + c_2 UR_{-1} + v \quad (2)$$

Where, *PCYG* = real per capita income growth

GE = government expenditure as a percentage of GDP

INFL = inflation rate

KS = total amount of capital stock as a percentage of GDP

UR = urbanization defined as the percentage of population living in the urban area

And *u* and *v* are random error terms

Following the standard Keynesian economics, in equation (1) the coefficient of *GE* is expected to be positive assuming that the government expenditure is expansionary to the economy. In developing countries it is possible that any increase in government consumption can have a crowding out effect leading to a negative effect on the economic growth (see Barro 1999, p. 13). If that is the case then *GE* may carry a negative coefficient.

Theoretical literature on the effect of inflation on economic growth is abundant. Most of these literatures are dominated by discussions on economic costs (for detail see Briault 1995). These authors generally assume that inflation usually negatively impacts the economy. Therefore, as much as possible, it should be avoided. Empirical findings on this issue, however, are controversial. Recent studies have found inflation to have a negative impact on economic growth in developing countries (see Barro 1999). Therefore, *a priori*, we expect inflation (*INFL*) to carry a negative coefficient..

Neoclassical growth theory suggests that increasing capital stock will lead to higher capital to labour ratio. An increase in this ratio leads to higher productivity leading to an increase in economic growth. Indeed, some cross-country studies have reported that increasing investment (capital stock) ratio has a positive affect on the economic growth rate (see DeLong and Summers 1991; Mankiw, Romer and Weil, 1992). Therefore, we expect *KS* to carry a positive sign.

Urbanization (*UR*) is the focus of our study. The controversies about the relationship between urbanization and economic growth have already been discussed in section I. Based on above argument if urbanization has a positive effect on economic growth, then we expect to find a statistically significant positive coefficient for this variable. If it has a negative effect then we would expect to find a negative and significant coefficient.

The lagged value of real per capita income growth (*PCYG_{t-1}*) is also added in this equation in order to capture the impact of economic growth of previous periods on the current period. Given the fact that the economic growth rate changes with the cycle, the coefficient of this variable is indeterminant, *a priori*.

In equation 2, it is assumed that the degree of urbanization increases with an increase in economic growth, *a priori*, therefore *PCYG* is expected to carry a positive coefficient. The coefficient of *UR_{t-1}* is expected to be positive as in most of the

Table 3: Summary Statistics

Variable	Bangladesh		India		Nepal		Pakistan		Sri Lanka		Pooled	
	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev	mean	std dev
PCYG	2.51	1.80	2.19	3.11	2.01	2.88	1.90	2.29	3.89	7.78	2.43	4.12
GE	5.66	2.01	13.22	2.93	16.13	2.58	19.34	3.43	28.98	3.87	17.63	8.18
INFL	7.92	11.43	8.27	5.21	9.33	5.81	8.29	5.00	8.48	8.37	8.45	7.22
KS	14.72	5.17	18.76	3.18	18.32	2.58	18.19	2.44	20.75	5.66	18.44	4.38
UR	18.88	4.19	23.01	3.13	8.52	2.11	28.04	3.32	21.37	1.02	20.89	6.69

Source: Authors' calculation

Table 4: Estimation of Equation 1; Dependent Variable PCYG

Variable	Bangladesh	India	Nepal	Pakistan	Sri Lanka	Pooled
Const.	5.60 (1.93)**	-6.05 (3.196)*	4.033 (2.680)	-3.492 (3.676)	-76.54 (27.301)***	-0.931 (1.301)
GE	0.522 (0.082)***	-0.451 (0.313)	-0.293 (0.085)***	-0.401 (0.184)**	0.613 (0.27)**	-0.016 (0.034)
KS	0.944 (0.147)***	0.268 (0.409)	-0.053 (0.096)	0.261 (0.148)*	0.063 (0.199)	0.197 (0.066)***
INFL	-0.004 (0.017)	-0.365 (0.068)***	-0.077 (0.035)**	-0.028 (0.062)	-0.585 (0.110)***	-0.194 (0.036)
UR	-1.01 (0.355)***	0.563 (0.355)	0.530 (0.280)*	0.298 (0.195)	3.151 (1.188)***	0.092 (0.044)**
PCYG ₋₁	-0.229 (0.139)	-0.336 (0.119)***	-0.028 (0.053)	0.122 (0.148)	-0.248 (0.117)**	-0.103 (0.06)*
R ²	0.539	0.496	0.071	0.107	0.496	0.169
s.e.	1.34	2.395	3.113	2.339	5.595	3.821
D.W.	2.548	1.981	2.465	2.159	1.834	1.978
n	24	40	26	40	40	174

Note: Figures in the parentheses are standard error of the corresponding coefficients.

*** significant at 1% critical level, ** significant at 5% critical level, and * significant at 10% critical level.

developing countries since developments of urban centers attract more migrants from rural areas. Basically, previous periods of urbanization positively affect current periods of urbanization.

Annual time series data is used for the study. Data was not available for the same period of time for each country in the sample. So we used different observations for different countries. The data used for Bangladesh is from 1976 to 2001, for it is Nepal from 1975 to 2001, for India from 1961 to 2001, for Pakistan from 1961 to 2001 and for Sri Lanka from 1961 to 2001 annual data is used. All of the data except for urbanization ratios are collected from *International Financial Statistics*

published by IMF. Urbanization data is derived from various issues of the *World Development Report*, published by the World Bank. The summary statistics of the data is reported in Table 3. A cursory look at the mean and the standard deviation of the data in Table 3 shows a significant variation in the data series in all the countries.

II. Estimation and Empirical Findings

In general, it is important to test for the stationarity of the time series data. But in this study, our dependent variable is per capita real GDP growth (the percentage change in per capita real GDP). By definition, this series is not in level. Therefore, it

is stationary (i.e. does not contain unit root). Likewise, INFL defined as a percentage change in the consumer price index - also does not contain unit root. Our key variable *urbanization ratio* (UR) is not a macro variable. Therefore, we do not need to worry about unit root. Two other variables namely GE and KS were tested for unit root, and in most cases we found them to be either stationary or close to the level of stationarity. For the sake of consistency, we decided to use them in level form. Both of the equations in the model are estimated simultaneously. The estimated results are reported in Table 4 and 5 respectively.

Table 4 reports the estimation of equation 1 for each of the five countries and for the panel as a whole. Overall results of the estimation are mixed in terms of the goodness of fit such as the value of the coefficient of determinant R² and the standard errors of estimations. For example, in the case of Bangladesh, India and Sri Lanka, the R² is reasonably high. In contrast the coefficient of determinant R² is very small for Nepal

and Pakistan. In most of the estimations, the explanatory variables carry theoretically consistent signs. For example, standard Keynesian economics assumes that an increase in government expenditure (GE) will have an expansionary effect leading to an economic growth of the economy. Instead, if the crowding effect dominates, then GE can have a negative effect on the economy. In case of Nepal, India and Pakistan, negative coefficient of GE suggests an existence of a crowding out effect. But in case of Bangladesh and Sri Lanka, GE appears to be expansionary to the economy. In pooled estimation, we could not uncover any significant effect of government expenditure on economic growth.

Inflation (INFL) as expected in our earlier discussion has been found to exert a negative impact on economic growth in most of our estimations. Likewise, capital stock (KS) is found to be positive and statistically significant in Bangladesh and also in panel estimations.

Table 5: Estimation of Equation (2); Dependent Variable UR

Variable	Bangladesh	India	Nepal	Pakistan	Sri Lanka	Pooled
Const.	-0.136 (0.143)	0.613 (0.357)*	0.251 (0.073)***	0.249 (0.219)	10.72 (5.019)**	0.92 (0.522)*
PCYG	0.002 (0.01)	0.001 (0.001)	0.025 (0.002)***	0.003 (0.001)***	0.003 (0.001)***	0.282 (0.034)***
UR-1	1.031 (0.010)***	0.985 (0.014)***	0.997 (0.01)***	1.001 (0.008)***	0.531 (0.220)***	0.929 (0.024)***
AR (1)	0.756 (0.076)***	0.867 (0.074)***	-	0.827 (0.124)***	1.419 (0.265)***	-
R ²	0.998	0.999	0.998	0.999	0.988	0.899
s.e.	0.152	0.027	0.091	0.023	0.065	2.12
D.W.	2.076	1.89	2.465	1.709	1.741	2.041
N	24	39	26	39	39	174

Note: Figures in the parentheses are the standard error of corresponding coefficients. *** significant at 1% critical level,

** significant at 5% critical level, * significant at 10% critical level.

Our main variable of interest is urbanization (UR). With exception to Bangladesh this variable carries a positive sign in all our estimation and is either statistically significant or close to significant at conventional levels of significance. Absence of negative effects of urbanization on the economic growth suggests that there is no problem of *over-urbanization* in most of the South Asian countries. In case of Bangladesh, however, the case is different. In Bangladesh Dhaka is the capital and the only prime city where there is constant flow of migrants from the rural areas. This might have created an *urban-concentration trap* leading to a negative impact of urbanization on growth in that country.

Based on the empirical results we can derive some policy implications for the South Asian countries. In case of Bangladesh, we see that urbanization has a negative impact on growth. Although we do not see similar problems in other South Asian countries given the constant pressure of rural to urban migration in that region it is likely that other countries might face the same problem overtime. Therefore the governments need to adopt some major policies to discourage the rural-urban migration. For that the government should create an environment in which more non-farming jobs are created in the rural areas. In addition, the government can also provide the rural people with the health, education, transportation facilities, utility services and other immunities that are available in the urban areas. Such policies, over the time, will create several small urban centers across the countries, which will have more desirable impact on the economy.

Estimation of equation (2) is reported in Table 5. In some cases we detected first order autocorrelation problems, which we eliminated using AR terms in the regression. In all of the estimation, PCYG carries a positive and statistically significant coefficient. This finding suggests that economic growth has a positive impact on urbanization in South Asia. The positive coefficient on PCYG indicates that as an economy expands, so does the urban population since people gravitate towards the cities presumably because of the availability of better rewarding jobs and better services (health, schooling, utilities etc). As expected, the lagged UR is positive and statistically significant in all the estimations, which suggests that the variation in urban ratios is also explained by its own past. Overall it appears that in South Asia, both urbanization and economic growth are complementary to each other.

Summary and Conclusion

In this paper we attempt to estimate and analyze the impact of urbanization on economic growth in five South Asian countries namely Bangladesh, India, Nepal, Pakistan and Sri Lanka. A simultaneous equations model is developed in which, both economic growth and urbanization are treated as endogenous variable. Annual time-series data is used and the model is estimated for each country and for the panel. Although the estimated results vary across countries, the overall result suggests that urbanization has a positive effect on economic growth in South Asia. And economic growth and urbanization are complementary to each other. Given that there is heavy pressure of rural to urban migration, it is likely that the South Asian countries soon will start facing the problem of over-urbanization. In order to reduce this possibility it is suggested that the governments should create an environment in which more non-farm employment is generated in rural areas. In addition, significant infrastructure development such as better health and education facilities, transportation facilities, utility services etc. in the rural areas will help to convert many rural areas into small urban centers. These small urban centers help to reduce the pressure on large urban areas and at the same time they can provide significant positive externalities for economic growth.

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Creativity and Ethical Dimensions: Media Space

Manish Kumar Srivastava and Bani Kochar

Abstract

Ethics and morals have long ruled the human civilization. The terms have had different connotations and have been tweaked, twisted and played upon differently in differing times. One discernible outlet where morals and ethics have borne their implications and are volatile quite often has been in the advertising industry which thrives on creativity. Ethics are inseparable from business and therefore advertisers cannot afford to disregard its essence in advertisements. More so, the effect of television advertisements emerges powerfully when it attempts to engender the mass appeal combined with the messages galore delivered classily. This article attempts to project the ingenious ways by which advertisers strike many chords of the viewer. On the backdrop of Indian commercials, this article focuses on the creativity and ethical dimensions as aired on the television sets. Also, one of the forms of advertising called surrogate advertising which has been off late doing rounds in the marketing circles of the industry is discussed.

Behind the success of a product or a service rendered by an organization, rest many factors. Advertising is one of them and like any other asset of the organization offers competitive edge to the product. India with a varied diversity in its culture, encompassing traditionalism and modernity, makes advertising a serious business. Advertisers who are emotionally intelligent and who tap on the super sensitivity of the Indian audience keeping social and cultural issues in mind, are generally successful in reaching out to the audiences. Advertising creates market, creates demand and stimulates the rate of consumption. For example,

the mouth watering pizza of Dominos or the McDonalds advertisement entices the consumers for consumption. The McDonalds ad with the ad-line "I'm Lovin it" stimulate the taste

buds of people from all walks and stages of life. The dimensions of the message that emanates from the advertisement are wide-spread. More often, advertisements deliver message that is larger than life, sometimes exaggerates, makes false promises, is deceptive and projects far fetching benefits which mislead the consumer.

Indian consumers being hyper sensitive get carried away by advertisements that have a national flavour or are



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emotionally appealing to them. Quality becomes a secondary issue. For example, Hamara Bajaj Slogan paved the way to success for Bajaj Scooters for many years with the just-right quality that it offered.

Stirring Humour and Creativity

Indian commercials by no means are behind the Western commercials now. They touch not only our emotional chords but also garner our attention as audiences left with tongue in cheek with a tinge of humour in them. These advertisements are appealing and they convey creativity artfully. Commercials like those of Vodafone where Zoozoo characters used are beautifully conceptualized and crafted. The Vodafone advertisements with Zoozoo characters keep the audiences glued to their Television sets and yet at the same time, convey different services that it can offer. It earmarks a different level of creativity altogether as it portrays an impeccable combination of the characters (which are not animated characters but women artists in theatres) that blurt incomprehensible language with an idea of superlative degree that is corresponding to their products.

Happy dent advertisements use creativity in a more unrealistic yet funny way. Tata Indicom advertisements make the audiences break into splits by the repetitive use of the word "Hello" which would put any consumer to thought of subconsciously getting affected by poor network.

Under the garb of advertisement for its own product or service, advertisers sometimes degrade the products or services of the competitors thereby tarnishing their image. This brings them under the scanner of various lawsuits by their competitors with respect to unethical advertising. Not only this, but false information that misleads the consumer or conceals relevant information from the consumer too, is unethical by way of definition.

Masquerading Effects

Since advertisements are a part and parcel of our life, it is expected from the corporate world that they present the advertisements in an objective manner. But sometimes stakeholders protest that the marketers are presenting a misleading or puzzling picture through their commercials. One such form is surrogate advertising where business practices have spread their tentacles. The companies attain a level playing field for not just one but many of its products in a disguised manner. The commercials of liquor and tobacco can be placed under this category.

In India, the advertisements of these products are opposed by many sections of the society; hence the Government imposed a ban on these commercials in 1995 under Cable Television Network (Regulation) Act. As the Government enforced a ban on the advertisements of liquor and tobacco, the marketers of these products started to find some other ways for promoting their products. They found the answer of this question in the form of Brand Extension. Brand Extension means extending the same brand name to new products launched by the company. This strategy can be carried for associated products (e.g. Anchor Wires and Anchor Switches) as well as for unassociated products e.g. (Anchor Switches and Anchor Toothpaste). It helps the company to encash the benefits of established brand names. Brand extensions allow a company to capitalize on the "previously paid for" recognition, reputation and leverage able equity of its brand names. Normally, there is nothing wrong in using the brand extension strategy. But when it is carried out in response to promote the products which are banned by the Government, here is where the Pandora box opens up. The objective of using brand extension by the liquor companies is simply to go down the memory lane of the consumer and get reminiscent of their main product. Though they screen the commercial of some other product (say mineral water) but their intention is to remind the customers about the liquor that is their most profitable product. The advertisements for these products are cited under the category of "Surrogate Advertisements." Surrogate Advertising helps the companies in dodging the Government and the law. A different picture altogether runs backstage where the companies may not pose to be rule breakers but cleverly wind the laws to their convenience. The inherent drawback of the application of legal system, bureaucracy, greasing of palms, is overcome and enable the companies to achieve their objectives thereby bypassing the legal machineries. As they say, there are no short cuts to success. But exceptions may exist. Ultimately, the objective of brand recall is accomplished and the product sold.

The liquor industry is the main player in this game. Few surrogate advertisements are - Baggpiper Club Soda and Cassettes and CDs, Imperial Blue Cassettes and CDs, Hayward's Soda, Royal Challenge Golf Accessories and Mineral Water, Kingfisher Mineral Water, White Mischief Holidays, Smirnoff Cassettes and CDs, etc. The speciality of these products is that they have the same brand name and logo which the audiences see in liquor advertisements. The companies ingeniously flash these commercials and promote their liquor products. Cigarettes, Paan Masala and Gutkha making companies are also the part of the same bandwagon. Though a ban has been

imposed on advertisements endorsing tobacco products, this industry had resorted to surrogate advertising a few years ago only. Some examples in this category are Manikchand Awards, Red and White Bravery Awards, Wills lifestyle, Four Square White Water Rafting, etc.

The Squabble between the Giants

There have been other startling advertisements which left an indelible question mark on the ethical integrity of the company. An advertisement shot a few years ago, put Pepsi in a tight spot when Coca Cola set to fight a legal battle against it. It featured Shahrukh Khan who pokes fun at a Hrithik Roshan spoof wearing braces. A lookalike of the actor is teased at and the ad-line of the soft drink major is slyly yet successfully represented.

Five years later, in 2005, Virendra Sehwaq endorser of Cola Giant Coca Cola alleged Pepsi for using its voice-likeness in their TV advertisement and asked Pepsi to tender an apology on ethical grounds. Actions like these increase the likelihood of spats in future too and make the companies always on the lookout to indict the other which may turn uglier when dragged to courts and lead to legal battles. Pepsi again was in hot soup when the child labour activists charged it for posing a young boy who brings drinks to the Indian national cricket team in the match arena after the fall of a wicket. The lad walks in with a tray of Pepsi for the players. Such was the uproar by the child labour activists to ban the commercial that it temporarily was withdrawn. Pepsi however appealed that the idea behind showing the boy was not to promote child labour in/ of any form but to help relate thrill and delight that the game brings to the younger generation.

Cutting Round the Corners

Ethics are questioned at when reputed companies play with the integrity and ethics that have long been established. Many successful telecom giants air their commercials and rave about their coverage areas and in practice is a far cry from reality. For example, Hutch (now Vodafone) telecom advertises an idea that the dog follows the boy everywhere depicting that the network always follow. But is it really so? The Airtel advertisement too elicits the idea creatively when it flashes its advertisement where the grandpa and grandson play chess from distant places. But in reality is the consumer rendered the same standard of services? The companies though laud their services and conveniently convey their view of ethics, lark around with the trust of the consumers. The ethics followed by some Indian advertisements therefore can be rechristened as synthetic ethics or editorial ethics.

Conclusion

Advertisements play a very prominent role in effecting our life. Therefore, it is significant for us as consumers as well as the corporate world to understand the dynamics of it. What the advertisers don't realize is that they themselves or their family members, friends, relatives and the like don the hats of a consumer. Their ultimate goal of selling the product is ultimately met but at the cost of ethics. It is also manifested that in the pursuit of being creative, the companies sometimes compromise on their ethics.

Spate of ongoing discussions on ethical and unethical advertising may not lead to a one-cut solution. For companies those that realize that their reputation is more important than the failure of their product or service may be wary of the unwarranted repercussions and thus unethical advertising is the last dirty word for them.

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Stress to Disease

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Abstract

The present study attempts to assess the proneness of employees of C.R.P.F. (Central Reserve Police Force) to medical and psychiatric illnesses. A total of 100 respondents, belonging to different hierarchical levels completed the Short Interpersonal Reactions Inventory (Grossarth-Maticek and Eysenck, 1990). Results revealed that C.R.P.F. employees had high proneness to cancer and depression. Even in healthy personality the employees had high scores. In CHD proneness and psychopathic behaviour, the C.R.P.F. employees were moderately prone while least prone to addiction. Constables and head constables did not differ significantly in SIRI. C.R.P.F. employees below 40 years were more prone to cancer and CHD than C.R.P.F. employees above 40. Further, remedial measures for such proneness have been delineated.

Human resources are the assets of any organization. Protecting their interests is the most important function of any governance. The C.R.P.F has been an

observer for many violent incidents. The employees of the C.R.P.F are away from their families, moving from one troubled area to another, in order to protect citizens from violence. The C.R.P.F jawans themselves have a bent up feeling of frustration which has resulted in incidents where juniors shoot their own seniors. One such incident that is still fresh in our memory is shooting of DIG S.S.A. Khan at Chandrayanagutta, Hyderabad. The reason for such incidents is due to dis-satisfaction and

frustration among the C.R.P.F employees. In this backdrop, it was found necessary to carry out such a study.



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The concept that a majority of medical and psychiatric illness is related to stress and a spectrum of emotional factors, is probably as old as the history of recorded medicine itself (Rorsh, 1979). Traditional Indian medicine, Ayurveda, which is more than 2000 years old, stated that certain types of people based on somato-type and personality had a greater proneness to certain diseases (Solomon, 1984). Galen, early in the second century, observed that women who manifest de-

pression seemed more inclined to develop breast cancer than those with less melancholic dispositions. Modern research has been successful in validating a number of these observations made by the early clinicians. Recent studies have focused on two psychological variables that appear to have a significant impact on the induction and growth of cancer cells. These two factors are – stress and life events and personality. Reviews (Sklar and Anisman, 1981) on stress and cancer found that stress generated by life events frequently preceded the appearance of several forms of neoplasia.

Life events research has shown that it is not merely the stress itself, but also the way the individual perceives and appraises it that potentiates its effects (Lazarus and Folkman, 1984). It was seen that those individuals who expressed a sense of loss and hopelessness and inability to cope with the stress had a higher incidence of cancer and depression (Le Shan, 1959). The cancer prone personality is a concept that is increasingly being studied, where two characteristics that are emphasized are (a) the suppression of emotion, lack of outlet for strong feelings and failure to express such emotions, (b) the inability to cope with interpersonal stress, leading to feelings of hopelessness and finally depression, and a tendency to give up rather than fight (Eysenck and Grossarth-Maticek, 1991).

Temoshock (1987) described a type C personality as co-operative, unassertive, suppressing negative emotions and accepting or complying with external authorities, as more susceptible to develop cancer. They are the polar opposites of type 'A' individuals, whose behaviour has been linked with heart disease. Brian (1988) suggests a tenuous relationship between survey reports of workplace stress and non-work-domain and physiological indicators that manifest stress. His study on clerical workers did not uncover the expected relationships between perceived stress and blood chemistry measures.

Johannes's (1995) work on blue collar workers indicated that components of effort reward imbalance are strongly related to new coronary events and to elevated levels of established coronary risk factors as well as to reduce cardiovascular responsiveness. Study by Siddegowda, Urs and D'Souza (2000) found that engineers had higher proneness to cancer and CHD where as executives had higher

depression proneness. Jeddi's (2005) study on employees of engineering industries revealed that stress symptoms were most common among employees working at a forced pace, those who found their jobs uninteresting, and those working in hazardous environments.

Personality characteristics and stress combine and interact to produce feelings of helplessness, hopelessness and depression. Research has shown that this can produce hormonal imbalance and immune deficiencies, which allow the illnesses to grow and proliferate. In the present study an attempt is made to assess proneness to major psycho-medical illnesses as they live in highly stressful conditions.

Methodology

Sample:

A sample of 100 employees, working in C.R.P.F., #99 battalion, R.A.F., at Chandrayanagutta, Hyderabad were randomly selected. Their age varied from 18 to 60 years. Of the 100 C.R.P.F. personnel selected, 73 were constables and remaining 27 were head constables or ranked above. The sample was drawn randomly from a large number of C.R.P.F. personnel. Stratified random sampling technique was employed to select the sample.

Tools:

The following tools were employed in the present study:

- Ø Personal data sheet
- Ø Short interpersonal reactions inventory (SIRI) by Grossarth-Maticek and Eysenck (1990).

Personal Data Sheet:

The socio-demographic data for the present research was elicited using this personal data sheet. The researcher prepares this schedule herself. This is a detailed schedule, which consists of provision to collect data based on age, gender, family environment etc.

Short Interpersonal Reactions Inventory (SIRI):

This scale developed by Grossarth-Maticek and Eysenck, (1990), is constructed on the premise that personality and

stress are casually related to cancer and other diseases. The tool contains 70 questions, divided into six sub groups, which define six different types of personality proneness to different diseases. The six types are cancer prone, CHD prone, psychopathic behaviour, healthy personality, depression prone and addiction prone. The scale has adequate predictive validity and reliability (test-retest correlation coefficient in excess of .80). High score

indicates the severity of proneness in each sub type of proneness.

Scoring

For each question, answered 'Yes,' is given a score of one, and zero for 'No.' Following are the questions under various types of proneness.

Type	Proneness	Question Numbers
I	Cancer Proneness	1,8,15,22,29,36,43,50,57,64
II	CHD Proneness	2,9,16,23,30,37,44,51,58,65
III	Psychopathic Behaviour	3,10,17,24,31,38,45,52,59,66
IV	Healthy Personality	4, 7, 11, 14, 18, 21, 25, 28, 32, 35, 39,42, 46, 49, 53, 56, 60, 63, 67, 70
V	Depression Proneness	5,12,19,26,33,40,47,54,61,68
VI	Addiction Proneness	6,13,20,27,34,41,48,55,62,69

Procedure

Primarily the organization where the data was to be collected was identified and the contact made through, Additional DIG Southern Sector, C.R.P.F., Chandrayanagutta, Hyderabad. With his assistance and his team, different hierarchies of employees were identified. With these perspectives, the employees were met personally or contacts made through phone, and appointments made. Prior to the administration of the questionnaire the respondents were told that they had to spend at least 30 minutes and co-operate. Adequate

instructions were given to them and after completion; the questionnaires were scored according to the norms.

Statistics

MANOVA has been employed to test the significance of the difference between means of subscales of SIRI among different hierarchies of employees of C.R.P.F. of different age groups. SPSS for Windows (version 14.0-Evaluation version) has been employed in the statistical analysis.

Table 1: Description of the Sample selected on Short Interpersonal Reactions Inventory

Proneness	Mean	S.D	Interpretation
Cancer Proneness	6.29	1.85	High
CHD Proneness	4.69	1.98	Moderate
Psychopathic Behaviour	4.61	1.46	Moderate
Healthy Personality	13.65	2.58	High
Depression Proneness	7.49	1.47	High
Addiction Proneness	2.90	1.40	Low

Results

a. Description of the sample on SIRI

From table 1 it is clear that CRPF employees had high proneness to cancer, and depression. Even in healthy personality the employees had high scores. In components like CHD proneness and psychopathic behaviour, the CRPF employees had moderate proneness. Only in 'addiction proneness' the CRPF employees were less prone.

b. Influence of Hierarchical levels and Age on SIRI

Table 2 presents mean scores on each subscale of Short Interpersonal Reactions Inventory (SIRI) of constables and head constables in different age groups with results of MANOVA.

Individual Effects

a. Designations:

Between constables and head constables non-significant differences existed in their mean scores on all the components of SIRI. All the obtained F values were found to be statistically non-significant. In other words, constables and head constables had statistically equal scores on all the components of SIRI.

b. Age groups

In cancer proneness ($F=10.35$; $P=.002$) and in CHD proneness ($F=6.28$; $P=.014$) C.R.P.F. employees of different age groups differed significantly in their mean scores. From the mean tables it is evident that C.R.P.F. employees below 40 years of age were more prone to cancer and CHD than C.R.P.F. employees above 40. In rest of the components like psychopathic personality, healthy personality, depression proneness and addiction proneness, non-significant differences were observed among the two groups.

Interaction Effects

Only in one component, the interaction between designation and age groups was found to be statistically significant ($F=7.21$; $P=.009$), where, from the mean values it is evident

that in constables who were above 40 years had least cancer proneness scores. The rest of the interaction effects were found to be non-significant.

Discussion

The main findings of the present study are:

- ◆ C.R.P.F. employees are highly prone to cancer, and depression. Even in healthy personality the employees had high scores.
- ◆ In CHD proneness and psychopathic behaviour, the C.R.P.F. employees had moderate proneness and least proneness to addiction.
- ◆ Constables and head constables did not differ significantly in SIRI.
- ◆ C.R.P.F. employees below 40 years of age were more prone to cancer and CHD than CRPF employees above 40.

C.R.P.F. personnel live in a highly stressful environment with lot of frustration and anxiety. Change of environment (shift from family environment to a highly challenging and demanding work environment), leads to adjustment problems. This leads to lot of frustration and irritation. Secondly, training at the initial levels is more strenuous and rigorous than what is expected. This might bring lot of disappointment among young personnel, who had come with lot of hopes. Thirdly increased aspirations, higher goals and fewer achievements among younger employees could be a contributory factor leading to younger employees being more prone. Fourthly, the fact that these employees have to live away from families, lack of social contact and poor civic facilities (like enjoying a movie/drama/or other entertainment of their choice) are additional factors which make them more stressful and vulnerable. Some of these employees have known to maintain three establishments-like families at one place, children at another and their work place involving additional monetary expenditure. The families communicate problems at home to their spouses (as they are reachable on mobiles often); this tends to emotional disturbance which in turn makes these employees even more vulnerable. Fifthly, frequent shifts of these employees from one troubled area

Table 2: Mean scores on different components of SIRI of CRPF employees in different age groups and designations with the results of MANOVA.

Designation	Age groups (in years)	SUB SCALES OF SIRI											
		SIRI 1 Cancer Proneness		SIRI 2 CHD Proneness		SIRI 3 Psychopathic Personality		SIRI 4 Healthy Personality		SIRI 5 Depression Proneness		SIRI 6 Addiction Proneness	
		Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.	Mean	S. D.
Constables	Below 40	6.58	1.65	4.77	1.82	4.57	1.54	13.64	2.56	7.51	1.41	2.83	1.43
	Above 40	3.25	2.22	2.50	1.73	4.25	1.26	13.50	1.73	7.75	0.50	3.75	0.96
	Total	6.40	1.83	4.64	1.88	4.55	1.52	13.63	2.51	7.52	1.38	2.88	1.42
Head Constables	Below 40	6.13	1.88	5.20	2.18	4.53	1.19	13.73	3.41	7.93	1.58	2.80	1.26
	Above 40	5.83	2.04	4.33	2.35	5.08	1.38	13.67	1.92	6.75	1.71	3.17	1.47
	Total	6.00	1.92	4.81	2.25	4.78	1.28	13.70	2.80	7.41	1.72	2.96	1.34
Overall	Below 40	6.50	1.69	4.85	1.89	4.56	1.48	13.65	2.70	7.58	1.44	2.82	1.40
	Above 40	5.19	2.32	3.88	2.31	4.88	1.36	13.63	1.82	7.00	1.55	3.31	1.35
	Total	6.29	1.85	4.69	1.98	4.61	1.46	13.65	2.58	7.49	1.47	2.90	1.40
F (Designation)		F= 3.59; P=.061 (NS)		F=3.28; P=.073 (NS)		F=0.721; P=.398 (NS)		F=0.024; P=.877 (NS)		F=0.375; P=.541 (NS)		F=0.456; P=.501 (NS)	
F (Levels)		F= 10.35; P=.002 (HS)		F=6.28; P=.014 (S)		F=.062; P=.804 (NS)		F=.015; P=.904 (NS)		F=1.01; P=.318 (NS)		F=2.04; P=.156 (NS)	
F [Interaction (Designation x Levels)]		F= 7.21; P=.009 (HS)		F=1.26; P=.265 (NS)		F=0.84; P=.362 (NS)		F=0.002; P=.966 (NS)		F=2.32; P=.131 (NS)		F=0.381; P=.538 (NS)	

Note: F-Fishers value; P-Probability; HS-Highly significant; S-Significant; NS-Non-significant

to the other, where lot of situational problems arises. It is observed that older employees have better adaptability to such situations than the young ones. Further more these personnel are directly in touch with constant violent incidents, which may cause dramatic change in their behaviour which is more pronounced at entry levels as constables.

Whatever the situation, steps at the individual and organizational level are needed to prevent or reduce, increasing job stress faced by today's C.R.P.F. personnel.

Some suggestions are:

1. Yoga and meditation which are considered the most effective measures of reducing stress may be introduced.
 2. Lean working practices on employee health¹
 3. Structural and behavioural interventions in work place to prevent CHD²
 4. Employee assistance programme³
 5. Exercise, relaxation, Cognitive therapies, and networking⁴
 6. Providing more monetary benefits.
 7. Provide enough re-habilitation after a certain age.
1. Sprigg and Jackson, 2006, 2. Johannes, 1995,
 3. Johnson and Indvik, 1997, 4. Luthans, 2005.
 8. The organization should think of providing either accommodation or home posting. This would to a large extent solve the problem of being away from home and social contacts.
 9. The higher officers who are in direct contact with these people should be trained to listen to the grievances and adopt a humanistic approach towards employees of lower cadre.

Key Words: Proneness, C.R.P.F., Battalion, SIRI.

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Brand Obliteration: Managing Brand Portfolio

Anoop Pandey, Vikas Dahiya, and Rahul Kumar

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Brand portfolio management has been a long-standing area of interest among brand managers, with extensive attention accorded to the practice of expanding portfolios. Now-a-days, there is a strategic shift evident in the market space so far as brand portfolio management is concerned i.e. pruning brand portfolios. Supporting brands fully with investments in communications, innovation, and channel management, can be hugely expensive. A number of companies have carried out brand elimination process so that they can support their priority brands more effectively. Although brand elimination has the potential to enhance firm performance, the practice is also feared to potentially cause consumer resistance and hurt the firm's image and reputation, if the whole process of killing the brand is not managed properly. The authors develop a couple of models through which the firm's can eliminate or drop weak brands as well as strong brands successfully for reasons such as lack of fit with the firm's long term strategy or low market growth potential.

Companies spend vast sums of money and time launching new brands, leveraging existing ones, and acquiring rivals. They create line extensions and brand extensions, not to mention channel extensions and sub-brands, to cater to the growing number of niche segments in every market, and they fashion complex multi-brand strategies to attract customers. Surprisingly, most businesses do not examine their brand portfolios from time to time to check if they might be selling too many brands, identify

weak ones, and kill unprofitable ones. They tend to ignore loss making brands rather than merge them with healthy brands, sell them off, or drop them.

		
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It is important to note that this is not just a marketing effort that may be based on guesswork - it involves finance, sales, customer support and IT representatives. It must also be sanctioned by top management because the political and emotional issues must be resolved. Finally, while the profit numbers may be

immediately affected by a brand deletion, the company will undergo a contraction from which it may take several years to recover. This must be communicated to the interested external parties such as shareholders and other investors to ensure that they understand the ultimate financial goal - that of positioning the company for profitability and future growth.

The implications are inescapable. Companies can boost profits by deleting loss making brands. Even though revenues may fall in the process, brand deletion will provide a shot in the arm for an additional reason. Many corporations don't realize that when they slot several brands into the same category, they incur hidden costs because multi-brand strategies suffer from diseconomies of scale. Naturally, those hidden costs decline when companies reduce the number of brands they sell.

Consequently, most portfolios have become full with loss-making and marginally profitable brands. The surprising truth is that most brands don't make money for companies. Year after year, businesses earn almost all their profits from a small number of brands, smaller than even the 80/20 rule of thumb suggests. Most brands don't make money for companies. The old 80:20 rule is even more exaggerated in the consumer packaged goods (CPG) business. Many corporations generate 80 to 90 percent of their profits from less than 20 percent of their brands. For example, Nestle marketed more than 8,000 brands in 190 countries in 1996. The bulk of their profits, however, came from approximately 200 brands or only 2.5 percent of their portfolio. Take the following examples:

Diageo, the world's largest spirits company, sold 35 brands of liquor in some 170 countries in 1999. Just eight of those brands - Baileys liqueur, Captain Morgan rum, Cuervo tequila, Smirnoff vodka, Tanqueray gin, Guinness stout, and J&B and Johnnie Walker whiskeys- provided the company with more than 50 percent of its sales and 70 percent of its profits.

Unilever had 1,600 brands in its portfolio in 1999, when it did business in some 150 countries. More than 90 percent of its profits came from 400 brands. Most of the other 1,200 brands made losses or, at best, marginal profits.

The above example (and so many other cases) point out that brand killing has remained an underused tool in the marketer's arsenal.

Hyundai is now planning to remove their brand GETZ through step by step process (Source: Economic Times).

Case

Around late 2000, HLL decided to whittle its brands down from 110 to 36, over the next three years. This would come to be known as HLL's Power Brand strategy. To identify these power brands, managers were asked to consider their growth potential, profit delivery and the size of the opportunity. And to ensure that Lever would not lose sales, it was decided to migrate these brand users to the designated power brands.

In practice, things worked out differently. Take tea brands like Ruby Dust and Super Dust. These were big brands in terms of volume. Initially, these brands stopped getting any above-the-line support, only below the line. Then even that was stopped, and they slowly died. At that time, 30-40 percent of Lever's beverage business came from such brands!

When these brands vanished, they pulled down HLL's distribution network. Despite being local, brands like these were very powerful. According to estimates, brands like Ruby Dust accounted for as much as 70-80 percent of Lever's beverage business in a state like Maharashtra, something that Lever used to capitalize on. Retailers would buy these brands and HLL's other products used to piggyback on that distribution chain. These were the carrier brands. After these "marginal" brands were dropped, HLL lost that advantage.

Too many Brands?

The question to ponder over is - Why haven't most companies put systematic brand deletion processes in place? Mainly because executives believe it is easy to erase brands. They only have to stop investing in a brand and it will die a natural death. They're wrong. When companies drop brands clumsily, they antagonize customers, particularly loyal ones.

The companies can start by determining whether they have too many brands or not, this, they can do by asking themselves these ten questions:

- ◆ Are more than 50 percent of our brands laggards or losers in their categories?

- ◆ Are we unable to match our rivals in marketing and advertising for many of our brands?
- ◆ Are we losing money on our small brands?
- ◆ Do we have different brands in different countries for essentially the same product?
- ◆ Do the target segments, product lines, price brands, or distribution channels overlap to a great degree for any brands in our portfolio?
- ◆ Do our customers think our brands compete with each other?
- ◆ Are retailers stocking only a subset of our brand portfolio?
- ◆ Does an increase in advertising expenditure for one of our brands decrease the sales of any of our other brands?
- ◆ Do we spend an inordinate amount of time discussing resources allocation decisions across brands?
- ◆ Do our brand managers see one another as their biggest rivals?

The responses to these questions would determine whether the company needs to embark on a brand rationalization programme or not. If yes, the companies can follow, the below explained 'Brand Rationalization Process.'

Brand Killing is a Difficult Process for Several Reasons:

- ◆ Political reasons include brand managers whose status is reduced if their portfolio declines, brands that cannot be easily differentiated in terms of their positions in the global market, and merged or acquired companies struggling with their brand's turf.
- ◆ Then, there are emotional reasons. Sometimes it is as simple as the history of a brand. Many companies were founded on a flagship brand that, over the years, has unfortunately become faded or dated and is no longer

profitable. It may be that the brand managers fear for their jobs with brand reductions. Therefore, they "obscure" the actual revenues and expenses of an unprofitable brand. In any case, emotions can run quite high when a discussion of brand deletion arises.

- ◆ Finally, there are the oh-so-prevalent problems with having the right information from which to make a well-informed decision.

Brand Rationalization Process

After the company has realized that it needs to rationalize its brand portfolio, it can use a Simple four-step process to achieve the above:

Brand Profitability Analysis

The rationalization process can be started by orchestrating groups of senior executives in joint audits of the brand portfolio. Such audits are useful because most executives do not know which brands make money or how many brands are unprofitable. To calculate the profitability of each brand, firms must allocate fixed and shared costs to them. That can prove to be a complicated task resulting in long and bitter debates between managers. Executives view each brand from their own particular perspectives and put forward arguments about the problems they will face if it is dropped. That collectively results in a justification for almost every brand in the portfolio. However, when executives look at the big picture together, they uncover the problems. They reluctantly extend a degree of support to the programme despite their job- and turf-related concerns.

Pruning the Portfolio

In the next stage, companies have to decide how many brands they want to retain. They can deploy two distinct but complementary models to do so:

Liquidating Brands

After companies have identified all the brands they plan to delete, executives need to reevaluate each of them before placing it on one of four internal lists: merge, sell, milk, or kill.

Merging Brands

Companies can opt for merging brands when the brands targeted for elimination have more than a few customers or occupy niches that might grow in the future. Executives can transfer product features, attributes, the value proposition, or the image of the marked brand to the one they plan to retain. They can do this around the same time they drop the brand, not before or after. By advertising the change and using promotions to induce consumers to try the replacement brand, marketers can get people to migrate from one to the other.

However, merging brands is tricky. During Unilever's brand re-organization process, Antony Burgmans, Unilever's Vice Chairman, warned his marketers, "You are not migrating brands but migrating consumers."

Selling Brands

Companies can sell brands that are profitable when they don't fit in with corporate strategy. They might be profitable but in categories that the company does not want to focus on. In such cases, the brand's market value is often greater than the value the company places on it, making it a good candidate to put up for sale.

Milking Brands

Some of the brands that companies want to delete may still be popular with consumers. If selling them is not possible because of either strategic or sentimental reasons, companies can milk the brands by sacrificing sales growth for profits. They can stop all marketing and advertising support for such brands, apart from a bare minimum to keep products moving off the shelves. They can also try to save on distribution costs and reduce retailer margins by selling only on the Net. Finally, the organization should move most managers off the teams that handle these brands. As sales slowly wind down, companies maximize profits from these brands until they are ready to be dropped entirely.

Eliminating Brands

Companies can drop most brands right away without fearing retailer or consumer backlash. These are the brands for which they have had trouble getting shelf space and buyers in the first place. To retain what customers they do have, companies can

offer samples of their other brands, discount coupons or rebates on the replacement brands, and trade-ins.

Growing the Core Brands

The fourth and final step in the brand portfolio rationalization process is not destructive, but creative. At the same time that corporations delete brands, they should invest in the growth of the remaining brands. There may be hesitation in doing this because profits would soar as they drop brands. But they should not forget that the business is also shrinking in terms of sales and people, which can cause as much trouble as the proliferation of brands did. Stagnation could set in, and demoralized managers might leave the organization. Sensing that the firm has lost its appetite for innovation and risk, rivals can also move in aggressively. Companies can reap the benefits of brand deletion only if they reinvest the funds and management time they have freed either into the surviving brands or into discerningly launching new ones and taking over other brands. Establishing a brand portfolio rationalization programme shouldn't be a priority solely for marketers. It has to be a top management mandate, especially since companies' contract when they delete brands. While the profit payoffs come early in the programme, it takes firms anywhere from three to five years to recoup revenues, depending on the number of brands they delete. So, clearly, the top management team needs to agree to the financial objectives as well as to the timetable for their achievement. The team also has to buy time from shareholders, who usually prefer measures that deliver earnings per share increases in the next quarter. Done right, however, a brand portfolio rationalization project will result in a company with profitable brands that is poised for growth.

Suggestions and Recommendations

The following two models (Model 1 and Model 2) have been developed by the authors, which can be used in eliminating own brands successfully.

Model 1

Under this model, companies can choose to keep only those brands that conform to certain broad parameters. A committee of senior executives and company directors can be set up to draw up these parameters. That's a good way to push ahead

with the rationalization programme in a large organization, since the appointment of the committee signals top management's commitment to the task. Such a high-level committee is also necessary because the process inevitably becomes an opportunity to check if the company should exit some markets or countries where all its brands perform poorly.

Parameters which can be used to prune the portfolio can be:

- ◆ Companies can retain only those brands that are number one or number two in their segments, as measured by market share, profits, or both.
- ◆ Companies in fast growth industries can choose to keep brands that display the potential to grow rapidly.
- ◆ Manufacturers that depend on retailers for sales can focus on brands that draw shoppers into stores.
- ◆ Individual parameters are not either-or criteria and can be combined to arrive at their filters.

Model 2

In this model, companies can identify the brands they need in order to cater to all the consumer segments in each market. By identifying distinct consumer segments and assuming only one brand will be sold in each segment, executives can infer the right size of the portfolio for a particular category. Companies can decide which brands to keep in each market in a number of ways:

1. General parameters can be considered akin to those that were applied to the entire portfolio, such as market share or growth potential, to select the brands to focus on in each market.
2. The market can be re-segmented and those brands can be identified that are needed to cater to the new segments. For instance, firms can segment markets based on consumer needs rather than by price or product features.
3. Companies can use both approaches also. For instance, they may start by rationalizing brand portfolios category by category and, when they still find themselves with too many brands, apply the portfolio approach to complete the task. And the process can easily be reversed.

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Consumers Demand Ethics in Advertisement

Yesodha Devi N., Kanchana V.S., and Nancy Sebastina J.

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Advertising is the life blood of all business organization, without which the products or services cannot flow to the distributors or sellers, and on to the consumers or users. There have been increasing efforts to protect the public interest by regulating the content and the reach of advertising. Unethical advertising promotes harmful products, targets inappropriate audiences, makes tall claims attempts to alter lifestyles, and derides competition. Unethical issues in advertisement include providing misleading information, using ambiguous terms, and defaulting promised rewards. Hence, the study has been focused to explore the perception of consumers regarding ethical aspects of advertising and to study the role of government in controlling the unethical advertisements. The findings of the above study state that ethics should be followed in advertisements, use of sex and sentiments in ads to be avoided. Majority of the respondents do not know the existence of ASCI. Hence more awareness is to be created and the board has to function effectively and ban advertisements which do not follow the ethics.

Advertising may be described as the science of arresting the human intelligence long enough to get money from it. Advertisement is the message itself, where as advertising is a process, a programme or a series of activities necessary to prepare the message and bring it to the intended person. Advertising is the life blood of all business organization, without which the products or services cannot flow to the distributors or sellers and on to the consumers or users.

Ethics

There have been increasing efforts to protect the public interest by regulating the content and the reach of advertising. Some examples are the ban on television tobacco advertising imposed in many countries and the total ban on advertising to children under twelve imposed by Swedish government.

Self-regulation is purported to be the best regulation.

		
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By creating and following self-imposed rules, marketing community produces marketing communications that are welcomed and trusted. Self-regulation is accepted by many government departments as a first line of control in protecting the consumers.

The advertising Standards Council of India (ASCI) under article 2 (ii) of its Articles of association adopted a code of conduct on 20th Nov., 1985.

The objectives of the code of self-regulation are as follows:

1. To ensure the honesty and truthfulness of representations and claims made by advertisements and to safeguard against misleading advertisements.
2. To ensure that the advertisements are not offensive to generally accepted standards of public decency.
3. To safeguard the indiscriminate use of advertising for the promotion of products which are regarded as hazardous.
4. To ensure that advertisements are fair so that consumers need to be informed on choices in the market place and canons of generally accepted competitive behaviour in business are also served.

Unethical advertising promotes harmful products, targets inappropriate audiences, makes tall claims attempts to alter lifestyles and derides competition. Unethical issues in advertisement include providing misleading information, using ambiguous terms and defaulting and promised rewards.

Some Unethical Issues in Advertising: Economic Harms of Advertising:

Advertising can betray its role as a source of information by misrepresentation and by withholding relevant facts. Sometimes, too, the information function of media can be subverted by advertisers' pressure upon publications or programmes not to treat of questions that might prove embarrassing or inconvenient.

The practice of "brand"-related advertising can raise serious problems. Often there are only negligible differences among

similar products of different brands, and advertising may attempt to move people to act on the basis of irrational motives ("brand loyalty," status, fashion, "sex appeal," etc.) instead of presenting differences in product quality and price as bases for rational choice.

Cultural Harms of Advertising:

Advertising also can have a corrupting influence upon culture and cultural values. We have spoken of the economic harm that can be done to developing nations by advertising that fosters consumerism and destructive patterns of consumption. Consider also the cultural injury done to these nations and their peoples by advertising whose content and methods, reflecting those prevalent in the first world, are at war with sound traditional values in indigenous cultures.

The indirect but powerful influence exerted by advertising upon the media of social communications that depend on revenues from this source points to another sort of cultural concern. In the competition to attract ever larger audiences and deliver them to advertisers, communicators can find themselves tempted in fact pressured, subtly or not so subtly to set aside high artistic and moral standards and lapse into superficiality, tawdriness and moral squalor.

3. Moral and Religious Harms of Advertising

Advertising can be tasteful and in conformity with high moral standards, and occasionally even morally uplifting, but it also can be vulgar and morally degrading. Frequently it deliberately appeals to such motives as envy, status seeking and lust. Today, too, some advertisers consciously seek to shock and titillate by exploiting content of a morbid, perverse, pornographic nature.

In cases of the first sort, commercial advertisers sometimes include religious themes or use religious images or personages to sell products. It is possible to do this in tasteful, acceptable ways, but the practice is obnoxious and offensive when it involves exploiting religion or treating it flippantly.

In cases of the second sort, advertising sometimes is used to promote products and inculcate attitudes and forms of behaviour contrary to moral norms. That is the case, for instance, with the advertising of contraceptives, abortifacients

and products harmful to health, and with government-sponsored advertising campaigns for artificial birth control, so-called "safe sex," and similar practices.

Review of Literature

Smith Sharma (2006)¹ in her article "Celebrity endorsement- is it the only survival recipe for marketers," states that using celebrities can increase consumer awareness of the advertisement, capture their attention and make advertisements more memorable. There should be a perfect fit between the brand celebrity to create a proper association and clarity. Unless accompanied by a powerful idea, there is a good chance that the communication should sink into another cluster of celebrity endorsed advertising.

John Gabriel (2006)² in his research "The impact of Television Advertisement on youth" said that in today's marketing concept the focus is on the consumers, his needs and requirements, rather than on the product. Naturally all media of advertisements begin with customer and end with the consumer. In order to sell a product persuasive and pervasive communication is essential. Basically through television advertisements there is promotion of information which influences people. It was clearly found that television advertisements create a very strong impression on the youth.

Dr. Karunesh Saxena, Dr. Pramod Paliwal and Pooja Tripathi (2007)³ in their article "An empirical Study of compatibility of advertising channels and product categories," states that advertise carefully selects the appropriate TV channel space to reach the targeted audience. It is not only makes sound business sense on their part, but it is convenient for the customers as well as they can make more informed decision about whether to buy those products and services or not.

K. Suresh (2007)⁴ in his study entitled "Need for Advertising" has viewed that the operating environment for advertisers is undergoing rapid transformation. The marketers are becoming more demanding. They want to know what the return is for the money spent by them in advertising and how advertising agencies can increase the ROI for their advertisement expenditure. Consumers, advertisers and target audience are also changing, they become averse to barrage of advertisement, especially in mass media and life styles are continuously evolving, making it difficult for advertisers to accurately profile them demographically. The media, used by

advertisers to reach out to the target audience, is exploding. While the abundance of choice itself is a challenge, their varying effective levels in delivering advertising returns are a critical issue. Getting innovative ideas is the order of the day for advertisers, to operate successfully. Leveraging on technology and widening their creative horizon to constantly reinvent their operations, advertisers are attempting to improve their effectiveness.

Ms. Shanthi Nachiappan (2007)⁵ in her article, "Most popular advertisement urges that the public appreciated all advertisements, as they are unique in nature, entertaining and informative." "India shining Advertisement" was different as for the first time a political party has done professional advertising with the "Feel good Factor." She says that most of the respondents like hutch advertisement because of its attractiveness.

Dr. Raghbir Singh and Sandeep Vij (2007)⁶ in the paper "Socio-Economic and Ethical Implications of Advertising – A Perceptual Study" have stated that depending upon the public opinion about the social, economic and ethical aspects of advertising, the marketers and the public policy makers should take different stances on how advertising should be treated. The study has analyzed in detail the public response to the issues like: 'Targeting Children in Advertising,' 'Use of Sex in Advertisements,' 'Promotion of Materialism through Advertising,' 'Use of Comparative Advertising,' 'Ethics in Advertising,' 'Use of Celebrities in Advertising,' 'Economic Effects of Advertising,' and 'Public Policy on Advertising.' The population for the study comprised a sample of 900 respondents, 100 each from the seven North Indian states (Punjab, Jammu and Kashmir, Himachal Pradesh, Uttar Pradesh, Rajasthan, Haryana and Uttranchal) plus Union Territory of Chandigarh and National Capital Territory of Delhi. Based upon the opinions and beliefs of the public, as revealed by the study, suggestions have been made to the advertisers and the public policy makers.

Elif Akagun Ergin, Handan Ozdemir (2007)⁷, "Advertising Ethics: A Field Study on Turkish Consumers," examines whether use of deception in ads, cultural stereotyping, sexual stereotyping, and emotional exploitation factors have an influence on the Turkish consumers. Specifically, the aim is to discover whether each of these four factors have any impact on the consumers' recall of the ad and subsequent purchasing

decisions. The results of this study should help foreign and domestic advertising agencies and their clients, already existing in or planning to enter the Turkish market, in understanding the Turkish consumers better.

Some self-regulatory actions have to be implemented, and even government on its part has to implement some regulatory measures in a strict manner. This will be the best way to culminate the unethical advertisements. Hence, a study has been focused based on the following objectives:

1. To explore the perception of consumers regarding ethical aspects of advertising.
2. To study the role of government in controlling the unethical advertisements.

Methodology

The study is based on primary data collected from 125 respondents by means of a questionnaire. Random Sampling

Technique was applied and Statistical tools like Percentage Analysis, five point scaling technique, Chi-Square, ANOVA and T-test was carried out. The findings are given in the following paragraphs.

General Profile

The general profile of the respondents is presented in Table 1.

It can be inferred from Table 1 that 75.2 percent of the respondents are in the age group of 31 to 60 years, 54.4 percent of the respondents are Male, 60 percent of the respondents have education up to school level and 32.8 percent of the respondents are employed. Majorities (78.4 percent) of the respondents are married, 43.2 percent of the respondents have their family monthly income between Rs.10000-20000, 88 percent have nuclear type of family and 68.8 percent have two to four members in their family. Out of the total respondents taken for the study, 84 percent of

Table 1 - General Profile of the Respondents

Particulars	Classification	No.	Percentage
Age group	Upto 30 yrs	31	24.8
	31-60 yrs	94	75.2
Gender	Male	68	54.4
	Female	57	45.6
Educational Qualification	School level	37	29.6
	Graduate	75	60.0
	Post Graduate	13	10.4
Marital status	Married	98	78.4
	Unmarried	27	21.6
Occupation	Student	25	20.0
	Housewife	23	18.4
	Self- Employed	34	27.2
	Retired persons	2	1.6
	Employed	41	32.8
Family size	2 -4 member	86	68.8
	4-6 member	33	26.4
	6 & above	6	4.8
Family monthly income	Below 10000	31	24.8
	10001 -20000	54	43.2
	20001 -30000	21	16.8

Family type	Above 30000	19	15.2
	Joint Family	14	11.2
	Nuclear Family	111	88.8
Attractive media	TV	105	84.0
	Radio	3	2.4
	Newspaper	16	12.8
	Internet	1	.8
Awareness about ASCI	Yes	46	36.8
	No	79	63.2

Table 2 - Opinion about Advertisements.

Factors		VE	E	N	NE	Total
Celebrity endorsements	No.	13	60	31	21	125
	percent	10.4	48	24.8	16.8	100
Product comparison	No.	35	39	18	33	125
	percent	28	31.2	14.4	26.4	100
Price comparison	No.	49	36	19	21	125
	percent	39.2	28.8	15.2	16.8	100
Selling a dream or lifestyle	No.	17	42	34	32	125
	percent	13.6	33.6	27.2	25.6	100
Selling with Sex	No.	6	11	14	94	125
	percent	4.8	8.8	11.2	75.2	100
Selling sentiments	No.	7	30	36	52	125
	percent	5.6	24.0	28.8	41.6	100

the respondents are attracted through TV advertisements and 63.2 percent of them do not know about Advertising Standards Council of India (ASCI).

Opinion about Advertisements

Table 2 presents the opinion of the respondents on various factors in advertisements on a four point scale of very essential, essential, neutral and not essential.

VE-very essential, E- essential, N-neutral, NE-not essential

Table 2 gives the opinion of the respondents about the necessity for various factors in advertising. 60 percent of the

respondents opine that using celebrities in advertisements are essential, 31.2 percent feel that product comparisons in advertisements is essential, 39.2 percent feel price comparison is very essential, 75.2 percent and 41.6 percent of the respondents opine that selling with sex and sentiments is not essential.

General Opinion on Advertisements

Table 3 presents the general opinion of the respondents on advertisements. The respondents were asked to express their opinion on a five point scale of strongly agree, agree, neutral, disagree and strongly disagree.

Table 3 - General Opinion on Advertisements

Questions		SA	A	N	D	SD	Total
Advertising is essential	No.	70	50	5	0	0	125
	percent	56	40	4	0	0	100
Quite often advertising is Amusing and entertaining	No.	22	70	28	5	0	125
	percent	17.6	56	22.4	4	0	100
Most advertising insults the intelligence of the average consumer	No.	13	52	34	26	0	125
	percent	10.4	41.6	27.2	20.8	0	100
About fashions and what to buy to impress others is learnt	No.	26	56	31	10	2	125
	percent	20.8	1.6	8	24.8	44.8	100
Advertising tells me which brand have the features I am looking for	No.	35	65	19	5	1	125
	percent	28	52	15.2	4	0.8	100
Advertising promotes undesirable values in our society.	No.	9	59	31	21	5	125
	percent	7.2	47.2	24.8	16.8	4	100
Sometimes I take pleasure in thinking about what I saw or heard or read in advertisements.	No.	20	59	30	14	2	125
	percent	16	47.2	24	11.2	1.6	100
Advertising helps me know which products will or won't reflect the sort of person I am.	No.	19	40	40	22	4	125
	percent	15.2	32	32	17.6	3.2	100
Advertisements present a true picture of the product advertised.	No.	20	23	22	50	10	125
	percent	16.0	18.4	17.6	40	8	100
Sometimes advertisements are even more enjoyable than other media contents.	No.	22	58	22	19	4	125
	percent	17.6	46.4	17.6	15.2	3.2	100
Advertising helps me to keep up to date about products/services available in the market place.	No.	30	73	7	8	7	125
	percent	24	58.4	5.6	6.4	5.6	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree.

From the above table it is clear that 56 percent of respondents strongly agree that advertising is essential, 56 percent of respondents agree that quite often advertising is amusing and entertaining, 41.6 percent of respondents agree that most advertising insults the intelligence of the average consumer, 44.8 percent of respondents strongly disagree that about fashions and what to buy to impress others is learnt and 52 Percent of respondents agree that advertising tells them which brand have the features that they are looking for.

47.2 percent of respondents agree that advertising promotes undesirable values in our society, 47.2 percent of respondents agree that sometimes they take pleasure in thinking about what they saw or heard or read in advertisements, 40 percent of respondents disagree that in general, advertisements present a true picture of the product advertised, 46.4 percent of respondents agree that sometimes advertisements are even more enjoyable than other media contents and 58.4 percent of respondents agree advertising helps me to keep up to date about products/services available in the market place.

Table 4 - Targeting Children in Advertisements

Questions		SA	A	N	D	SD	Total
Most advertising distorts the value of youth	No.	19	60	40	6	0	125
	percent	15.2	48	32	4.8	0	100
Advertising stifles the creativity in children	No.	13	76	22	12	2	125
	percent	10.4	60.8	17.6	9.6	1.6	100
Advertising plays a important role in educating children about what products are good for them	No.	28	50	25	19	3	125
	percent	22.4	40	20	15.2	2.4	100
Targeting children through advertising is highly objectionable	No.	14	36	41	25	9	125
	percent	11.2	28.8	32.8	20	7.2	100
Advertising leads children to make unreasonable purchase demands on parents	No.	45	52	16	12	0	125
	percent	36	41.6	12.8	9.6	0	100
Most parents are not concerned about the advertising directed at their children	No.	12	59	29	21	4	125
	percent	9.6	47.2	23.2	16.8	3.2	100
There should be a law to control the advertisements targeting children	No.	35	60	12	6	3	125
	percent	28	48	16.8	4.8	2.4	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree.

Targeting Children in Advertisements

Table 4 gives the views of the respondents about targeting children in advertisements.

From the above table it is clear that 48 percent of respondents agree that most advertising distorts the value of youth, 60.8 percent of respondents agree advertising stifles the creativity in children, 40 percent of respondents agree advertising plays an important role in educating children about what

products are good for them, 32.8 percent of respondents neither agree nor disagree about targeting children through advertising is highly objectionable, 41.6 percent of respondents agree advertising leads children to make unreasonable purchase demands on parents, 47.2 percent of respondents agree most parents are not concerned about the advertising directed at their children and 48 percent of respondents agree there should be a law to control the advertisements targeting children.

Table 5 - Use of Sex in Advertisements

Questions		SA	A	N	D	SD	TOTAL
There is too much sex in advertising today	No.	35	49	22	10	9	125
	percent	28	39.2	17.6	8	7.2	100
It's wrong for advertisers to use sex in advertisements	No.	60	41	11	8	5	125
	percent	48	32.8	8.8	6.4	4	100

Scantily clad women makes advertisements attractive	No.	14	30	33	28	20	125
	percent	11.2	24	26.4	22.4	16	100
Advertisements should always show women in a respectful manner	No.	69	41	9	3	3	125
	percent	55.2	32.8	7.2	2.4	2.4	100
Law should prohibit sexually suggestive advertisements	No.	70	36	12	6	1	125
	percent	56	28.8	9.6	4.8	0.8	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree

Use of Sex in Advertisements

The opinion of the respondents regarding the use of sex in advertisements to influence the viewers, is presented in Table 5.

From Table 5 it is clear that 39.2 percent of respondents agree that there is too much sex in advertising today, 48 percent of respondents strongly agree it's wrong for advertisers to use sex in advertisements, 26.4 percent of respondents neither agree nor disagree about scantily clad

women makes advertisements attractive, 55.2 percent of respondents strongly agree advertisements should always show women in a respectful manner and 56 percent of respondents strongly agree Law should prohibit sexually suggestive advertisements.

Promotion of Materialism through Advertisements

The respondents' views on whether advertisements are promoting materialism among the people are given in Table 6.

Table 6 - Promotion of Materialism through Advertisements

Questions		SA	A	N	D	SD	Total
Advertising persuades people to buy things they should not buy	No.	25	76	17	7	0	125
	percent	20	60.8	13.6	5.6	0	100
Advertising is making us a materialistic society, overly interested in buying and owning things	No.	21	63	31	10	0	125
	percent	16.8	50.4	24.8	8.0	0	100
Advertising makes people buy unaffordable products just to show off	No.	25	62	26	10	2	125
	percent	20	49.6	20.8	8	1.6	100
Advertising makes people live in a world of fantasy	No.	30	73	17	5	0	125
	percent	24	58.4	13.6	4	0	100
Because of advertising people buy a lot of things they don't really needed	No.	41	47	19	18	0	125
	percent	32.8	37.6	15.2	14.4	0	100
Advertising leads to waste of natural resources by creating desires for unnecessary goods	No.	26	64	15	20	0	125
	percent	20.8	51.2	12.0	16.0	0	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree

From the above table it is clear that 60.8 percent of respondents agree that Advertising persuades people to buy things they should not buy, 50.4 percent of respondents agree that advertising is making us a materialistic society, overly interested in buying and owning things, 49.6 percent of respondents agree that advertising makes people buy unaffordable products just to show off, 58.4 percent of respondents agree that advertising makes people live in a world of fantasy, 37.6 percent of respondents agree that

because of advertising people buy a lot of things they don't really need and 51.2 percent of respondents agree that advertising leads to waste of natural resources by creating desires for unnecessary goods.

Economic Effects of Advertising

The economic effects of advertisements on the society as well as the individual is depicted in Table 7.

Table 7 - Economic Effects of Advertising

Questions		SA	A	N	D	SD	Total
Advertising is valuable source of product information	No.	41	75	4	5	0	125
	percent	32.8	60	3.2	4	0	100
Advertising helps raise our standard of living	No.	17	47	28	29	4	125
	percent	13.6	37.6	22.4	23.2	3.2	100
Advertising results in better products for the public	No.	19	47	43	13	3	125
	percent	15.2	37.6	34.4	10.4	2.4	100
In general advertising results in lower prices	No.	10	16	30	55	14	125
	percent	8	12.8	24	44	11.2	100
In general advertising helps our nation economy	No.	6	57	42	13	7	125
	percent	4.8	45.6	33.6	10.4	5.6	100
Mostly advertising is wasteful of our economic resources	No.	13	19	47	35	11	125
	percent	10.4	15.2	37.6	28	8.8	100
In general advertising promotes competition which benefits the consumer	No.	19	69	25	9	3	125
	percent	15.2	55.2	20	7.2	2.4	100
In general brand that are advertised are better in quality than brands that are not advertised	No.	17	42	28	33	5	125
	percent	13.6	33.6	22.4	26.4	4	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree.

From the above table it is clear that 60 percent of respondents agree that advertising is valuable source of product information, 37.6 percent of respondents agree that advertising helps raise our standard of living, 37.6 percent of respondents agree that advertising results in better products for the public, 44 percent of respondents disagree that in general advertising results in lower prices, 45.6 percent of respondents agree that in general advertising helps our nation

economy, 37.6 percent of respondents neither agree nor disagree about, mostly advertising is wasteful of our economic resources, 55.2 percent of respondents agree that in general advertising promotes competition which benefits the consumer and 33.6 percent of respondents agree that. In general, brands that are advertised are better in quality than brands that are not advertised.

Table 8 - Comparative Advertising

Questions		SA	A	N	D	SD	Total
Advertisement depicting comparisons with competitor's brand are more useful	No.	21	55	29	18	2	125
	percent	16.8	44	23.2	14.4	1.6	100
Comparative advertising presents a true picture of the product advertised	No.	19	45	31	28	2	125
	percent	15.2	36	24.8	22.4	1.6	100
It degrades rival's product or substitute products	No.	15	53	40	15	2	125
	percent	12	42.4	32	12	1.6	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree.

Comparative Advertising

From the above table it is clear that 44 percent of respondents agree that advertisements depicting comparisons with competitor's brand are more useful, 36 percent of respondents agree that comparative advertising presents a true picture of the product advertised, and 42.4 percent of respon-

dents agree that it degrades rival's product or substitute products.

Use of Celebrities in Advertisements

Table 9 tabulates the views of the respondents on use of celebrities in advertisements. Celebrity advertisements have their own advantages and disadvantages.

Table 9 – Use of Celebrities in Advertisements

Questions		SA	A	N	D	SD	Total
Celebrities should be used in advertisements	No.	21	60	24	14	6	125
	percent	16.8	48	19.2	11.2	4.8	100
Endorsement by celebrities in advertising increases the cost of products	No.	43	54	16	9	3	125
	percent	34.4	43.2	12.8	7.2	2.4	100
Celebrities are used in advertisements to mislead the consumers	No.	19	43	41	21	1	125
	percent	15.2	34.4	32.8	16.8	0.8	100
Celebrities are used to sell products they probably don't even use themselves	No.	47	35	25	16	2	125
	percent	37.6	28	20	12.8	1.6	100

SA- Strongly Agree, A- Agree, N- Neutral, D- Disagree, SD- Strongly Disagree

From the above table it is clear that 48 percent of respondents agree that celebrities should be used in advertisements, 43.2 percent of respondents agree that endorsement by celebrities in advertising increases the cost of products, 34.4 percent of respondents agree that celebrities are used in advertisements to mislead the consumers, and 37.6 percent of respondents strongly

agree that celebrities are used to sell products they probably don't even use themselves.

Opinion about Advertisements Ethics

The respondents' opinions whether they feel some ethics is followed in advertisements or not is given in Table 10.

Table 10 - Opinion about Advertisements Ethics

Advertisements follow Ethics	No. of Respondents	Percentage
Yes	44	35.2
No	81	64.8
Total	125	100.0

It is found from the table10 that out of the total respondents taken for the study, 81 percent of the respondents felt most advertisements do not

follow ethics in advertising, 44 percent of the respondents felt advertisements do follow ethics in advertising.

Table 11 – How the advertisements are

Opinion on Advertisements	No. of Respondents	Percent
Advertising is misleading	7	5.6
Some products\services promoted in advertising are bad for our society	38	30.4
Most of the advertisements are appearing in mass media are unethical and depictive	36	28.8
Total	81	64.8

It is found from Table11 that out of the respondents who have said ethics is not followed, 30.4 percent of the respondents felt some products\services promoted in advertising are bad for our society, 28.8 percent of the respondents felt most of the advertisements are appearing in mass media are unethical and depictive, 5.6 percent of the respondents felt advertising is misleading.

Amount Limit to reduce Unfair Advertisements

The respondents were asked if any limit on the amount spent on advertisement has to be fixed in order to reduce unethical advertisements. Their opinion is presented in Table 12.

Table 12 - Amount Limit to reduce Unfair Advertisements

Opinion	No. of Respondents	Percentage
Yes	117	93.6
No	8	6.4
Total	125	100.0

It is found from the table 12 that out of the total respondents taken for the study, 117 of the respondents (93.6 percent) felt there should be some amount limit to

reduce unfair advertisements, 6.4 percent of the respondents felt there should not be any amount limit for unfair advertisements.

Table 13 - Steps taken to reduce Unethical Advertisements

Steps taken to reduce Unethical Advertisements	No. of Respondents	Percent
A judicial regulatory body should be there to enforce strict ethics in advertising	27	21.6
Ban the advertisements which is unethical	41	32.8
Cancel their license	29	23.2
Company should held liable for deceptive and unfair advertising	28	22.4
Total	125	100

Steps Taken To Reduce Unethical Advertisements

Table 13 gives the respondents opinion about the steps to be taken to reduce unethical advertisements.

It is found from the table 13 that out of the 125 respondents taken for the study, 32.4 percent of the respondents felt that advertisements which is unethical should be banned, 23.2 percent of the respondents felt that their license should be cancelled, 22.4 percent felt that company should held liable for deceptive and unfair advertising, 21.6 percent felt that a judicial regulatory body should be there to enforce strict ethics in advertising.

Chi Square Analysis

Personal Factors and General Opinion on Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their general opinion on advertisements.

It is evident from the Table 14 that the hypothesis is accepted (Not significant) in five cases and in three cases the hypothesis is rejected (significant). It is concluded that occupation, Family monthly income and family size have significant influence on their general opinion on advertisements.

Table 14 - Personal Factors and General Opinion on Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	28.400	19	.076	Not Significant
Sex	23.847	19	.202	Not Significant
Educational Qualification	46.286	38	.167	Not Significant
Martial status	52.030	38	.064	Not Significant
Occupation	115.354	76	.002	Significant
Family monthly Income	104.791	57	.000	Significant
Family Size	65.876	38	.003	Significant
Family type	25.729	19	.138	Not Significant

Personal Factors and Opinion on Targeting Children in Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on targeting children in advertisements.

Table 15 - Personal Factors and Opinion on Targeting Children in Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	20.897	17	.231	Not Significant
Sex	27.876	17	.046	Significant
Educational Qualification	70.936	34	.000	Significant
Marital status	34.325	34	.452	Not Significant
Occupation	107.140	68	.002	Significant
Family monthly Income	78.358	51	.008	Significant
Family Size	36.506	34	.353	Not Significant
Family type	16.761	17	.471	Not Significant

It is evident from the Table 15 that the hypothesis is accepted (Not significant) in four cases and in all other cases the hypothesis is rejected (significant). It is concluded that sex, educational qualification, occupation, and family monthly income have significant influence on their opinion on targeting children in advertisements.

Personal Factors and Opinion on Use of Sex in Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on use of sex in advertisements.

Table 16 - Personal Factors and Opinion on Use of Sex in Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	25.602	14	.029	Significant
Sex	24.753	14	.037	Significant
Educational Qualification	34.517	28	.184	Not Significant
Marital status	29.318	28	.397	Not Significant
Occupation	96.720	56	.001	Significant
Family monthly Income	63.912	42	.016	Significant
Family Size	27.154	28	.510	Not Significant
Family type	11.270	14	.665	Not Significant

It is evident from the Table 16 that the hypothesis is accepted (Not significant) in four cases and in all other cases the hypothesis is rejected (significant). It is concluded that age, sex, occupation, and family monthly income have significant influence on their opinion on use of sex in advertisements.

Personal Factors and Opinion on Promotion of Materialism through Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on promotion of materialism through advertisements.

Table 17 - Personal Factors and Opinion on Promotion of Materialism through Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	21.649	15	.117	Not Significant
Sex	23.258	15	.079	Not Significant
Educational Qualification	33.212	30	.313	Not Significant
Marital status	42.224	30	.068	Not Significant
Occupation	81.952	60	.031	Significant
Family monthly Income	63.684	45	.035	Significant
Family Size	34.850	30	.248	Not Significant
Family type	21.737	15	.115	Not Significant

It is evident from the Table 17 that the hypothesis is accepted (Not significant) in six cases and in two cases the hypothesis is rejected (significant). It is concluded that occupation, and family monthly income have significant influence on their opinion on promotion of materialism through advertisements.

Personal Factors and Opinion on Economic Effects of Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on economic effects of advertisements.

Table 18 - Personal Factors and Opinion on Economic Effects of Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	44.279	20	.001	Significant
Sex	37.745	20	.010	Significant
Educational Qualification	39.704	40	.483	Not Significant
Marital status	63.179	40	.011	Significant
Occupation	142.247	80	.000	Significant
Family monthly Income	96.850	60	.002	Significant
Family Size	41.855	40	.390	Not Significant
Family type	15.871	20	.725	Not Significant

It is evident from the Table 18 that the hypothesis is accepted (Not significant) in three cases and in all other cases the hypothesis is rejected (significant). It is concluded that age, sex, marital status, occupation, and family monthly income have significant influence on their opinion on economic effects of advertisements.

Personal Factors and Opinion on Comparative Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on comparative advertisements.

Table 19 - Personal Factors and Opinion on Comparative Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	16.731	9	.053	Not Significant
Sex	12.218	9	.201	Not Significant
Educational Qualification	19.752	18	.347	Not Significant
Marital status	79.403	18	.000	Significant
Occupation	60.705	36	.006	Significant
Family monthly Income	29.698	27	.328	Not Significant
Family Size	34.181	18	.012	Significant
Family type	15.927	9	.068	Not Significant

It is evident from the Table 19 that the hypothesis is accepted (Not significant) in five cases and in three cases the hypothesis is rejected (significant). It is concluded that marital status, occupation, and family size of the respondents have significant influence on their opinion on comparative advertisements.

Personal Factors and Opinion on Use of Celebrities in Advertisements

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on use of celebrities in advertisements.

Table 20 - Personal Factors and Opinion on Use of Celebrities in Advertisements

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	19.017	11	.061	Not Significant
Sex	21.036	11	.033	Significant
Educational Qualification	38.061	22	.018	Significant
Marital status	22.172	22	.450	Not Significant
Occupation	54.734	44	.129	Not Significant
Family monthly Income	48.565	33	.039	Significant
Family Size	40.834	22	.009	Significant
Family type	10.043	11	.527	Not Significant

It is evident from the Table 20 that the hypothesis is accepted (Not significant) in four cases and in all other cases the hypothesis is rejected (significant). It is concluded that sex, educational qualification, family monthly income and family size of the respondents have significant influence on their opinion on use of celebrities in advertisements.

Personal Factors and Opinion on Steps to be taken to reduce Unethical Advertisement

Hypothesis: The personal factors of the respondents have no significant influence on their opinion on steps to be taken to reduce unethical advertisement.

Table 21 - Personal Factors and Opinion on Steps to be taken to reduce Unethical Advertisement

Personal Factor	Chi-square value	df	Asymp. Sig.	Significant/ Not Significant
Age	8.754	3	.033	Significant
Sex	4.166	3	.244	Not Significant
Educational Qualification	21.409	6	.002	Significant
Marital status	9.493	3	.023	Significant
Occupation	15.176	12	.232	Not Significant
Family monthly Income	19.718	9	.020	Significant
Family Size	5.852	6	.440	Not Significant
Family type	1.891	3	.595	Not Significant
Attractive Media	11.077	9	.270	Not Significant
Awareness of ASCI	2.256	3	.521	Not Significant

It is evident from the Table 21 that the hypothesis is accepted (Not significant) in six cases and in four cases the hypothesis is rejected (significant). It is concluded that age, educational qualification, marital status, and family monthly income have significant influence on their opinion on steps to be taken to reduce unethical advertisement.

Anova - Personal Factors and Opinion on Ethics in Advertisement

ANOVA was carried out at five percent level of significance to check if there is any significant difference among the demographic variables of the respondents and their opinion on ethics in advertisements.

Table 22 - ANOVA - Personal Factors and Opinion on Ethics in Advertisement

Personal Factors		Sum of Squares	df	Mean squares	F	Significance
Age	Between Group	.051	1	.051	.219	.640
	Within Groups	28.461	123	.231		
	Total	28.512	124			
Educational Qualification	Between Groups	.222	2	.111	.478	.621
	Within Groups	28.290	122	.232		
	Total	28.512	124			
Occupation	Between Groups	2.064	4	.516	2.342	.059
	Within Group	26.448	120	.220		
	Total	28.512	124			
Monthly family Income	Between Groups	4.050	3	1.350	6.677	.000
	Within Groups	24.462	121	.202		
	Total	28.512	124			
Family Size	Between Groups	3.246	2	1.623	7.837	.001
	Within Groups	25.266	122	.207		
	Total	28.512	124			
Attractive media	Between Group	1.417	3	.472	2.110	.103
	Within Groups	27.095	121	.224		
	Total	28.512	124			

Hypothesis: There is no significant difference among the personal factor groups and opinion on ethics in advertisements.

Results of ANOVA are presented in Table 22. The personal factors age group, educational qualification, occupation, and attractive media wise classification of respondents does not have any difference on opinion about ethics in advertisement and the hypothesis is accepted. The hypothesis is rejected in case of monthly family income, family size which shows that there is difference in opinion on ethics in advertisement.

T – test

T-test is carried out at five percent level of significance to check if there is any significant relationship between the demographic variables such as sex, family type and marital status of the respondents and opinion on ethics in advertisements.

Hypothesis: There is no significant difference among the personal factor groups (sex, marital status, family type) and opinion on ethics in advertisements.

Table 23 - T test - Personal Factors and Opinion on Ethics in Advertisement

Personal factors	t	df	Sig. (2-tailed)
Sex	2.790	124	.006
Marital status	7.144	124	.000
Family type	-4.926	124	.000

Table 23 presents the results of t-test. With the significant value of .006, .000 it is clear that there is significant difference among different sex, marital status and family type wise group of the respondents and opinion on ethics in advertisements at five percent level of significance. Hence the hypothesis is rejected.

Conclusion

In the present competitive world manufactures are facing many problems to distribute their products and hence a huge amount is spent in advertisement. Their motive is to earn more profit and hence unethical practices are followed to sell the products. Many women and men professionally engaged in advertising do have sensitive consciences, high ethical standards and a strong sense of responsibility. But even for them external pressures from the clients who commission their work as well as from the competitive internal dynamics of their profession can create powerful inducements to unethical behaviour. That underlines the need for external structures and systems to support and encourage responsible practice in advertising and to discourage the irresponsible. The findings of the above study also state that ethics should be followed in advertisements, use of sex and sentiments in ads to be avoided. Majority of the respondents do not know

the existence of ASCI. Hence more awareness is to be created and the board has to function effectively and ban advertisements which do not follow the ethics.

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Measuring Service Quality: Iran Railway

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Abstract

The paper tries to assess service quality in passenger rail service based on the zone of tolerance and its relationship with perceived service value and passenger satisfaction. Service quality is measured using two concepts: service superiority and service adequacy. The relationship among these concepts and perceived service value and passenger satisfaction form the objectives of the study. The results of the research indicate that perceived service quality is within the passenger zone of tolerance, hence the passenger rail service level is acceptable to passenger's view. Service superiority and service adequacy influence perceived service value and satisfaction and perceived value plays a mediating role in the effect of service superiority and service adequacy on the passenger satisfaction. Furthermore, there is a positive significant relationship between perceived service value and passenger satisfaction.

Dynamic environment and increasing competition have made organizations more competitive in order to better satisfy their customers and attract new customers to survive and continue their activities. For service organizations, providing qualified and valuable services satisfying the customers is an important factor in maintaining the existing customers and attracting new ones (Amiri et al., 2008). In fact, service quality, service perceived value and customer satisfaction

have a determining role in maintaining and increasing the number of customers and therefore in the profitability and success of organizations (Caruana et al., 2000; Parasuraman, 1997; Yonggui and Lo, 2002). That is why over the recent decade, many researchers and practitioners have directed their attention to measure and assess these concepts in organizations and study the relationship between them. A deeper understanding of the interactions among



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service quality, service perceived value, and satisfaction can significantly help more effective management of service organizations, playing an important role in determining customer choice, their decisions to continue or terminate a relationship, and ultimately maintaining customers leading to long-term profitability of the organizations (Caruana et al., 2000).

Recent researches recognized that high-quality services are essential for firms that want to be successful in their businesses (Parasuraman et al., 1988; Rust and Oliver, 1994). In fact, high-quality services lead to customer satisfaction and loyalty (Tsoukatos and Rand, 2006), higher profitability (Zethaml, et al., 1996), and lower costs (Chang and Chen, 1998). Experts presented various methods and models for measuring quality in service organizations, and SERVQUAL model is the most noted amongst them. This model, presented by Parasuraman, et al. in 1985, is used in many service organizations and industries ever since, though in some cases there are some modifications or some new scales. Three-column format SERVQUAL instrument is the last corrected version of SERVQUAL model presented by Parasuraman et al. in 1994. Cavana et al. (2007) developed this model and added some variables to it using them to measure the quality of passenger rail service in New Zealand. Applying some modifications and improvements, the present research is based on this recent model to measure the quality of passenger rail service in Iran. Taking a new approach, the relationship between service quality and perceived value and satisfaction in the passenger rail service has been studied too.

Literature Review

Service Quality: Service quality can help organizations to differentiate themselves from other organizations and gain a lasting competitive advantage (Ghobadian et al., 1994). Providing qualified services, companies can get desirable competitive position in market. Deeply quality-oriented companies develop in both aspects of the internal culture and external reputation; so that it becomes very difficult for other competitors to imitate (Robert and Worn, 1998). Experts of this field believe that a service is qualified if it can satisfy customer's wants and needs, and levels of provided

service meet the customer's expectations (Amiri et al., 2008). Customer expectations are related to what customer's desire is and what, in their view, their service provider should offer. Therefore, the quality is evaluated and judged by the customer (Kotler et al., 2001). In order to be able to apply quality as a competitive advantage, organizations, compared to the competitors, should give a more appropriate response to the customer expectation in the case of the quality of the services which itself needs an accurate understanding of determining factors (Ghobadian et al. 1994).

One of the most famous and most common models for measuring service quality is SERVQUAL model presented by Parasuraman, Zethaml and Berry (1988). The model includes five dimensions including assurance, empathy, reliability, responsiveness and tangibles. Each of these dimensions includes several factors that is measured by a seven rating scale from strongly agree (=7) to strongly disagree (=1). SERVQUAL questionnaire is composed of two sets of 22 questions. The first set asks about customers' expectations of the service, and the next section asks about customers' perceptions of services. According to the difference between the expectations and perceptions of the respondents, overall service quality is achieved (Robinson, 1999).

This model follows the gap theory presented by Parasuraman et al. in 1985 and due to having appropriate methodology, it is a strong diagnostic instrument considered to have more practical implications than other models (Ghobadian et al., 1994). In fact, many definitions and interpretations of service quality are based on the concept of disconfirmation (the gap between the perceived service and the expected service) which is what SERVQUAL model focuses on.

However, despite many applications, this model has faced criticisms. For example, the validity of the scores difference between customer expectations and perceptions has been seriously questioned. Accordingly, some researchers suggested that the scores related to customer perception of the performance is a better indicator of service quality; and compared to the different scores, it is more correlated

with general service quality indicator. The model based on this idea propped by Cronin and Taylor (1992, 1994) is called service performance model (SERVPERP). Some researchers also believe that SERVQUAL can not be used as a general tool to measure service quality in all service industries and it is necessary to do some modifications with this instrument (Babakus and Boller, 1992). Moreover, some researchers opine that the concept of expectations in SERVQUAL questionnaire is ambiguous. These researchers claim that in the SERVQUAL questionnaire, it is not specified for the customers whether expectations mean expectation regardless of existing limitations and in an ideal level, or expectations regarding the common limitations of the company such as limitations in human resources, equipments, etc. (Teas, 1993).

In response to this criticism, Parasuraman et al. (1991, 1994) examined the structure of SERVQUAL and did some improvements in this instrument. They divided the expectations into two groups: desired expectations and adequate expectations. Accordingly, instead of having just one level of expectations, customers have a range of expectations called customer's zone of tolerance. The level of desired services is on the top of this range (level of service that customers desire to receive) and the below is the level of adequate services (minimum level of services that customers are willing to accept). If the service provided is better than the desired level of service, customers perceive the service extremely good and become delighted. But if the perceived service is below the level of adequate service, then customers will be unsatisfied and they may choose another organization (Nadiri and Hussain, 2005, Walker and Baker, 2000). Therefore the zone of tolerance, resulted from the difference between desirable service and adequate service, determines a range within which customers are willing to accept variations in service delivery (Nadiri and Hussain, 2005). Using this approach for evaluating service quality can help the managers to analyze the effectiveness of the service quality of the organization, understand the importance and the priority of quality factors identify problems and deficiencies in service, manage customer expectations and provide practical solutions to reduce the problems

of quality (Cavana et al., 2007, Nadiri and Hussain, 2005). Also, this approach can be useful to identify and better understand the relationship between service quality and Customer's Behavioural Intentions (Kennet and Sweeney, 2007).

However, one of the problems in service quality measurement using revised SERVQUAL instrument (three-column format SERVQUAL) is that it is difficult to separate the levels of expectations for each choice (question). In fact, this method makes the questionnaire longer and complex (Cavana et al., 2007), hence reducing the tendency for people to answer the questions, leading to increase the number of questions with no answer. Studies of Cavana et al. (2007) and Nadiri and Hussain, (2005) and Walker and Baker, (2000) indicated that most respondents score high for their desired level of service and that the desirable level of expectations is relatively stable among the various aspects of service. In addition, Walker and Baker (2000) presented that the customer experience in using the service does not have a big effect on their level of desired expectations. Also practically, meeting and outshining customer desired expectation level seems very difficult with regard to the dynamism of their expectations and the existence of situational factors. Therefore it can be claimed that the desired level of service practically indicates the high level of customer expectation of organization and its service, and instead of directly measuring this level of service, it can be considered as an equivalent to the ideal level of service, indicating the maximum customer expectation of the organization, and the highest score possible can be allocated to it. Hence, in this research instead of the level of desired service, the ideal service is considered and this level of expectation has not been directly questioned. Thus the width of the zone of tolerance only depends on the adequate level of services and the higher this level, the narrower the zone of tolerance. Applying these changes, the performance of the organization in quality dimensions can never go beyond the acceptable region of service quality. Here customer's delight means something else; it means that the closer perceived services to the ideal level, the more satisfied and delighted the customers are.

It should be noted that in present research, studying numerous articles and also consulting academic experts' comments, and based on the study of Cavana et al. (2007), two variables, comfort and convenience, which are related to the measurement of the service quality in the passenger rail industry, added to the original SERVQUAL model including "assurance, empathy, reliability, responsiveness and tangibles."

This model, called modified SERVQUAL, uses two concepts of service superiority and service adequacy to measure service quality. Service superiority means the difference between perceived service quality and ideal service quality and service adequacy means the difference between perceived service quality and adequate service quality.

Service superiority score = Perceived Service quality score – Ideal service score

Service adequacy score = Perceived Service quality score – Adequate service score

In fact, lower distance between the current level of service with ideal level of services indicates that better (superior) services is provided and therefore it shows higher quality of the services of the organization. On the other hand, the higher the level of services compared to customer expectations, the higher the service adequacy and therefore more qualified is the provided service. Modified SERVQUAL model, used in this research to measure the service quality of rail passenger, is shown in Figure 1.

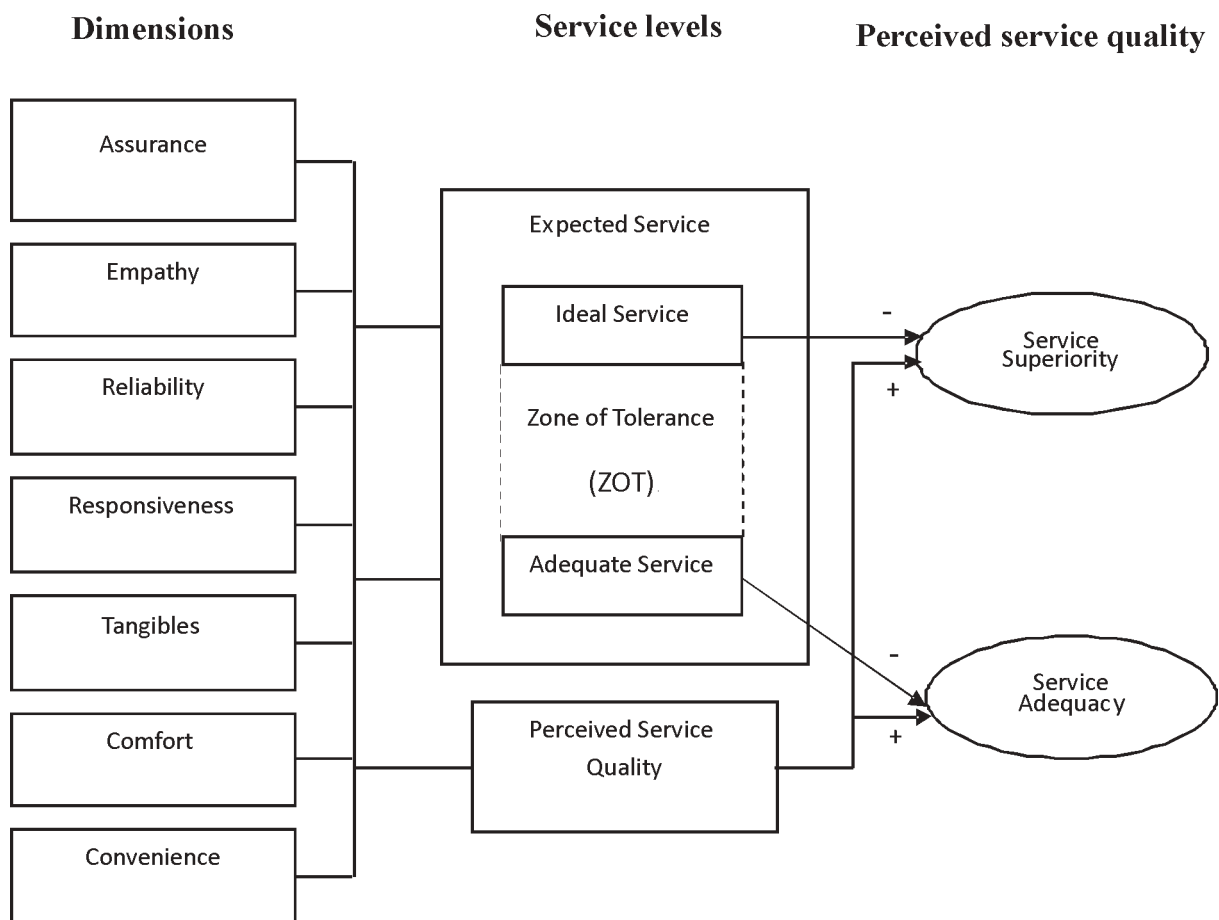


Fig. 1: Modified SERVQUAL Model

Customer Satisfaction Customer satisfaction is the extent of the desirability of a customer due to the various characteristics of a product or service; it is the source of profitability, and a reason for continuing the activities of the organization, (Hernon et al., 1999). This is one of the important theoretical and experimental issues for marketing and market researchers, considered as the essence of success in competitive world. Several definitions of satisfaction are presented in the marketing literature. Kotler (2001) defined customer satisfaction as the degree in which the actual performance of the organization meets the customer expectations. According to him, if the performance of an organization meets the customer expectations, then the customer is satisfied; otherwise, he/she may feel dissatisfaction. Jamal and Naser (2002) also considered customer satisfaction as the customer's feeling or attitude towards a product or service after using it and they believe that customer satisfaction is a key factor in the formation of customer's tendency to buy in the future. Brown (1992) also believes that customer satisfaction is the fulfillment of needs, wants and expectations, which can result in repeating purchase, loyalty and positive word of mouth.

Although like quality, satisfaction is defined as the difference between expectation and performance, there are some differences between these two concepts. Expectations in service quality refer to "ideal" or what a customer would expect an excellent firm to provide, while expectations in service satisfaction refer to what customer believe "will" happen (Caruana et al., 2000; Parasuraman et al., 1998). Satisfaction is a broader concept compared to quality as well, because quality focuses on the dimensions of service quality, while satisfaction is more comprehensive and includes service quality, price, personal and situational factors (Zeithaml and Bitner, 1996). On the other hand, satisfaction assessment necessarily requires customer experience while quality does not (Caruana, 2002; Parasuraman et al.1998; Cronin and Taylor, 1994). In addition, service quality is related to cognitive judgment while satisfaction is related to affective judgments (Choi et al., 2004; Chen, 2008).

Two types of satisfaction are mentioned in marketing texts: Transactional satisfaction and cumulative or overall satisfaction. Transactional satisfaction is defined as the post-choice evaluation and judgment of a specific purchase occasion, while cumulative satisfaction is customer's overall post-consumptions evaluation judgment based on all encounters and experiences with a particular organization (Spiteri and Dion, 2004; Chen, 2008) which is a better indicator compared to transactional satisfaction for evaluating customer behavioural intentions and the performance of the past, present and future of the company (Yanggui and Lo, 2002; Berli et al., 2004). Because customers decide to repeat the purchase based on their experiences with company up to the present time not based on the delivered services in a particular time and place (Berli et al., 2004), in this study, customer's overall satisfaction is studied and measured.

There have been numerous researches about the relationship between service quality and satisfaction. Some research argued that satisfaction over a time period leads to a general perception of service quality (Bolton and Drew, 1991; Parasuraman et al., 1988). Contrarily, some researches indicated that service quality is an anticipant of the customer satisfaction (Cronin and Taylor, 1992; Bibin et al., 2005; Choi et al., 2004). Cronin and Taylor (1994) and Sureshchandler et al (2002) showed that there is a mutual relationship between satisfaction and service quality.

Perceived Service Value: One of the key challenges that marketing managers are faced with, is that the service/product value should increase continuously through the improvement of service/product benefits, reducing costs or increasing productivity, or both (Sheth et al., 1999); because the superior value of a product/service represents a significant competitive advantage for the firm in building profits and customer satisfaction (Nauman, 1995). Considering the importance of this concept in the services industry, understanding the nature of its relationship with concepts such as quality and satisfaction is important.

Perceived value is defined as customer overall assessment of the utility of a product or service based

on the perceptions of what is received and what is given (Chen, 2008); it can be defined as a Trade-off between perceived benefits and perceived costs (Lovelock and Wright, 1999). Although superiority of service performance is the major component of perceived benefits, customers may consider other factors such as prestige or reputation as benefits. Costs spent can also be divided into two categories: monetary costs or the price paid and non-monetary costs, like time spent and the mental and physical stress experienced in receiving a service (Choi et al., 2004). If the benefits resulted from service are higher than spent costs, the net value increase. Yet, if service costs are higher than resulted benefits, the service faces a negative net value, and the customers may describe it as low-value and decide not to purchase it (Lovelock and Wright, 1999).

Like service quality, value does have a cognitive construct. Yet, contrary to the quality, perceived value

requires a Trade-off between benefits and costs (Choi et al., 2004). Oh (1999), expressing value equation, suggested that service quality is a part of customer value equation and in fact, it is the same as customer's view about product or service. Therefore, the customer may interpret that the organization has provided high quality services but he/she may feel that because of spent costs, the value is low.

Many studies have concluded that service quality directly effect on perceived value (Lai et al., 2008; Patrick, 2002; Cronin et al., 2000). In addition, some research results indicated that the service value is an antecedent to satisfaction and behavioural intentions (Dodds et al., 1991; Lai et al., 2008; McDougall and Lévesque, 2000). The studies, done by Murray and Howart (2002), showed that the perceived value plays a moderating role between service quality and satisfaction.

$$\text{Value equation} = \frac{\text{Results for the customer} + \text{Service/Produce quality}}{\text{Price} + \text{Non-monetary costs of getting the service/produce}}$$

Conceptual Model and Research Hypotheses

This paper aims to assess service quality of the rail passenger based on the concept of zone of tolerance and it also studies its relationship with service perceived value and customer satisfaction. The First hypothesis of the research regarding the status of service quality is expressed as follows:

H1: Perceived Service quality is within the passenger's zone of tolerance.

The concept of service adequacy is used to test this hypothesis. If the service adequacy scores are positive, it indicates that passenger's perceptions of service quality are above their minimum expectations and it is located within their zone of tolerance (ZOT) and to the passengers' view, the services provided are acceptable.

Considering the studies by other researchers found in the research literature, the following relational hypotheses have been developed. It should be noted that since two concepts of superiority and adequacy are used in modified SERVQUAL model, the relationship between these two concepts with perceive service value and customer satisfaction is studied from the second to the seventh hypotheses. The last hypothesis shows the relationship between perceived service value and passenger satisfaction as well. The research model is presented in figure (2).

H2: There is a positive and significant relationship between service superiority and service perceived value.

H3: There is a positive and significant relationship between service superiority and passenger satisfaction.

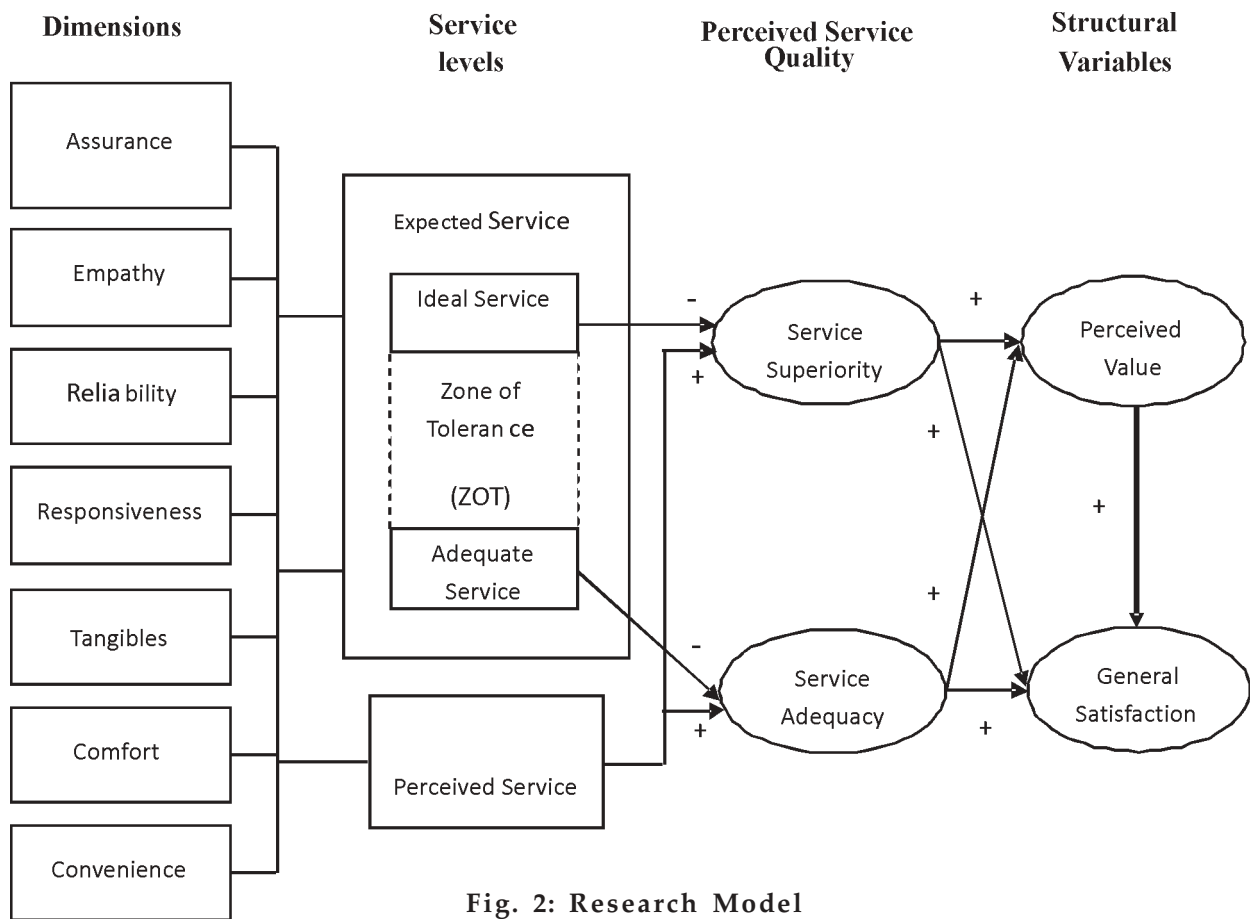


Fig. 2: Research Model

H4: Perceived value mediates the service superiority to satisfaction relationship.

H5: There is a positive and significant relationship between service adequacy and service perceived value.

H6: There is a positive and meaningful relationship between service adequacy and passenger satisfaction.

H7: Perceived value mediates the service adequacy to satisfaction relationship.

H8: There is a positive and significant relationship between perceived service value and passenger satisfaction.

Methodology

Population and Sampling

The research sample includes all of Tehran-Mashhad passengers of Raja Train Company in the months of August and September, 2009. Raja Company holds the passenger sector of the railroad in Iran; the Company was established in 1996. Tehran-Mashhad railroad is one of the most crowded railroads in Iran. According to statistics, more than seven million passengers travel annually through this railroad. Considering the limitations of time and resources, the simple random sampling method was used. Based on the agreement with the managers of the company, 430 questionnaires were distributed amongst passengers, and 385

questionnaires, found usable for analysis among questionnaires returned, were analyzed, showing the 90 percent response rate. Attached Table 1 shows the demographic statistical information of the sample.

Data Collection

A questionnaire was used for collecting data. The questions in the questionnaire were based on a review of the literature in airline and rail contexts, using comments from the academic as well as Raja Company experts. First part of the questionnaire includes 30 components to measure the service quality. In this part, the adequate levels of service and respondents perception of service quality regarding each of the components has been asked. Questions in this section developed considering the existing components in different models of service quality measurement, related to the subjects to passenger rail service quality, using SERVQUAL model and extended SERVQUAL model (adopted from Cavana et al., 2007). The choices encompass seven point scale from very low (=1) to very high (=7). As mentioned earlier, in this study the ideal level of customer expectations is not asked. But this level of expectations is considered equivalent to the maximum of the customer expectation, and the highest possible score (here, number 7) has been allocated to it.

Second part of the questionnaire, including two items, measures the service perceived value in which a five-point scale from extremely disagree (=1) to extremely agree (=5) was used. Using one question and through the seven point scale from very low (=1) to very high (=7), the third part of the questionnaire measures the overall satisfaction of the customers. Questions of the second and third part were adopted from Chen (2008). By using one question and through a seven point scale from very poor (=1) to very good (=7), the fourth part of the questionnaire assesses the general service quality (adopted from Cavana et al., 2007). Questions from 1st to 4th parts are attached as Table 2. Finally, the fifth part of the questionnaire measures demographic data of the sample using four items of gender, age, education and number of times in using the train during the year.

Reliability and Validity of the survey instrument; to ensure validity of the questionnaire, the designed questionnaire was distributed among 30 passengers of the Tehran-Mashhad railroad and according to the answers and comments given, the questionnaire was reviewed and corrective comments were applied. Then, Questionnaires were given to the academic experts and experts in Raja Company.

Also to ensure the validity of the modified SERVQUAL model questionnaire (first part of questionnaire), Convergent Validity was used. Convergent Validity is established when "the scores obtained by two or more different measuring tools for the same concept are highly correlated" (Cavana et al., 2007). Since service quality in the conceptual model is measured through service superiority and service adequacy, the correlation between the above concepts with the general service quality was measured using the Spearman Correlation Coefficient test. As shown in table (1), there are statistically significant correlation between service adequacy and service superiority with perception of overall quality regarding each dimension of SERVQUAL model. Therefore, the questionnaire has the necessary reliability and validity.

As mentioned earlier, service superiority is evaluated through the difference between perceived service score and ideal service score. Considering that in this research, the ideal service score that indicates the maximum of the customer expectations of the organization and its services is considered seven (i.e. the highest score in the range of seven), hence, like service superiority, there is also a meaningful relationship between perceived service quality and the overall service quality score.

According to the following table, service superiority correlates more with overall service quality, compared to service adequacy. This fact confirms some past researches results (e.g. Babakus and Buller, 1992) indicating that performance items in SERVQUAL exhibit a stronger correlation with service quality than the different score computations suggested by SERVQUAL.

Table 1: The Relationship between Service Adequacy and Service Superiority with Overall Service Quality

Dimensions	Number of Questions in each Dimension	Cronbach's Alpha Coefficients	
		Service Superiority	Service Adequacy
Assurance	5	0/685	0/513
Empathy	3	0/528	0/358
Reliability	4	0/641	0/559
Responsiveness	3	0/402	0/373
Tangibles	9	0/483	0/407
Comfort	3	0/567	0/443
Convenience	3	0/608	0/472
All components	30	0/624	0/553

To assess the internal validity of the modified SERVQUAL instrument (first part of questionnaire), four sets of Cronbach's Alpha, for perceived service quality, adequate service, service superiority and service adequacy, were computed for each of the seven

underlying dimensions. As shown in Table 2, all the dimensions were reasonably reliable, with greater than 0.7 alpha values. The Coefficient of Alpha Cronbach was also calculated for the perceived value and its result was 0.87, which is generally considered acceptable.

Table 2: Reliability Coefficients for the SERVQUAL Questionnaire

Dimensions	Number of Questions in each Dimension	Cronbach's Alpha Coefficients			
		Perceived Service Quality	Adequate Service	Service Superiority	Service Adequacy
Assurance	5	0/84	0/82	0/84	0/83
Empathy	3	0/85	0/88	0/85	0/85
Reliability	4	0/82	0/86	0/82	0/84
Responsiveness	3	0/75	0/72	0/75	0/73
Tangibles	9	0/82	0/90	0/82	0/88
Comfort	3	0/74	0/80	0/74	0/78
Convenience	3	0/77	0/84	0/77	0/82
All components	30	0/86	0/89	0/86	0/82

Data Analysis

To study the status of service quality, the level of service adequacy must be calculated, i.e. the difference between the score of passenger minimum expectation and score of perceived service quality. If

service adequacy score is positive, it indicates that passenger's perception of the current status is within the zone of tolerance (ZOT) and it can be concluded that the services are provided appropriately (refer to Table 3).

Table 3: Passenger Rail Service Quality Status regarding Each Dimension of the modified SERVQUAL Model

Dimensions	Adequate Service	Service Quality	Ideal Service	Zone of Tolerance	Service Superiority	Service Adequacy	Service Quality
Assurance	4/83	5/10	7	2/17	1/90	+0/27	Acceptable
Empathy	4/26	4/24	7	2/74	2/76	-0/02	Unacceptable
Reliability	4/78	4/69	7	2/22	2/31	-0/09	Unacceptable
Responsiveness	4/38	4/52	7	2/62	2/48	+0/14	Acceptable
Tangibles	4/31	4/72	7	2/69	2/28	+0/41	Acceptable
Comfort	4/62	4/55	7	2/38	2/45	-0/07	Unacceptable
Convenience	4/52	4/84	7	2/48	2/16	+0/32	Acceptable
All components	4/51	4/71	7	2/49	2/29	+0/20	Acceptable

Since the data in the Table (3) is related to the sample, the Wilcoxon Signed-rank Test was used to study the significant difference between the level of adequate service (minimum service expected by the passengers) and the current level of services. Test results (Table 4-A) shows that there is a significant statistical difference between the concepts mentioned, the variables for Assurance, Responsiveness, Tangibles, Convenience, and in 95 percent confidence level in general. Yet, there

is not such a meaningful difference in three variables of Empathy, Reliability, and Comfort. The significant difference between the current status of service providing and ideal level of service was studied using Wilcoxon Signed-rank Test. Results (Table 4-B) show that in all seven dimensions, and in 95 percent confidence level in general, there is a significant statistical difference between current status of service providing and ideal level of service.

Table 4: Test of Significance of the Difference between Levels of Expectations and Passenger’s Perception of Service Quality

A. Significance of the difference between levels of expectations and passenger’s perception of service quality								
Dimensions	Assurance	Empathy	Reliability	Responsiveness	Tangibles	Comfort	Convenience	Total
Statistics	-3/352	-1/244	-1/923	-2/176	-4/119	-1/632	-3/563	-2/901
Significant Level	0/000	0/079	0/051	0/032	0/000	0/061	0/000	0/004
B. Significance of the difference between current status of service proving and the ideal level of service								
Statistics	-3/047	-9/841	-5/531	-8/229	-9/188	-6/291	-4/997	-6/183
Significant Level	0/000	0/000	0/000	0/000	0/000	0/000	0/000	0/000

Totally, according to what mentioned above and the last row of Table 3, the score of perceived service quality (4/71) is higher than the minimum passenger’s expectation (4/51). Therefore, according to the

passenger’s view, it can be said that in the 95 percent confidence level, the service is provided acceptably. Also considering the data in Table (3), the following is noteworthy:

1. Passenger rail service regarding the Assurance, Responsiveness, Convenience and Tangibles variables is at an acceptable level and in three variables of Empathy, Comfort and Reliability is at an unacceptable level; yet in three latter cases, the current lower level is not statistically significant compared to the appropriate level.
2. The highest level of service adequacy belongs to the Tangibles and the lowest (most negative) belongs to the Reliability. In fact, among the dimensions of the modified SERVQUAL, service reliability is the most critical and problematic element and it is necessary to carry out corrective actions as soon as possible.
3. The highest level of service superiority is found in Assurance and the lowest (most negative) is found in Empathy. In other words, in all dimensions of modified SERVQUAL model, the best performance and highest level of service providing belong to assurance but in the case of service provider's empathy, the current service providing does not seem appropriate. Attached Table 2 shows the service quality of Raja, regarding of all components studied.

Relationship between Service Superiority, Perceived Value and Overall Satisfaction

Regression Analysis was used to test the second, third, and fourth research hypotheses, regarding service superiority, perceived value and overall passenger satisfaction. To determine the rate of variability of dependent variable caused by variations of the independent variable, the following three regression models were used. In the first and second models, perceived value and overall passenger satisfaction were regarded as the dependent variable and service superiority was regarded as the independent variable. In third regression model, the regression between dependent variable of "general passenger satisfaction" on the independent variable of "service superiority," and the mediate variable of "perceived service value" was measured. In other words, general passenger satisfaction was considered as a dependant variable and service superiority and perceived value were regarded as independent variables. The test results are shown in Table (5).

Table 5: Results of the Regression Equations of the Relationship between Service Superiority, perceived Value and Passenger overall Satisfaction¹

Dependent Variable	Perceived Value	Overall Passengers Satisfaction	Overall Passengers Satisfaction
R ²	0/422	0/381	0/791
F	129/42 ***	115/61***	193/56 ***
Beta: service superiority	0/650 ***	0/617 ***	0/185 ***
Beta: perceived value	----	---	0/725 ***

As noted in the table above, R² = 0/422 is resulted for the first model, hence it can be said that 42 percent of the dependent variable changes are expressed by the independent variable. In the second model, R² = 0/381 hence it can be concluded that about 38 percent of the dependent variable changes is expressed by the independent variable. In the third model, R² = 0/791 hence 79 percent of changes in general passengers'

satisfaction is expressed by Service Superiority and Perceived Value independent variables.

The third row of Table (5) shows the results of the ANOVA and regression tests. The results indicate the existence of linear relationship between the independent variable(s) and dependent variable in the models. The values resulted for beta (B) indicate that:

1. Increasing one unit in independent variable, i.e., "Service Superiority," the dependent variable, i.e. "Service Perceived Value" increases 0/650 unit.
2. Increasing one unit in independent variable, i.e., "service superiority," the dependent variable, i.e., "passenger overall satisfaction" increases 0/617 unit.
3. The beta coefficient for Service Superiority is 0/185 and 0/725 for Perceived Value, indicating that increasing one unit in independent variable of Perceived Value, the dependent variable increases more (compared to service superiority).

Therefore, although there is a significant linear relationship between both variables of Service Superiority and Perceived Value, there is a stronger relationship between Perceived Value and Passenger Satisfaction. Considering the positive beta coefficient, this relationship is in one line and if the Perceived Value increases, Overall Passenger Satisfaction will increase significantly. On the whole, considering that R² obtains a bigger figure in the third model compared to other models, it can be said that the third model is more desirable. Also, according to the results gained,

second, third, and fourth research hypotheses are not rejected.

Relationship between Service Adequacy, Perceived Value and Overall Satisfaction

Fifth, sixth, and seventh hypotheses of the research are about the relationship between service adequacy, perceived value and overall passenger satisfaction, which are measured by regression tests. Three regression models were tested as follows. In the first model, Perceived Value is considered as a dependant variable and Service Adequacy is considered as an independent variable. In the second model, Overall Passenger Satisfaction was considered as a dependent variable and Service Adequacy as an independent variable. In the third model, the regression of the dependant variable "Passenger Overall Satisfaction" on the independent variable "Service Adequacy" and the mediator variable of "Overall Passenger Satisfaction" was tested. In other words, Overall Passenger Satisfaction was considered as dependent variable and Service Adequacy and Perceived Value were considered as independent variables. The results of the regression equations are presented in the following table.

Table 6: Results of the Regression Equations of the Relationship between Service Adequacy, perceived Value and Overall Passenger Satisfaction²

Dependent Variable	Perceived Value	Overall Passengers Satisfaction	Overall Passengers Satisfaction
R ²	0/347	0/271	0/728
F	101/23***	86/51***	162/75 ***
Beta: service superiority	0/589 ***	0/521***	0/142***
Beta: perceived value	-----	---	0/673***

Based on the Coefficients of Determination resulted from regression models, Service Adequacy justifies about 35 percent of the variations in the Perceived Value. On the other hand, there is a direct relationship between Service Adequacy and Overall Passenger Satisfaction and about 27 percent of the variations can

be justified by the Service Adequacy. Also in third model R²= 0/728, it can be concluded that about 73 percent of variations of the independent variable (Overall Passenger Satisfaction) is expressed by the independent variables (Service Adequacy and Perceived Value).

Third row of Table (6) shows the results of ANOVA and regression tests. Data indicates that there is a significant linear relationship between independent variable(s) and dependent variable in the models studied. The values obtained for beta indicate that:

1. Increasing one unit of independent variable, i.e., "Service Adequacy," the dependant variable, i.e., "Perceived Value" increases .0/589 unit.
2. Increasing one unit of independent variable, i.e., "Service Adequacy," the dependant variable, i.e., "Overall Passenger Satisfaction" increases 0/521 unit.
3. The beta coefficient for Service Adequacy is 0/121 and 0/673 for Perceived Value, indicating that increasing one unit of independent variable of Perceived Value, the dependent value increases more (compared to the Service Adequacy).

Therefore, though there is a positive and significant relationship between both the variables of Service Adequacy and Perceived Value, there is a stronger relationship between Perceived Value and Overall Passenger Satisfaction. Considering the positive beta coefficient, this relationship is in one line and if the Perceived Value increases, Overall Passenger Satisfaction will increase significantly. Altogether,

considering that the Coefficient of Determination in the third model obtains higher value compared to other models, it can be said that the third model is more desirable. Also, considering the results, fifth, sixth and seventh research hypotheses are not rejected.

Relationship between Overall Satisfaction and Perceived Value

Regression test was used to measure the eighth hypothesis. Result of statistical analysis (Table 7) shows that in the 95 percent confidence level, there is a significant and positive relationship between Perceived Value and Overall Passenger Satisfaction. Therefore, the more the passengers feel the services are more valuable, the more they feel satisfied with organization and its services. Standardized beta coefficient indicates that increasing one unit of independent variable, the dependent variable increases 0/714 unit. The Coefficient of Determination (R²) is about 0/51. Hence, it can be concluded that 51 percent of the variation of the dependent variable (Overall Passenger Satisfaction) is expressed by the independent variable (Perceived Value). Furthermore, the results of the ANOVA and regression tests confirm the existence of a linear relationship between independent and dependent variables. Therefore, in the 95 percent confidence level, the eighth hypothesis is not rejected.

Table 7: The Results of Eight Hypotheses³

Independent Variable	Dependent Variable	Standardized beta Coefficient ($\hat{\alpha}$)	Determination Coefficient ($\hat{\alpha}$)	F	Results
Perceived Value	Passengers Overall Satisfaction	0/714***	0/510	96/682***	Accept Hypothesis

The resulted Coefficient of Determination for the relationship between Service Adequacy and Service Superiority is 0/381 and 0/271 respectively; while the Coefficient of Determination for the eighth hypothesis is 0/510. This confirms that though there is a significant linear relationship between Service Superiority, Service Adequacy and Overall Passenger Satisfaction, there is a very strong relationship between Perceived Value and

Passenger Satisfaction. This fact confirms the results of the regression models mentioned in the previous section.

Relationship between Experience and the Minimum Passenger Expectations

There are some evidences that the customer experience with a particular company or with other companies

influences on their level of expectations (Walker and Baker, 2000). Customer’s repeat of purchase or the frequency of using the products and services can have an effect on the level of expectations. Therefore, in this study, the relationship between the number of using the train during the year, which somehow indicates repeat purchasing and

customer experience in using services of the company, was measured based on the minimum level of their expectations. Analysis of Variance (ANOVA) was used to measure it. For this purpose, members of the sample were divided into four groups according to the frequency of using train during the year.

Table 8: ANOVA for the Mean of the Minimum Score of the Passenger Expectations

	Less than 3 times (Group 1)	3 to 5 times (Group 2)	6 to 10 times (Group 3)	More than 10 times (Group 4)	F	Sig
Score of Minimum Expectations	4/46	4/34	4/53	4/68	16/390	000/ 0

The test results presented in Table (8) shows that in the 95 percent confidence level, there is a significant difference amongst the means of the minimum score of the passenger experience in the

four groups. To find out the groups between which there is a difference, Tukey Test, which is one of the multiple comparison methods, was used.

Table 9: Dependent Variable; Low Expectations of Passengers

	User I	User J	Mean Deference (I-J)	Std. Error	Sig.	5% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	1	2	.1200	.05444	.124	-.0205	.2605
		3	-.0700	.05002	.500	-.1991	.0591
		4	-.2200 *	.05382	.000	-.3589	-.0811
	2	1	-.1200	.05444	.124	-.2605	.0205
		3	-.1900 *	.04535	.000	-.3070	-.0730
		4	-.3400 *	.04951	.000	-.4677	-.2123
	3	1	.0700	.05002	.500	-.0591	.1991
		2	.1900	.04535	.000	.0730	.3070
		4	-.1500 *	.04460	.005	.2651-	-.0349
	4	1	.2200 *	.05382	.000	.0811	.3589
		2	.3400 *	.04951	.000	.2123	.4677
		3	0/1500 *	.04460	.005	.0349	.2651

The mean difference is significant at the .05 level

The results of this test show that in the 95 percent confidence level, there are significant differences between the means of groups (1 and 4), (2 and 4), (3 and 4) and (2 and 3), but there is no difference in groups (1 and 2) and (1 and 3). In fact, according to the results of the study, the mean of the minimum of the passenger expectation score in the fourth group is significantly more than other groups and in the third group it is more than the second group. But the mean score being higher compared to the first group and second group being less than the third group is not statistically significant and therefore it is not noticeable and can not be cited in research.

On the whole, the resulted means indicate that increasing the frequency of using the train increases the minimum level of passenger expectation. However, considering the resulted means, one should accept it with caution. Because this is true only in second, third, and fourth groups and the mean of the minimum expectation of the passenger score does not follow this process. Hence, before accepting this issue, it is needed to delve more into the topic.

Discussion and Conclusion

The aim of this article was to assess passenger rail service quality based on the concept of Zone of Tolerance and study its relationship with Service Perceived Value and, Passenger Satisfaction. In this regard, the SERVQUAL model developed by Cavana et al. (2007) was used as the basis and some modifications and corrections were done to measure the service quality of Raja Company in Iran. Also, since the service quality is measured by two concepts of Service Superiority and Service Adequacy in this model, the relationship between these concepts and Perceived Value and Passenger Satisfaction is studied.

The results of the statistical analyses regarding the service quality evaluation showed that totally the perceived service is within the Zone of Tolerance and it can be said that the service is provided acceptably to the passenger's views. But, there is a significant difference between the current level of service provision and its ideal level. It means that although services could meet the minimum expectations of

passengers and prevent dissatisfaction, there is a long way to provide desired and ideal service. Furthermore, the little difference between the current levels of service provision and the minimum passenger expectations can be considered as a warning to the company managers. Because little negligence and deficiency would make the level of service provision lower than the current status and it may go out of customer Zone of Tolerance; or considering the dynamism of passenger expectations and based on several reasons such as competitors' advertising and activities, it is possible that the minimum passenger expectations increases and it makes the current status lower than the minimum expectation level. Hence, the company managers should increase the level of service provision, especially in the case of the factors where their adequacy score is negative.

One of the results of this research, which is similar to the findings of Walker and Baker (2000), is the direct relationship between the frequency of using the train during the year, indicating the passenger repeat purchasing and experience of the services of the company, and the minimum expectations. However, the existence of the relationship between customer expectation and his/her past experiences is noticed and confirmed in the service quality literature. In fact, one of the most important factors influencing customer expectations is his/her past experiences with the service organization. Therefore, managers of organizations must understand the relationship between the above cases and take action to meet the minimum experienced customer expectations and those customers who use the service constantly.

In addition, the results of hypotheses analysis show that both concepts of Service Superiority and Service Adequacy influence Service Perceived Value and Overall Passenger Satisfaction, and Perceived Value is as a mediator in influencing Service Adequacy and Service Superiority on Overall Passenger Satisfaction. In fact, considering the results of the regression equations, a high percentage of changes in satisfaction can be justified through Service Adequacy, Superiority and Perceived Value, though the Perceived Value involves more.

As shown in the measurement of Convergence Validity, there is a positive and significant correlation between Service Adequacy, Service Superiority and the Service Quality. Therefore, it can be implicitly concluded that Service Quality influences Service Perceived Value and Overall Passenger Satisfaction as well and Perceived Value is as a mediator in the relationship between Service Quality and Overall Passenger Satisfaction. Results of statistical analysis confirmed the significant and positive relationship between perceived value and passenger satisfaction. The strong relationship between Perceived Service Value and Overall Passenger Satisfaction and also the role of its mediator between quality and satisfaction indicates that the marketing managers of the company should always deal with increasing the value of products and services provided to the customers. This can create a positive mental image in customers and it causes them to demand products and services again in the future.

On the whole, it can be concluded that the conceptual research model is accepted. One of the strengths of SERQUAL modified model is its comprehensiveness in comparison with the earlier SERQUAL and SERVPERF models. In this model, Service Quality is measured with two concepts of Service Superiority and Service Adequacy. Considering that, the current status of service provision or current performance of the organization is the only determining factor of the Service Superiority, due to the fact that service ideal level is considered fixed; thus, it can be claimed that this model agrees with SERVPERF model which only considers customer perception to measure service quality. In fact, taken a new approach, SERQUAL modified model considers both SERQUAL and SERVPERF models simultaneously.

Also, this model helps managers in planning and developing long-term as well as short-term strategies. In short-term programmes, some aspects of the quality can be considered in which service perceived value is lower than customer zone of tolerance. Long-term programmes may develop, considering the relative position of the perceived quality pointer within the zone of tolerance and the width of the zone of tolerance. Hence, the narrower the customer zone of

tolerance, or the higher the level of minimum expectations, more attention is required to that factor and it is prior to improve the quality compared to the other factors. Managers' knowledge of the zone of tolerance and the minimum customer expectations can help them allocate organizational resources optimally and create a positive attitude toward the organization and its services.

Limitations and Direction for Future Research

This research suffers from a number of limitations, hence interpretation of its findings and results needs to be undertaken with caution.

Firstly, the sample of the study is relatively small and is limited to a number of passengers of the trains in one of the railroads in Iran. Secondly, only one question was used to measure passenger satisfaction, so the estimate of the reliability coefficient is not possible. Moreover, only two questions were used to measure perceived service value; therefore, it is suggested that in order to increase the external validity of the research, the research models be tested in the different samples to measure satisfaction and perceived value.

Thirdly, the modified SERQUAL model used in this paper to measure service quality in the passenger rail service adds two new dimensions to the original SERQUAL model. The ideal level of service replaces the desired level of service in this model. Validity of the five factors SERVQUAL construct and three-column format SERVQUAL instrument had been confirmed in the empirical studies, while this is the first time it is tested empirically. Hence, more studies and researches, using this model and measuring its validity, are needed.

In addition, this research measured the effect of seven factors (assurance, empathy, reliability, responsiveness, tangibles, comfort and convenience) on the passenger zone of tolerance, while other factors such as Situational Factors, Advertising, Competitor Activities and Word of Mouth can also influence the passenger Zone of Tolerance. Therefore, in the future researches, the effect of these variables on the passenger satisfaction level and their assessments of the levels of service quality could be studied.

Finally, to enrich the conceptual model, other variables like loyalty and the image of the organization could also be added and their effects on each other would be studied.

Keywords - Service Quality – Service Perceived Value - Customer Satisfaction - Zone of Tolerance - SERVQUAL Model - Passenger Rail Service.

Appendix

Table 1: Demographic Characteristics of the Sample

	Frequency	Percentage
Gender		
Male	239	239
Female	146	146
<i>Total</i>	<i>385</i>	<i>100</i>
Age		
Less than 20 years	41	10/5
20 - 29	137	35/5
30 - 39	119	31
40 - 49	63	16/5
more than 50 years	25	6/5
<i>Total</i>	<i>385</i>	<i>100</i>
Educational level		
Less than high school	17	4/5
Diploma	75	19/5
Associate Diploma	96	25
Bachelor	169	44
Master degree and higher	28	7
<i>Total</i>	<i>385</i>	<i>100</i>
number of using train during the year		
Less than 3	65	17
3 - 5	85	23
6 - 10	139	36
More than 10 times	93	24
<i>Total</i>	<i>385</i>	<i>100</i>

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Table 2: Passenger Rail Service Quality Status in the case of All Components Studied

Dimensions	Items	Adequate Service	Perceived Service	Ideal Service	Zone of Tolerance	Service Superiority	Service Adequacy	Service Quality
Assurance	5. Politeness and humility of the station staff	4/82	4/98	7	2/18	-2/02	+0/16	Acceptable
	6. Personal and financial security in the station	4/96	5/37	7	2/04	-1/60	+0/41	Unacceptable
	10. Politeness and humility of the train staff	4/83	4/87	7	2/17	-2/19	+0/04	Acceptable
	15. Personal and financial security on the train	5/03	5/33	7	1/97	-1/64	+0/30	Acceptable
	25. Staff knowledge and competency	4/51	4/95	7	2/49	-2/05	+0/44	Acceptable
Empathy	12. Paying attention to each passenger by staff	3/96	4/04	7	2/04	-1/96	+0/08	Acceptable
	13. Listening to passenger and to establish a friendly and sincere relationship with them	4/47	4/40	7	2/53	-1/60	-0/07	Unacceptable
	23. Service Rating people with specific	4/35	4/28	7	2/65	-2/72	-0/07	Unacceptable
Reliability	27. Capability and reliability of personnel to solve the problems	4/58	4/55	7	2/42	-2/45	0/03	Unacceptable
	28. Provide proper service by staff	4/75	4/84	7	2/25	-2/16	+0/09	Acceptable
	29. providing service on time	4/88	4/71	7	2/12	-2/29	-0/17	Unacceptable
	30. Solving problems and possible defects in the fastest possible time	4/91	4/66	7	2/09	-2/44	-0/25	Unacceptable
Responsiveness	11. Interest and desire of the staff serve and to help passengers	4/32	4/47	7	2/68	-2/53	+0/15	Acceptable
	24. Speed of providing services by staff	4/63	4/96	7	2/37	-2/04	+0/33	Acceptable
	26. Staff readiness to response criticism and complains of the passengers	4/19	4/13	7	2/81	-2/87	-0/06	Unacceptable
Tangibles	1. Cleanness of the station	4/17	4/85	7	2/83	-2/15	+0/68	Acceptable
	3. Station facilities and equipment	4/09	4/73	7	2/91	-2/27	+0/64	Acceptable
	4. The appearance of the station staff	4/04	5/14	7	2/96	-1/86	+1/10	Acceptable
	9. Appearance of the train staff	4/11	5/07	7	2/89	-1/93	+0/96	Acceptable
	14. Cleanness of the train	4/49	4/59	7	2/51	-2/41	+0/10	Acceptable
	16. Status of facilities on the train	4/52	4/56	7	2/48	-2/44	+0/04	Acceptable
	17. Status of facilities, equipment and instruments in train compartment	4/54	4/45	7	2/46	-2/55	-0/09	Unacceptable
	20. The variety and quality of food provided	4/45	4/52	7	2/55	-2/48	+0/07	Acceptable
	22. Transfer and delivery statues	4/38	4/57	7	2/62	-2/43	+0/19	Acceptable
Comfort	18. Comfortable seats on train	4/86	4/99	7	2/14	-2/01	+0/13	Acceptable
	19. Comfortable temperature on train	4/71	4/42	7	2/29	-2/58	-0/29	Unacceptable
Convenience	21. smoothness of ride on train	4/29	4/24	7	2/71	-2/66	-0/05	Unacceptable
	2. Access to the welfare facilities and equipment required for the station	4/41	4/93	7	2/59	-2/07	+0/52	Acceptable
	7. Easily buying ticket in station	4/52	4/74	7	2/48	-2/26	+0/22	Acceptable
	8. Ease of access to travel information			7	2/27	-2/15	+0/22	Acceptable

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Productivity Improvement: Knowledge Workers

Gauranga Chandra Mohanta and Thooyamani K.P.

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Improving productivity of knowledge workers is a challenge in today's global environment. Through exploratory research, attributes and techniques those can improve productivity of knowledge workers, have been identified. Through survey, scientists' perspectives on usefulness of various attributes and techniques, use of these, trainings given for these, and relative importance given by scientists for these, have been found out. Questionnaires were given to scientists to find out their perspectives, followed by interview where required. Scientists indicated that most of the identified attributes and techniques can improve their productivity, these are used in organisations and majority of them are presently not trained in these.

Improving the productivity of knowledge worker is one of the major challenges for the companies in today's global environment. An effort has been made here through exploratory research to identify various attributes and techniques those can improve the productivity of knowledge workers; to find out perspectives of scientists through survey - the usefulness of various attributes and techniques; use of these attributes and techniques and encouragement given for acquiring skill in these in organisations; trainings given for these attributes and techniques and relative importance given by scien-

tists for these attributes and techniques. The study has been carried out as part of the doctoral research work by the author on 'Knowledge Worker Productivity Improvement Processes, Technologies and Techniques in Defence R and D Laboratories - An Evaluative Study.'

Exploratory research has been carried out to find out the various attributes, processes, technologies and techniques those can improve the productivity of the knowledge workers. Thirty six attributes, processes, technologies and techniques have been identified and the study on



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nine important attributes and techniques out of these has been discussed below.

- (i) Technical Knowledge in the Field of Working,
- (ii) On the Job Training,
- (iii) Attitude,
- (iv) Executive Education,
- (v) Transcendental Meditation,
- (vi) Transactional Analysis,
- (vii) Succession Planning,
- (viii) Motivation and
- (ix) Self Motivation

A brief description of each of these attributes and techniques and how these can improve the productivity of knowledge workers is discussed below.

(a) Technical Knowledge in the Field of Working

Technical knowledge in the field of working is essential to contribute in any area of activity. Every Knowledge Worker should have sufficient knowledge in the areas in which he/she is working. Assume a Scientist working in the areas of development fabrication of Aerospace Hardware. He should have knowledge of the various processes and technologies in the areas of Production Technology, such as, Turning, Machining, Drilling, Boring, Reaming, Threading, Tapping, Honing, Grinding, Broaching, Fitting, Assembly, CNC Turning, CNC Milling, CNC Turning Centre, CNC Machining Centre, Flexible Manufacturing System, Jig Grinding, Jig Boring, CAD/CAM, Welding, Casting, Soldering, Brazing, Flow Forming, Flow Turning, Electron Beam Welding, Spark Erosion, Wire Cut, Material Properties and its selection, Materials/Tools/Equipment/Spare Parts Planning, Quality Control, Testing of Materials, 3D Coordinate Measuring Machine, Non-destructive Evaluation and Testing, Surface Roughness Tester, Geometric Tolerance Testing Machine, Electroplating, Forging, Foundry, Production Planning and Control, Methods Engineering, Tool Design, etc. Only with the knowledge and skill in Production Technology Areas, he will be able to contribute and he will be able to improve his productivity and productivity of the personnel working with him. He should know the capability of each process/technology and cost per hour of each process/technology, so that he can select the cost effective process/technology for the development fabrication.

(b) On the Job Training (OJT)

On-the-job training is a predominant training mode in many organizations simply because it is cheap and it requires little in the way of infrastructure. OJT has these requirements: (i) Clear and well-defined objectives; (ii) The organization must place the trainee in positions in which the new knowledge and skills can be used; (iii) The management of the organization must value the training, for instance, recognize it in annual appraisals; (iv) The training must be cost-effective; and (v) The trainee must have a clear understanding of the purpose of training. Important aspects of on-the-job training techniques are: coaching, job rotation, under study and multiple management¹.

During Coaching, one is provided with support to achieve one's goals with goal setting, encouragement and guidance. Job rotation is an approach to management development where an individual is moved through a schedule of assignments designed to give him or her breadth of exposure to the entire operation². Under study process helps to study or know a role to such an extent as to be able to replace the normal performer when required³. Multiple Managements is a system in which permanent advisory committees of managers study problems of the company and it recommends solutions to higher management.

(c) Attitude

Attitude is defined as our feelings or mood toward things, circumstances or people⁴. It is the way we think about somebody or something and the way we behave toward someone. It is our personal view or opinion of something. It also describes our general emotional approach to any person or situation. Our definition of attitude at work determines our career altitude. Achieving success in our career isn't just about brains, talents and connection; it is also about attitude. Positive mental attitude is defined as a constructive response to stress and the ability to deal effectively with unavoidable problems. The following suggest the positive attitude: (i) Wanting to do better, (ii) Using ability to the utmost, (iii) Seeing each day as an opportunity, (iv) Working together, (v) Thinking good thoughts, (vi) Wanting to win and (vii) Feeling most people like us.

A person's mental outlook is shaped by the following:

(i) Influence and association, (ii) Beliefs, (iii) Thoughts, (iv) Expectations and (v) Self-talks.

(d) Executive Education

Executive education is imparted to strengthen the management skills of Chief Executives and other top executives⁵. To-day, companies are looking for Head of Technology Departments who deeply understand technology yet are as capable of helping to set business strategy as they are at running the technology department. The problem is, most trained technologists have little or no training in finance, marketing, operations, negotiation, or that most basic of executive-level skills and corporate politics. Executive education can help with these strategic and tactical responsibilities. If executive education can teach a Technology Head to expand his purview to business and industry without abandoning his technology responsibilities, the Technology Head can improve all aspects of the business, from product development, sales and quality control to market research or investor relations.

(e) Transcendental Meditation

During transcendental meditation, the individual's awareness settles down, he experiences a unique state of restful alertness and his body becomes deeply relaxed⁶. Transcendental meditation technique is scientific. Transcendental meditation is practised for 15–20 minutes in the morning and evening, while sitting comfortably with the eyes closed. The transcendental meditation helps to dissolve accumulated stress and fatigue through the deep rest gained during the practice. This experience enlivens the individual's creativity, dynamism, orderliness, and organising power, which result in increasing effectiveness and success in daily life.

The following are the advantages of transcendental meditation:

(i) Intelligence Growth, (ii) Increased Creativity, (iii) Broader Comprehension, (iv) Improved Perception, (v) Greater Orderliness, (vi) Improved Academic Skills, (vii) Improved Intellectual Performance, (viii) Increased Productivity, (ix) Decreased Drug Abuse, (x) Self Actualization, (xi) Increased Relaxation, (xii) Increased Energy Level, (xiii) Greater

Appreciation of Others, (xiv) Increased Self-Esteem, (xv) Lower Blood Pressure, (xvi) Improved Health, (xvii) Reduced Anxiety, (xviii) Reduced Medical Care, (xix) Decreased Stress, (xx) Reversal of Aging, (xxi) Improved Quality of Life and (xxii) Reduced Conflict.

(f) Transactional Analysis

Transactional analysis helps us to understand what is going on and to decide what ego states to adopt, which signals to send and where to send them for effective communications⁷. This enables us to make the most of all our communications and therefore create, develop and maintain better relationships. Thomas Harris's highly successful popular work, *I'm OK, You're OK* is largely based on Transactional Analysis.

Eric Berne recognized that people can interact from one of the three "ego-states" - Parent, Adult or Child. The Parent's is a language of values, the Adult's is a language of logic and rationality and the Child's is a language of emotions. There are two forms of Parent we can play. The *Nurturing Parent* is caring and concerned and often may appear as a mother-figure. The *Controlling Parent*, on the other hand, tries to make the Child do as the parent wants them to do. The Adult in us is the 'grown up' rational person who talks reasonably and assertively, neither trying to control nor reacting. There are three types of Child we can play. The *Natural Child* is largely un-self-aware and is characterized by the non-speech noises they make (yahoo, etc.). They like playing and are open and vulnerable. The cutely named *Little Professor* is the curious and exploring Child who is always trying out new stuff. Together with the Natural Child they make up the Free Child. The *Adaptive Child* reacts to the world around them, either changing themselves to fit in or rebelling against the forces they feel. Effective functioning in the world depends on the availability of all three, intact ego states.

(g) Succession Planning

In organizational development, succession planning is the process of identifying and preparing suitable employees through mentoring, training and job rotation, to replace key players, such as, the Chief Executive Officer (CEO) within an organization as their terms expire⁸. Succession planning involves having senior executives periodically review their

Table – I: Percentage of Scientists in Each Group Agree on Attributes and Techniques those help to improve Productivity of Knowledge Workers

Process/Technology/ Technique	Junior Level Scientists	Middle Level Scientists	Top Level Scientists	Scientists for HRD activities	Scientists of all Groups
Self Motivation	92.7				92.7
Technical Knowledge in Field of Working	97.6			100	98
On the Job Training	87.8			50	81.6
Attitude	95.1				95.1
Motivation		93.5			93.5
Executive Education			70		70
Transcendental Meditation			55		55
Transactional Analysis			40		40
Succession Planning			85	100	89.3

Table – II: Percentage of Scientists in Each Group Agree on Use of and Encouragement Given for Acquiring Skills in Various Attributes and Techniques in Labs

Process/Technology/ Technique	Junior Level Scientists	Middle Level Scientists	Top Level Scientists	Scientists for HRD activities	Scientists of all Groups
Self Motivation	65.9				65.9
Technical Knowledge in Field of Working	82.9			100	85.7
On the Job Training	85.4			50	75.4
Attitude	61				61
Motivation		64.9			64.9
Executive Education			75		75
Transcendental Meditation			25		25
Transactional Analysis			15		15
Succession Planning			50	75	57.1

top executives and those in the next lower level to determine backups for each senior position. This is important because it often takes years of grooming to develop effective senior managers. There is a critical shortage of middle and top leaders in companies. Organizations will need to create pools of candidates with high leadership potential.

A succession plan clearly sets out the factors to be taken into account and the process to be followed in relation to retaining or replacing the person. Business succession planning involves planning for the smooth continuation and success of a business which depends greatly on the availability of competent people. What is likely to happen to the organization when a key leader is eliminated without succession planning? In an unplanned situation, ineffective quick-fixed solutions are the only answers left. If no able successor can be found, a temporary replacement is often the only choice left, and the ultimate result may still be the downfall of the organization. Without succession planning, a business that has become successful can just as easily fall.

(h) Motivation Techniques

Motivation is what makes people put real effort and energy to do things⁹. Motivation is built on three basic elements: (i) Motivation starts with a need, vision, dream or desire to achieve the seemingly impossible; (ii) It develops a love-to-learn, becoming involved with risky ventures and continually seeking new opportunities and (iii) It cultivates the ability to overcome barriers and to bounce back from discouragement or failure. The following are the various techniques of motivation:

(i) Lead by example; (ii) Begin the day by greeting your people, letting them know through your actions that you care about them; (iii) Encourage your people to offer their ideas and to run with projects regardless of the potential for failure; (iv) Create or maintain a programme that constantly educates your employees about the latest trends, techniques, and methods available in your industry to satisfy their needs for growth; (v) Create an atmosphere in which the new ideas your people learnt are valued, shared and put into action; (vi) Listen to your people, recognize and utilize their motivators; (vii) Make sure you are on time for the meetings; (viii) Say "good morning" and "thank-you" when needed and return phone calls and e-mails in a timely

manner; (ix) Make sure you are positive and upbeat if you expect your employees to be positive and upbeat; (x) Let people know that they make a difference at work by praising them for successful execution of a task; (xi) Communicate clearly the vision and goals to your employees, so that there are no misunderstandings; (xii) Understand your employees' strengths and weaknesses and provide the coaching and training to make them and your organization successful; (xiii) Focus your team on the overall team goal; (xiv) Help your employees to compete against the goal and not against each other; (xv) Set high standards for each employee and (xvi) Reward outstanding achievements of your employees.

(i) Self Motivation Techniques

One of the driving forces of life is self motivation. Self motivation is a desire to achieve a goal, combined with the energy to work towards that goal¹⁰. For any task or goal that we want to achieve, we find self motivation deep inside ourselves; we know what is that we want and why we want it. Each of the following sentences is the technique for self motivation:

Make your written plan as the first step. Keep your goals in focus. Stay positive and have the mental attitude needed to achieve your goals. Map out a plan detailing your goal and the steps that you will take to achieve your dreams. Regularly reassess your plan and make sure that you still feel that your original strategy is the best one. Change your written plan to take any surprise changes into account. Break your plan into small tasks that you can achieve daily. Make a written list of tasks for each day and cross them off one by one as you complete them. Reward yourself after you complete your tasks. Visualize your goal, see how you are accomplishing your goal, how it feels to be a winner. Never lose sight of your goal, read it every day until you have achieved.

Cut out pictures that show your goal. Tape these pictures to a sheet of poster board and hang it in your home or at work. Carry a picture with you so you can look at what you are working towards every time you become discouraged. Make a contract with yourself, state what you will do, when you will complete the task and what your reward will be once the contract is fulfilled.

Table – III: Percentage of Scientists in Each Group Agree on Trainings Given for Various Attributes and Techniques in Labs

Process/Technology/ Technique	Junior Level Scientists	Middle Level Scientists	Top Level Scientists	Scientists for HRD activities	Scientists of all Groups
Self Motivation	19.5				19.5
Technical Knowledge in Field of Working	78			100	81.6
On the Job Training	34.1			25	32.7
Attitude	34.1				34.1
Motivation		19.5			19.5
Executive Education			65		65
Transcendental Meditation			10		10
Transactional Analysis			15		15
Succession Planning			20	0	14.3

2. Research Design

The questionnaire and interview techniques were adopted for conducting the research. The research was part of the doctoral research work on ‘Knowledge Worker Productivity Improvement Processes, Technologies and Technologies in Defence R and D Laboratories – An Evaluative Study.’

The structured questionnaires were given to the select scientists of six Defence R and D Laboratories, based in Hyderabad, India. The survey was conducted to find out the perspectives of the scientists on the following aspects:

- (a) The usefulness of various attributes and techniques;
- (b) The use of and encouragement given by the Labs for each of the attributes and techniques;
- (c) The trainings given for each of the attributes and techniques and

- (d) The relative importance given by the Scientists, for each of the attributes and techniques for improving the productivity of knowledge workers.

The questionnaires developed and given to select scientists on the above aspects for their responses are given below.

(A) Questionnaires on Attributes and Techniques

The scientists were asked to select any one of the choices on the right side of the questionnaires by ticking on the same, for each of the technologies and techniques, each having three questionnaires as follows.

- (a) Technical knowledge in the field of working is essential to contribute in any area of activity.
 - (i) Our scientists are encouraged to have sufficient technical knowledge in the areas of working - Yes/No/ Can't say.

Table – IV: Ranking by Each Group of Scientists, Based on Relative Importance of Each Attribute and Technique to improve Productivity of Scientists

Process/Technology/ Technique	Junior Level Scientists	Middle Level Scientists	Top Level Scientists	Scientists for HRD activities	Scientists of all Groups
Self Motivation	2	2	2	3	2
Technical Knowledge in Field of Working	1	1	1	1	1
On the Job Training	4	3	3	2	3
Attitude	3	4	5	5	4
Motivation	2	2	2	3	2
Executive Education	6	6	4	4	5
Transcendental Meditation	8	8	8	6	8
Transactional Analysis	7	7	6	7	7
Succession Planning	5	5	7	8	6

- (ii) Technical knowledge in the field of working helps to improve the productivity of our scientists - Yes/No/Can't say.
- (iii) We train our Scientists to acquire technical knowledge in the field of working - Yes/No/Can't say.
- (b) On the job training techniques are: coaching, job rotation, under study and multiple management.
- (i) On the job training techniques are used in the Lab - Yes/No/Can't say.
- (ii) On the job training technique helps to improve the productivity of our scientists. - Yes/No/Can't say.
- (iii) We train our Scientists initially through on the job training techniques - Yes/No/Can't say.
- (c) Attitude is defined as one's feelings or mood toward things, circumstances or people.
- (i) Our scientists are encouraged to have positive attitude for achieving success in life - Yes/No/Can't say.

- (ii) Positive attitude helps to improve productivity of our scientists - Yes/No/Can't say.
- (iii) We train our Scientists for inculcating positive attitude - Yes/No/Can't say.
- (d) Executive education is imparted to strengthen the management skills of Chief Executives and other top executives.
- (i) Scientists are encouraged to go for executive education - Yes/No/Can't say.
- (ii) Executive Education helps to improve the productivity of our senior scientists - Yes/No/Can't say.
- (iii) We sponsor our Scientists for executive education - Yes/No/Can't say.
- (e) During transcendental meditation, the individual's awareness settles down, he experiences a unique state of restful alertness and his body becomes deeply relaxed.

- (i) We encourage our scientists to develop skill in transcendental meditation - Yes/No/Can't say.
- (ii) Transcendental meditation helps to improve the productivity of our scientists - Yes/No/Can't say.
- (iii) We train our Scientists in transcendental meditation - Yes/No/Can't say.
- (f) Transactional analysis helps us to understand what is going on and to decide what ego states to adopt, which signals to send and where to send them for effective communications.
- (i) We encourage our scientists to develop skill in transactional analysis. - Yes/No/Can't say .
- (ii) Transactional analysis helps to improve the productivity of our scientists through personal development, encompassing communications, management, personality, relationships and behaviour - Yes/No/Can't say.
- (iii) We train our Scientists in transactional analysis - Yes/No/Can't say.
- (g) Succession planning is the process of identifying and preparing suitable employees through mentoring, training and job rotation, to replace key players as their terms expire.
- (i) In our Lab, we have succession planning as: Formal/ Informal/Not at all/Can't say.
- (ii) Succession planning helps to improve the productivity of our scientists - Yes/No/Can't say.
- (iii) We train our Scientists in succession planning - Yes/No/Can't say.
- (h) Motivation is what makes people put real effort and energy to do things.
- (i) In our Lab, motivation technique is used as: Formal/ Informal/Not at all/Can't say.
- (ii) Motivation helps to improve the productivity of our scientists - Yes/No/Can't say.

- (iii) We train our Scientists in motivation - Yes/No/Can't say.
- (i) Self motivation is a desire to achieve a goal, combined with the energy to work towards that goal.
- (i) Our scientists are encouraged to achieve their goals through self motivation - Yes/No/Can't say.
- (ii) Self motivation technique helps to improve the productivity of our scientists - Yes/No/Can't say.
- (iii) We train our Scientists in self motivation technique - Yes/No/Can't say.

The Junior Level Scientists were given four questionnaires as indicated above at serial nos. (a), (b), (c) and (i). Middle Level Scientists were given one questionnaire as indicated above at serial no. (h). Top Level Scientists were given four questionnaires as indicated above at serial nos. (d), (e), (f) and (g) and the Scientists responsible for HRD activities were given three questionnaires as indicated above at serial nos., (a), (b), and (g). The type of questionnaire given to a particular level of Scientist was based on the suitability of the questionnaire to the level of scientist.

(B) Relative Importance of Each Attribute and Technique

Please assign the value 1 to 5, for the following attributes and techniques based on the relative importance of the same (1 is the most important, followed by 2, 3, 4 and 5 and 5 is the least important) for improving the productivity of knowledge worker.

- (i) Technical Knowledge in the Field of Working ()
- (ii) On the Job Training ()
- (iii) Attitude ()
- (iv) Executive Education ()
- (v) Transcendental Meditation ()
- (vi) Transactional Analysis ()
- (vii) Succession Planning ()
- (viii) Motivation ()
- (ix) Self Motivation ()

The questionnaires indicated above were given to all level of Scientists.

(C) Data Collection and Data Analysis

The questionnaires were given to select twenty percent of the junior level scientists, middle level scientists, top level scientists and scientists responsible for human resource development activities, from six Defence R and D Laboratories based in Hyderabad India. After going through the responses, if it was found to be inadequate or there was a need for further clarifications, the concerned scientists were interviewed by the author to get the required clarifications. The data was transferred from each response sheet to MS excel sheet in Personal Computer. Each scientist was given a code and the code was used to compile the data in tabular form. The MS excel software was used for analyses of the data. The reporting on the findings is presented in simple running matter, in third person on each of the aspects taken up for the study.

Findings

Responses have been received from forty one Junior Level Scientists, seventy seven Middle Level Scientists, twenty Top Level Scientists and sixteen Scientists responsible for HRD activities. In all, one hundred fifty four scientists have responded for the questionnaires given. The findings on the various parameters are as follows:

(A) Attributes and Techniques improve Productivity

From the findings on attributes and techniques those help to improve the Productivity of Knowledge Workers in Labs, the following are the observations:

- (a) 98 percent Scientists agree that Technical Knowledge in Field of Working helps to improve the productivity of Scientists.
- (b) 95.1 percent Scientists agree that Attitude helps to improve the productivity of Scientists.
- (c) 93.5 percent Scientists agree that Motivation helps to improve the productivity of Scientists.

- (d) 92.7 percent Scientists agree that Self Motivation helps to improve the productivity of Scientists.
- (e) 89.3 percent Scientists agree that Succession Planning helps to improve the productivity of Scientists.
- (f) 81.6 percent Scientists agree that On the Job Training helps to improve the productivity of Scientists.
- (g) 70 percent Scientists agree that Executive Education helps to improve the productivity of Scientists.
- (h) 55 percent Scientists agree that Transcendental Meditation helps to improve the productivity of Scientists.
- (i) 40 percent Scientists agree that Transactional Analysis helps to improve the productivity of Scientists.

(B) Use of Attributes and Techniques and Encouragement Given

From the findings on use of attributes and techniques in Labs and encouragement given for acquiring skills in the same, the following are the observations:

- (a) 85.7 percent Scientists agree on use of and encouragement given for acquiring skills in Technical Knowledge in Field of Working.
- (b) 75.4 percent Scientists agree on use of and encouragement given for acquiring skills through On the Job Training.
- (c) 75 percent Scientists agree on use of and encouragement given for acquiring skills through Executive Education.
- (d) 65.9 percent Scientists agree on use of and encouragement given for acquiring skills in Self Motivation.
- (e) 64.9 percent Scientists agree on use of and encouragement given for acquiring skills in Motivation.

- (f) 61 percent Scientists agree on use of and encouragement given for acquiring skills in development of appropriate attitude.
- (g) 57.1 percent Scientists agree on use of and encouragement given for acquiring skills in Succession Planning.
- (h) 25 percent Scientists agree on use of and encouragement given for acquiring skills in Transcendental Meditation.
- (i) 15 percent Scientists agree on use of and encouragement given for acquiring skills in Transactional Analysis.

(C) Trainings given for Attributes and Techniques

From the findings on trainings given for various attributes and techniques in Labs, the following are the observations:

- (a) 81.6 percent Scientists agree that trainings are given for Technical Knowledge in field of working in Labs.
- (b) 65 percent Scientists agree that trainings are given for Executive Education in Labs.
- (c) 34.1 percent Scientists agree that trainings are given for Change in Attitude in Labs.
- (d) 32.7 percent Scientists agree that On the Job Trainings is given in Labs.
- (e) 19.5 percent Scientists agree that trainings are given for Motivation and Self Motivation in Labs.
- (f) 15 percent Scientists agree that trainings are given for Transactional Analysis in Labs.
- (g) 14.3 percent Scientists agree that trainings are given for Succession Planning in Labs.
- (h) 10 percent Scientists agree that trainings are given for Transcendental Meditation in Labs.

(D) Relative Importance of Various Attributes and Techniques

The scientists of various groups were requested to assign value one to five based on the relative importance of the attribute and technique (one is the most important and five is the least important). The values assigned for each attribute and technique, were added up to get the total score for each tool and technique by all group of Scientists. The ranking was assigned for each attribute and technique, based on the total score for each. In case the total score is the lowest, the ranking assigned is one (the highest), and if the total score is the highest, the ranking assigned is nine (the lowest). Similarly for other attribute and technique, ranking has been assigned from two to eight, based on the total score. The attributes and techniques are arranged below in descending order based on their relative importance.

- (i) Technical Knowledge in Field of Working,
- (ii) Motivation,
- (iii) Self Motivation,
- (iv) On the Job Training,
- (v) Change in Attitude,
- (vi) Executive Education,
- (vii) Succession Planning,
- (viii) Transactional Analysis,
- (ix) Transcendental Meditation,

Discussion

The main objectives of the study were to find out the perspectives of the scientists on the following aspects:

- (i) To identify various attributes and techniques those can improve the productivity of knowledge workers.
- (ii) To find out perspectives of scientists through survey on:

- (a) The usefulness of various attributes and techniques;
- (b) The use of and encouragement given by the Labs for each of the attributes and techniques;
- (c) The trainings given for each of the attributes and techniques and
- (d) The relative importance given by the Scientists, for each of the attributes and techniques for improving the productivity of knowledge workers.

Improving the productivity of knowledge workers is one of the major challenges for the organisations in today's global environment. Through exploratory research, attributes and techniques those can improve productivity of knowledge workers have been identified. Through survey - the perspectives of scientists on - the usefulness of various attributes and techniques; use of these attributes and techniques in organisations and encouragement given for acquiring skill in these; trainings given for these attributes and techniques and relative importance given by scientists for these attributes and techniques have been found out.

The Summary of Results is presented below:

(i) From the findings, it is observed that 55 percent - 98 percent Scientists indicated that Technical Knowledge in Field of Working, Motivation, Self Motivation, On the Job Training, Change in Attitude, Executive Education, Succession Planning and Transcendental Meditation help to improve the productivity of Scientists. Scientists in lesser number, 40 percent indicated that Transactional Analysis helps to improve the productivity of Scientists. It is evident that almost all the Scientists indicated that all the identified attributes and techniques help to improve the productivity of Scientists.

(ii) From the findings, it is observed that 57.1 percent - 85.7 percent Scientists indicated that Technical Knowledge in Field of Working, Motivation, Self Motivation, On the Job Training, Change in Attitude, Executive Education and Succession Planning are used in Labs or Scientists are encouraged to acquire skill in the same. Scientists in lesser number, 15 percent - 25 percent indicated that Transcendental Meditation and Transactional Analysis are

used in Labs or Scientists are encouraged to acquire skill in the same. It is seen from above that the majority of the Scientists indicated that the majority of the identified attributes and techniques are used in Labs or Scientists are encouraged to acquire skill in the same.

(iii) From the findings, it is observed that 65 percent - 81.5 percent Scientists indicated that Scientists are trained in Executive Education and Technical Knowledge in Field of Working. Scientists in lesser number, 32.7 percent - 34.1 percent indicated that Scientists are trained in Change in Attitude and given On the Job Trainings. Scientists in still lesser number, 10 percent - 19.5 percent indicated that Scientists are trained in Motivation, Self Motivation, Transactional Analysis, Transcendental Meditation and Succession Planning. It is seen from the above that the majority of the Scientists are not trained in almost all the identified attributes and techniques, except trainings in Executive Education and Technical Knowledge in Field of Working.

(iv) From the findings, it is observed that Technical Knowledge in Field of Working has been given the maximum importance and Transcendental Meditation has been given the minimum importance. Also Transcendental Meditation and Succession Planning has been given less importance. It may be due to the fact that less percentage of Scientists is trained in these techniques.

Conclusion

The majority of the scientists have indicated that - almost all the identified attributes and techniques can improve the productivity of knowledge worker and most of these attributes and techniques are presently used in labs or scientists are encouraged to acquire skill in the same. The majority of the scientists are presently not formally trained in most of the identified attributes and techniques.

The attributes and techniques in which less scientists have been trained, the usefulness of those attributes and techniques have been appreciated by less scientists and use of those attributes and techniques are also less in the labs and the scientists also have given less importance for these attributes and techniques. Technical knowledge in field of working has been given the maximum importance and transcendental meditation has been given the minimum importance.

To improve the productivity of knowledge workers, each Organisation should conduct studies to identify the attributes and techniques which can improve the productivity of knowledge workers. The identified attributes and techniques should be used extensively in a knowledge intensive organisation and all the knowledge workers should be formally trained in these attributes and techniques to improve their productivity.

The possible limitation of the study is that the findings are based on the perspectives of the scientists and there is also difficulty in measure of productivity of knowledge workers. Even though number of studies has been carried out in the past, there are presently no universal acceptable procedures which can be applied to measure the productivity of knowledge worker. Further research is needed to find out the procedures for measuring the productivity of knowledge workers.

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Let's not rob Our Kids of their Childhood

Rebecca Thomas and Priya Mary Varghese

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India is in the throes of a change. This has touched the domain of education too. But we need to take the long road ahead if we are to bring about a qualitative change in the way our youngsters are educated. This change needs to start from the basic level. Our schools need to perfect a culture of sensitivity and creativity where every child can open up, shed his or her inhibitions and grow up into mature and refined professionals. The article seeks to take an unbiased view of some of the ills plaguing the learning system in education institutions today.

*"Row, row, row your boat, gently down the stream;
If you see a crocodile, don't forget to scream..., eeeeeeeeee!"*

Thus sang three-and-a-half-year old Asha, during her first week in a "prestigious public" school. The little girl was back in India from the UK, where her father had been on a three-year project. But instead of being elated at her rhyme, which resonated with her still-a-baby lingo, her over zealous "Miss" corrected her:

*"Row, row, row your boat,
gently down the stream;
Merrily, merrily, merrily,
merrily, life is but a
dream."*

But the little bubbly girl refused to toe her teacher's line. She stuck to her croc and "eeeeee" with the "eeeeee" getting shriller

and shriller each time she repeated the rhyme.

"Maddy taught me to sing this way," she insisted.

Miss X got wired up and went into censure mode. "Asha's showing early signs of disobedience," she declared; "The child has the makings of a rebel."

And she let the word go round.

Chubby, bubbly little Asha slowly began to lose the spark in her. She began showing the unmistakable hate-to-go-to school symptoms.



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When I saw this little girl six years ago, her parents, in all seriousness, were thinking of a change of school. This was also the time when I began 'My Experiments with Tiny Tots,' as I fondly term the endeavour I was pushed into.

Cut to the rustic backdrop of a new public school in one of Kerala's rural heartlands.

There I stood on a wet June 1st morning (the traditional reopening date for schools in Kerala), looking pretty foolish and wondering how I nodded agreement to take up the awesome task at hand.

I was to be PRINCIPAL of this school, which would commence its first batch with 66 little mites enrolled in two divisions of LKG and UKG each.

As I stood there trying to be valiant, the line "Fools rush in where angels fear to tread" kept taunting me with insistent regularity. I watched as all the 66 little ones poured into the lovely green school campus, bawling their lungs out. The two teachers and ayahs, who completed what looked like a tsunami-hit state-of-affairs, were grappling with the kids and cruelly prying them from the comfort of their parents' arms.

This scene has always haunted me. The school must have seemed like hell; and the teacher, Lucifer himself. The scene reminded me of my own first days of school – an experience no more pleasant.

My experiment had begun. How do I get those screaming and kicking kids to love school? Worse still, how to get them to learn English, a language no easier than Greek or Latin as far as this village school was concerned.

I mulled over this. And the first decision I made was to see that no child should ever hate the thought of going to school.

I began to implement the first stages of my experiment.

Kerala generally experiences the heart of the monsoons when schools reopen to a new academic year. So, the

first two weeks saw the children playing and enjoying themselves indoors to their heart's content. When the skies cleared, the kids would scramble and crawl all over the place, their unalloyed laughter and kiddy prattle rocking the school.

Four days into the academic year, the kids had comfortably settled in. Several parents particularly commented that their children were raring to go to school each morning.

But there were kill-joy parents who were beginning to reconsider the decision to send their kids to a "no-home-work" school. "No lessons. No home work. What sort of a school is this?" The question was on quite a few lips.

A month later, I realized that I had stumbled upon the recipe for joy. Joy which only a child can feel.

What is it that makes an individual happy? Not material comforts, certainly. What is it that wisely transcends us into a joyful state of simply being? Why do so many of us adults, live dog-lives?

The realization dawned on me that the answers lay in our childhood. To be precise, it begins from our school days.

From the time we are rudely shaken up from blissful sleep; to the hurriedly-stuffed breakfast before being bounded on the next tummy-churning school-bus ride; to the daunting teacher, ruler-in-hand, who patrols the aisles of deathly quiet classrooms, ready to rap the knuckles off trembling pupils who grapple with wrong answers to her sacred math sums; to the dreaded day when report cards, permanently scarred to highlight potentially falling grades, are issued to students with the threat that permission to return to class is granted only when report cards are "signed by BOTH parents;" to the lost joy of energetic sports and games, because 'Physical Training Class' is considered as good as free periods that teachers, who have a syllabus to complete, will take over; to lost Music and Art classes that are ordered to indefinitely cease, because they do not add vocational value or potential to one's "serious" career; to summer holidays only partially enjoyed because of the constant reminder of 'Holiday Homework' that must be compulsorily submitted on the

first-day of reopening: to the years following high school when we sadly realize that we have no other option, but to give up our "dreams," and rush with the turbulent tide of before-dawn tuitions and extra coaching. All so that we are equipped to secure the highest scores that will get us into enviable medical, entrance or management institutions;

... and still we parrot the rhyme,

"...Merrily, merrily, merrily, merrily, life is but a dream."

True. Life IS but a dream.

But should teachers interpret this profound philosophy for tiny tots, whose eyes are still bright with the hope of becoming a Lady Police Officer, or a Football player, or a Ballerina, or an Explorer? To them, the world has so much to offer, and they're eager to discover and study it in all wonder and curiosity.

But, sadly it is we who kill their inherent quest for knowledge, by forcing our own insensible regime of conventional, mugged-up learning upon them. While preparing them for the future, we want to ensure that we have geared our children to step only on the rocks in the stream that will help them get to the other side. We fear that if they fall, it reflects on our own shortcomings as parents.

What we are actually afraid of is not their failure, but our own; the unconscious fear that we will be seen as incapable parents.

I was determined to find answers to the cardinal questions which refused to die down. Why do we forget our traumatized childhoods when we become adults? Worse still, why do we become numb to our children's suffering as parents? Why do we thrust on our kids, things we hated doing while we ourselves were children? And why do we see our children as an extension of our dreams waiting to be fulfilled?

Perhaps we have allowed life to submerge kindergarten woes from our conscious mind, to be forcibly replaced

by grave commands to get practical and "adjust" like the typical Indian. After all, we all HAVE to eventually succumb and climb onto the "life is but a dream" train journey.

Don't we?

The words of the author Kahlil Gibran, resound with marvelous insight in this regard.

He says,

"Your children are not your children.

They are sons and daughters of life's longing for itself.

They come through you, but not from you;

And though they are with you, yet they belong not to you.

You may give them your love but not your thoughts;

For they have their thoughts.

You may house their bodies, but not their souls;

For their souls dwell in the house of tomorrow, which you cannot visit;

not even in your dreams.

You may strive to be like them, but seek not to make them like you.

For life goes not backward nor tarries with yesterday.

You are the bows from which your children, as living arrows, are sent forth."

We refuse to understand and implement that children need to discover learning by loving it. Not by knowledge being forced down their throats. So what if they choose to sing a rhyme differently? When we correct them, it mirrors our own fear of daring to change conformist ways. So, no matter how sensible the change, we refuse to divert from the hard and fast rule that everyone *must* dance to the *same* tune.

So, I asked myself again: Who is it that makes Primary School hell-on-earth for young kids? Are we predated our trysts with disaster by making primary education as difficult as we can?

My research taught me that we can discipline a kid without killing his creativity. Little hands need to be made flexible before pencils and pens are thrust into them. So back at our school, out came the pots of clay and creativity ran riot. Snakes, chappatis, birds' nests with eggs inside,

the latest cars and other creations beyond adult imagination were moulded by tiny, eager hands. Through the year we celebrated the Onam, Christmas, Eid and Diwali festivals; all the while taking pains to explain great truths in simple forms.

I realized that English learning should not begin with the tried and tested and hackneyed A for Apple, B for Ball routine. Exposing them to as many English words as possible seemed to work. So we decided to work on English through the tummy. Literally.

Let's make fruit salad. This was the first English lesson. All the kids were asked to bring a fruit each. The next morning saw them holding on to a fruit with as much pride as they would a trophy. The next lesson was in identifying each fruit each. Finally, the fruits were all chopped and put into a bowl. Now, to make custard. "We need milk, sugar and custard powder," they chorused. The custard was made and the kids had their first taste of school-made fruit salad. We followed this up with practical lessons aplenty. English was no more a stumbling block.

We taught them prepositions, without ever telling them they were a part of linguistic structure.

I'm in the class
I'm on my bag!
Give it to me
Look at me

Their eagerness to give examples knew no bounds.

At the close of Term One, we realized it was the parents who needed a lesson or two.

Now, how does one deal with anxiety-ridden parents who wanted their wards to speak English the minute they gained school admissions? It is much easier to teach young ones than try to knock sense into minds pre-conditioned to accepting set mores.

It surely is a daunting task to teach English to kids who are born into dialects which have no earthly similarity to it. To their parents, it was a foreign tongue that caused a stumbling block in their academic pursuits. Clearly, such

parents are anxious to ensure that their kids do not face the same obstacles they once did. So, how do you explain to these parents that the entire mumbo-jumbo of forcibly teaching the alphabet through silly sleeping, slanting, and curved lines is nothing but cruelty to a three-and-a-half-year-old child. Their tiny hands can hardly hold a pencil; leave alone plod their way through all sorts of lines, the meaning of which is totally incomprehensible to them.

It is an assault on all adult sensibility to put a child of lower kindergarten, through his paces by making him sit still for hours and ordering him to carve out the big and small of the English alphabet.

Cut again to a classroom in India whose students are pursuing a Post Graduate Diploma in Management.

How many here are really comfortable with the Queen's language? Most students find the concept of self expression a painful one. The general management golden rule - *No Communication, No Jobs* – only exacerbates their anguish.

How can a lecturer be expected to *teach* effective communication to these students, whose formative years have been spent toiling over rigid syllabi and examinations that do not allow time and freedom for individual self-expression or discovery?

Almost every management student carries a vision of himself as a CEO, managing multiple high-profile business portfolios. But, his dreams come crashing when the interview falters.

"The candidate could not express himself well enough," is the sad yet true evaluation made by most interviewers.

This brings us to the crucial question. After ten plus years in school, why are we still unable to train our students in independent, self-expression? Unfortunately, the only baggage we have gifted most students through their formative years is a fear of non-performance.

Kapil Sibal, India's minister for Human Resource Development, has taken a blood step to do away with

Class Ten examinations. It is a definite step to save children from the trauma of facing failure. More imminently, it is a measure to try saving them from ending their lives.

Mr. Sibal would have found the key root of this issue had he turned his attention to what goes on in our kindergartens and primary schools, under the garb of public school education.

My experiences have shown that we need to lead ourselves back to the cradle.

Let us gently rock our babies, without constantly coercing them to prematurely move from their cradles to the hard, uncomfortable chairs in a disheartening classroom. Let us not rob our children of their childhood. Let us allow them time to be amazed by a butterfly that flutters past them; to experience the joy of splashing in puddles without the threat of muddied clothes; to encourage and appreciate, not correct, their first artistic creation of a blue tree with purple leaves.

Let us teach ourselves to allow them to grow up healthy and wholesome.

In this context, I would like to take a few lines from Azim Premji's speech "A Land of Children Dancing in the Rain," delivered in 2005.

"When I look at children, I wonder whether they have time to play with friends, to meet interesting people, to explore the world, and to follow their curiosity. When the first monsoon showers begin, I would think that the streets would be full of children rushing headlong into

the rain, dancing and playing. However, I think today, the rains fall on empty streets.

This, my friends, is the new Indian reality in our villages, in our slums, and in our metropolitan high-rises. Whatever the reasons – poverty, societal aspiration, apathetic individuals and organisations, or just the burden of circumstances – the reality is that our children are straitjacketed, thus stifling their natural growth.

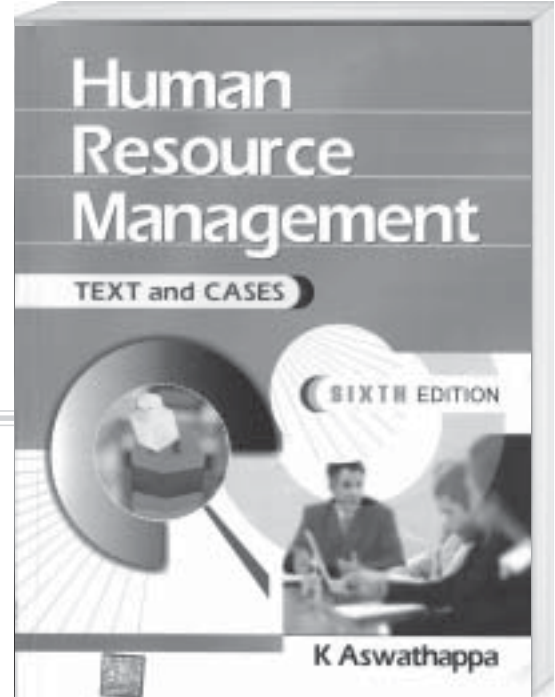
I think our teachers could grow enormously by learning from their students how to be a good teacher. We will then refrain from pushing our knowledge down their young minds, and begin the democratic process of being joint learners as we discover and understand our world. I believe a powerful force for empowerment is to have motivated teachers who are learners first, teachers second. Only then will we stop trying to mould children into our "adult" likeness. Only then will we let them blossom, developing on the already mature qualities of their childhood. If India has to develop economically, socially, intellectually, and culturally, we must empower those most vulnerable to social diktat: our children.

Let us resolve to give our children the freedom of childhood; let us change our schools from being textbook prisons to laboratories of exploration; let us change homes from being tuition centers to playgrounds of art and sport. India will be radiant when our children are free to dance in the rain."

And let us allow them to have the natural instinct to scream out when they see a crocodile!



Skimming and Scanning



Book Title : *Human Resource Management Text and Cases*
Author : K. Aswathappa
Edition : Sixth-2010
ISBN-13 : 978-0-07-068213-9
Pages : 829
Publisher : Tata McGraw-Hills Publg. Co. Ltd., New Delhi.

The author is a former Director of Canara Bank School of Management Studies, Bangalore. A prolific writer, Prof. Aswathappa has three decades of teaching experience and has authored more than 17 books on variety of management subjects including Organizational Behaviour, IHRM, Production Management and Strategic Management.

The 6th edition of Human Resource Management has been released at a time when the economies are reviving from worst depression since 1930s. A lot of new concepts and human resource processes have developed in the last three years to combat the depression and now the revival that is again

difficult in terms of challenges faced by industries and organizations. It's true, as the author says, HR department must become the most happening department in the organizations. The HR manager needs to possess all the

critical skills required for improving employee morale, enhancing employees' skills, encouraging innovation and competition in the market to recruit and select the potential employees with exceptional skills.

This book, like the earlier edition, has been divided into 7 sections and 29 chapters. Part I covers the introduction to HRM and its integration with business strategy; HRM paradoxes and external forces in which HRM



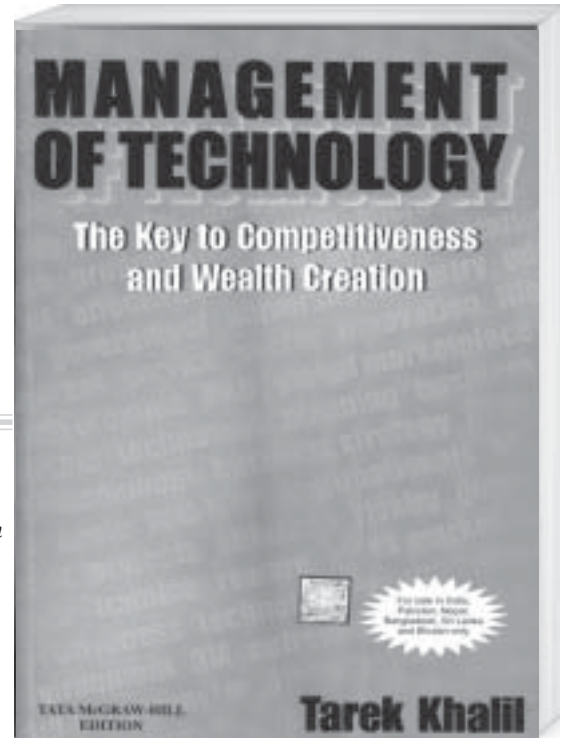
Reviewed by Prof. Shalini Nandwani, Associate Professor - Human Resource Management, SCMS-COCHIN, Pratap Nagar, Muttom, Aluva-683106, Cochin. Email: shalini@scmsgroup.org

operates need a special mention here. Part II deals with HR planning; the processes of job analysis, recruitment, selection and induction - use of demand forecasting techniques and competency based job analysis are new additions, functional job analysis is covered well. Part III has the training, development and performance issues; Management development and remuneration of top bosses are new additions. Part IV is formed of chapters in motivation and communication. Part V includes welfare, safety and health, and separation issues; this includes some new topics on stress. Part VI covers industrial relations, Trade Unions and dispute settlement. Part VII deals with the contemporary issues, ethical issues, international HRM and e-HRM; new additions here are improving ethical decision making, HR professional as change agent and HR in economic downturn.

Going by the international trend in management books, the author has added a continuing case that runs throughout the book bringing out the contemporary issues in the corporate world. Another addition in this edition is the exercises along with each chapter that can be used as assignments and mini projects for learning application by the students. A lot of new data and figures have been added in the 6th edition that interests the reader by providing the Indian corporate examples unlike most other texts in HRM that refer to foreign cases and examples. The only sore point is the poor quality of print on certain pages. Notwithstanding this, the book is an indispensable text for all business management students and teachers, and also a useful reference guide to the Indian professionals.



Skimming and Scanning



Book Title : *Management of Technology*
The Key to Competitiveness and Wealth Creation

Authors : Tarek Khalil

Edition : 2009

ISBN 13 : 978-0-07-067737-1

Pages : 483

Publisher : Tata McGraw – Hill Education Pvt. Ltd., New Delhi.

We live in 'Knowledge age' where technology is the knowledge applied for the creation of goods and services. Technology is intertwined with society and progress of civilization. It is a fact that the most pervasive force influencing human lives today is the technology.

Technology is defined as all the knowledge, products, process, tools, methods and systems employed in the creation of goods or in providing services. Zeleny (1986) proposed that any technology consists of three interdependent, codetermining and equally important components – Hardware, Software and Brainware. A fourth independent

component 'Know-how' is also considered for it encompasses all levels of technological achievements.

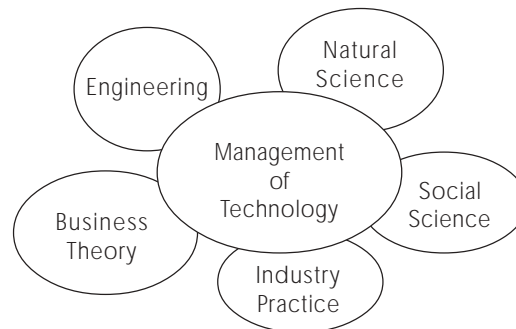
The advances in Information Technology in the second half of the twentieth century has created an explosion of knowledge and has had a major impact on the rate of technological change. According to Quinn et al.(1996), the intellect of contemporary organization operates at four levels – 1) Cognitive Knowledge or Know-What 2) Advanced skill or Know-How 3) System understanding or Know- Why and 4) Self-motivated creativity or Care-Why.

The classification of technology based on New technology, Emer-



ging Technology, High Technology, Low Technology, Medium Technology, Appropriate Technology and Codified and Tacit Technology, is well explained in the book.

Management of Technology is an interdisciplinary field that integrates science, engineering and management knowledge and practices which focus on technology as the primary factor for wealth creation.



Technology is the engine of economic growth. Technology must connect with customer needs to satisfy those needs and achieve societal goods. Management of Technology treats technology as the seed of wealth creation system. In addition to technology other factors that contribute to wealth creation and provide the fertile land, environment and nourishment needed for growth are capital, labour, natural resources, public policy and so on.

Management of Technology focuses on both the operational and strategic interests of the organization. It guides management to improve productivity, increase effectiveness and strengthen the competitive position of the enterprise. At macro-level, the overall impact of technology on society is explored, particularly its role in developing sustainable economic growth. The integration of the economic system, technological capabilities and trade fosters sustainable economic growth.

A chapter in this book is dedicated to the role of technology in the creation of wealth. The book stresses on the critical factors of managing technology i.e. the creativity – invention and innovation. Invention is either a concept or the creation of a new technology while innovation is the creation of a product, service or process that is new to the organization. The importance of innovation, the types, the creativity factor, the relationship of technology, price etc are conveyed to the readers taking examples from various companies like IBM, Osbrone Computers, Microsoft etc.

The book emphasizes the need to manage the technology by citing the example of US which lost its industrial competitiveness during 1970s and 80's mainly because of the failure in managing the available and emerging technologies in an effective and timely manner. Various issues in the management of technology were identified and the drastic changes in the business environment necessitated the search for new paradigm that is suitable for the new environment.

The importance of project planning, human resources, project portfolio selection is explained in detail and the role of Case Study analysis with regard to the project planning is described.

Eight guiding principles on Management of Technology for managing enterprises are identified – value creation, quality, responsiveness, agility, innovation, integration, teaming and fairness. The issues emerging from new management of technology paradigm are discussed in each chapter of this book.

Technology Life Cycle (TLC) is detailed in chapter five of the book. It is said that TLC follows 'S-Curve' with three stages in the life cycle – embryonic, growth and maturity. Relation between TLC, Market growth, market interaction, competition with product and process innovation are described in detail. This chapter ends with a note on diffusion of technology.

The process of technological innovation and its stages are explained and substantiated with case studies to show that the management of technological innovation is vital to the creation of wealth.

Competitiveness is the process by which one entity strives to out perform another. The classic examples of Japan and Singapore that were able to manage global competitiveness with the help of management of technology, bring out how technology innovator contributed to the economic development.

Competitiveness has become a matter of survival in a global place. The need for developing sound strategies for achieving organizational goal and competing successfully is emphasized. The chapter on business strategy and technology strategy discusses the fundamentals of strategic management and explains the corner stone of formulating business and technology strategies and other methodologies that are helpful in strategic decision making. The concept is reinforced with relevant case studies.

The technology planning and methodologies used by leading corporate to guide the planning effort is detailed in the subsequent chapters. Planning is essential for successful strategy implementation. It is the central managerial function and the process includes examining all points of view in the organizational setting clear, realistic objective, charting path towards achieving those objectives, obtaining commitment for execution and finally executing and follow up on the plan.

A detailed discussion on the role of government and large corporations in R&D and recent global trends is presented in chapter 10. Acquisition of technology does have a direct impact on firm's competitiveness. Analysis about the strength and weakness of technology is important before migrating from one technology top another. The various methods of acquiring technology, its exploitation, technical creation through R&D are discussed.

The different stages of technology development that follow the hierarchical progression: basic research – applied research – development and technology enhancement with suitable readings at the end of the chapter, give the reader a thorough understanding about the important of technology planning.

Technology transfer, one of the important aspects of Management of Technology, is dealt with in detail. It is known that without the technology transfer there is no practical

application and utilization of technology. The user of the technology may not be the creator or innovator; hence it is essential that the process of technology transfer must take place. The chapter gives an insight to the need of technology transfer through cases and examples of successful national programme of technology transfer. Also it is examined as a model of intrafirm technology transfer.

A detailed description about the manufacturing and service industry, is given as a separate chapter. The importance of technology – the product and process – shifting towards process innovation and the implementation of sound, well integrated technology and market place at the maturity stage, is discussed with the help of readings on 'Operating Principles of World Class Manufacturing.' A similar focus on service industry with Wal-Mart as example is discussed.

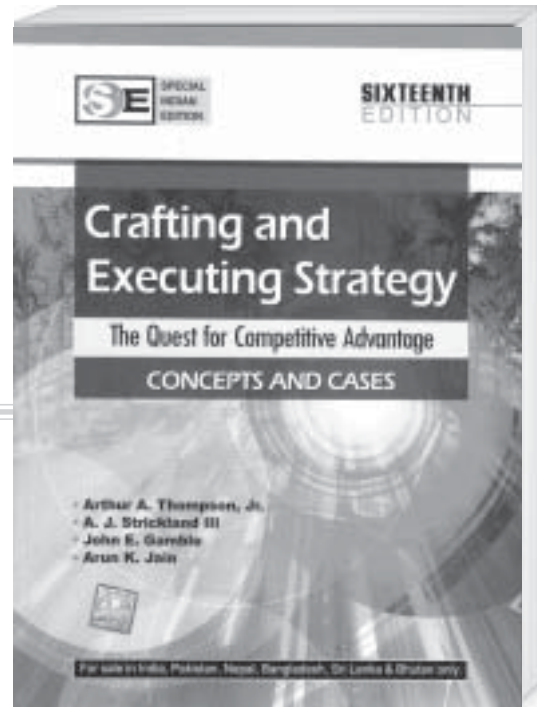
The discussion moves on to the design of organization that talks about the various types of organizational design and organizing for technology planning, R&D and new ventures etc. the changing game of management with focus on reengineering and managing of technology is touched upon. The importance of reengineering is reinforced with a discussion on 'General Electric.'

The book concludes with numerous examples of how corporations are managed, or should be managed in the era of the technology revolution. It also presents a number of case studies and technology management lessons for demonstration and discussion.

The book is valuable and worth reading for the students and researchers on management and technology. The concept on Management of Technology is discussed elaborately with a lot of additional readings, case studies and examples. The simple language makes the book easier to read and understand. The researcher in this field essentially should have this book to get an elaborate picture on how Management of technology has become the key to competitiveness and wealth creation.



Skimming and Scanning



Book Title : *Crafting and Executing Strategy*
The Quest for Competitive Advantage – Concepts and Cases

Author : Arthur A. Thompson Jr.,
 A.J. Strickland III
 John E. Gamble
 Arun K. Jain

Edition : Sixteenth Edition 2010 (Special Indian Edition)

Price : Rs. 295/-

ISBN-13 : 13-978-0-07-014672-3

Pages : 499

Publisher : Tata McGraw-Hills Publg. Co. Ltd., New Delhi.

In the book, *Crafting and Executing Strategy- The Quest for Competitive Advantage – Concepts and Cases*, the authors Thompson, Strickland, Gamble and Jain address the fundamentals of what is strategy and progressively explain the process involved in crafting and executing strategy and the important strategic choices, in a lucid and interesting manner. According to them *the heart and soul of any strategy are the actions and the moves in the market place that managers take to improve the company's financial position*. A creative, distinctive strategy, that

sets a company apart from rivals and yields a competitive advantage, is a most reliable ticket for it to earn above average profits. Strategies evolve overtime; every company should be willing and be ready to modify its strategy in tune with the changing environment thereby making the task of crafting strategy a continuous process which remains as *work in progress* and not a *one time event*. A company's strategy should be a blend of proactive initiatives and reactive adjustments. A winning strategy must fit the internal and external situation and build competitive advantage and improve company's performance.



The book is organized as two main parts with four sections each. Part one is spread over thirteen chapters and is founded on resource based theory covering the concepts and techniques for crafting and executing strategy and structured into four sections viz., the introductory section A explaining the fundamentals like *what is strategy*, section B dealing with Core concepts and Analytical tools, Section C detailing the process of Crafting a Strategy and section D narrating the various dimensions of Executing the strategy. The chapter scheme is well structured and the content is well balanced, mirroring both the best academic thinking and the pragmatism of real-world strategic management and covers the concepts sequentially in a progressive manner. The chapters are livened with explanation of core concepts and embedded with illustrative capsule cases, chapter end exercises and strategic thinking capsules including decision issues and important teaching points.

Part two consists of thirty one well researched and thoughtfully crafted cases narrating the cutting edge strategic practices of real time companies which provide contemporary reference. This part is also organized into four sections, section A is on crafting strategy in single business companies, section B deals with crafting strategy in diversified companies, section C deals with executing strategy and strategic leadership, followed by section D made up of three cases dealing with Strategy, Ethics and Social Responsibility. Following their long cherished commitment since their 8th edition, the authors have taken special care to sparkle class discussions by blending theory with practice from the contemporary world of business. Barring the carry over of three truly timeless classic cases-the *Robinhood*, *Dilemma at Devil's Den* and *Smithfield Foods* from the previous edition, this 16th

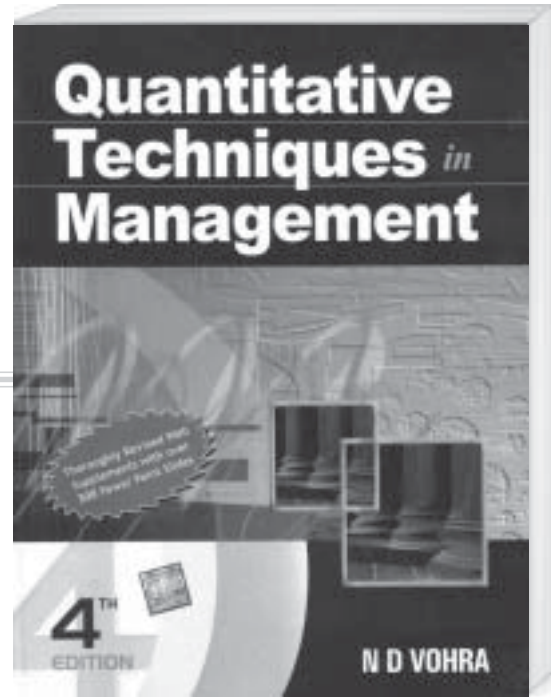
edition features 28 newly researched latest and best cases in strategic management. The selection of cases is diverse, timely, and thoughtfully-crafted and complements the text presentation. The authors' claim that there are quantum improvements *from the previous editions, is fully justified in view of the inclusion of newly researched cases and the powered chapter exercises*. The inclusion of five new cases and the strategic thinking capsules moulded from the Indian context and the possible special contribution by Prof. Arun Kumar Jain, the influential researcher in organizational excellence, has helped very much to authenticate this edition as a *special Indian* edition. The book is indeed a fine blend of best academic thinking and the best strategic thinking of practitioners.

The authors have done full justice to the measurable bench marks like clarity and lucidity of language in explaining concepts, description of tools for strategic analysis, comprehensive and up-to-date coverage, close linkage of chapter content with relevant and contemporary cases. Moreover the supplementing web links, if access extended, should provide comprehensive support material which make this book a highly recommended one to both teachers and students at MBA level.

This book has been authored by a rare combination of talented and competent professors of international repute; Dr. Arthur A. Thompson Jr., a renowned writer and management teacher, Dr. A.J. (Lonnie) Strickland, a consultant and popular speaker on implementing strategic changes and outstanding teacher, Dr. John E. Gamble a specialist teacher in strategic management in several countries and Dr. Arun Kumar Jain a globally recognized strategy and international business professor known for his publications and winner of best book awards.



Skimming and Scanning




Book Title : *Quantitative Techniques in Management*
Author : N.D.Vohra
Edition : 4th 2010
ISBN-13 : 978-0-07-014673-0
Pages : 1063
Publisher : Tata McGraw-Hill Education Pvt. Ltd., New Delhi.

Decision-making is a fundamental part of the management process and it pervades the Activities of every business manager. In fact it is the manager's competence as a decision-maker that enables us to distinguish between a good manager and a bad one. Modern management is adopting and applying quantitative techniques to aid the process of decision making in an ever increasing measure.

Quantitative Techniques in Management by N.D.VOHRA provides the students with a conceptual understanding of the role that quantitative methods play in the decision-making process. This text describes the many quantitative methods that

have been developed over the years explains how they work and shows how the decision-making can apply and interpret data written with the non-mathematician in mind, and is application oriented. Its "problem-scenario approach" aims to motivate and helps students understand and apply mathematical concepts and techniques. In addition the managerial orientation should motivate students by using examples that illustrate situations in which quantitative methods are useful in decision-making. The illustrations and exercise problems are drawn from all the functional areas of management.

The "chapter overview" column at the beginning of each chapter explains the prerequisites in terms



Reviewed by Prof. Rama L., Assistant Professor-Quantitative Techniques, SCMS-COCHIN , Pratap Nagar, Muttom, Aluva-683106, Cochin, E-mail: rama@scmsgroup.org

of knowledge and mathematical skill that is expected in a learner for a better grasp and understanding of the subject. Each chapter has a "test your understanding" column, which is a set of true or false type statements which helps in upgrading the understanding of the concepts learnt. "Key points to remember" column follows each chapter that comprehends the main points learnt in the respective chapter.

The text is entirely suitable for mathematical novices, needing to become proficient in using quantitative method within a business related course, including the anxious students who claim that they have never been able to cope with mathematical subject before.

Examples provided in the text are fully explained and show all stages of the calculations. Appropriate questions are provided in each chapter to enable the readers to review their progress. Answers to all questions are included in the text ensuring the reader that the learning process can be adequately and smoothly assessed.

The text provides simple instruction on how to use various techniques together with clear explanations but not too technical with their practical limitations.

The schematic presentations of the procedure of solving a linear programming problem in all the chapters help the reader to recapitulate the steps easily in order to solve them.

The chapter "investment analysis and break-even analysis" mainly focuses on the various methods that are used for taking decisions drawn upon capital budgeting and break-even analysis. The chapter on simulation answers the following questions: How can simulation be used in making capital budgeting decisions for projects involving uncertainty? What is break-even point and how is it determined for a multi-product firm? Etc.

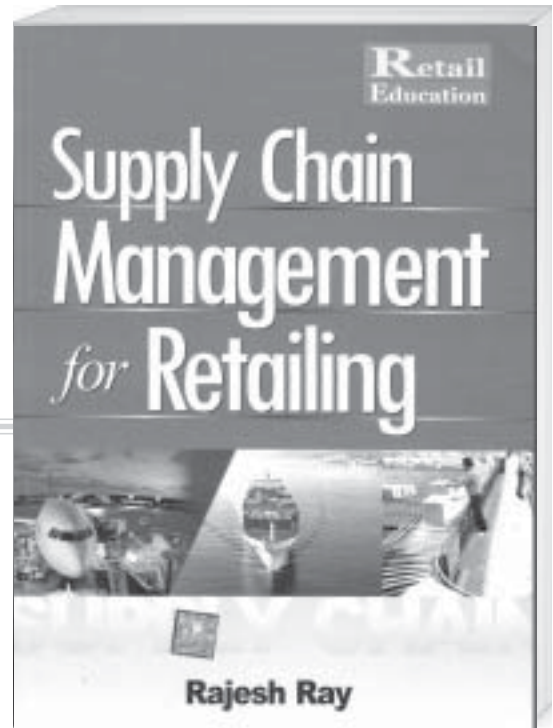
Managers are always concerned about the market share of their products. Market shares change due to changes in consumer preferences caused by several factors. This text clearly brings about how Markov chains analysis can be extended to cover all situations where the variables change states over time. These may include price of a share, employment status of the employees of a company and accounts receivables etc.

"Dynamic programming" is a quantitative technique which is applied to a large complex problem. This book explains clearly the differences between dynamic programming and linear programming problem, and its areas of application. The subject is disclosed in a lucid style and is interspersed with a large number of illustrations to help the reader grasp the subject.

After each chapter if the text had included the procedure to solve and interpret the quantitative techniques problems through popular software like MS EXCEL or LINDO it would have been better appreciated by the students of business schools.



Skimming and Scanning



Book Title : *Supply Chain Management for Retailing*
Author : Rajesh Ray
Edition : 2010
ISBN-13 : 978-0-07-014504-7
Pages : 431
Publisher : Tata McGraw-Hills Publishing Co. Ltd., New Delhi.

Managing a retail business has become more demanding as trading conditions very often provide unforeseen demands. Knowing how to succeed at retail is for anyone in any company who wants to increase the sales of their products. Experiences have proved that success in this business largely depends on how effective you are in implementing a strong supply chain at your organisation, providing right goods at right quality and in right price at the right time.

Most of the books relating to retail industry has ignored or gave less importance to Supply Chain Management. It can be said that the key to success in retailing is

the ability to buy to meet the customers' needs and coordinating the logistics to move these products to the shelf as efficiently as possible.



This book was reviewed by Prof. Asha E. Thomas, Assistant Professor-Finance, SCMS-COCHIN Prathap Nagar, Muttom, Aluva-683106, Cochin, Email: ashathomas@scmsgroup.org

Rajesh Ray, the author of this book titled *Supply Chain Management For Retailing* is an Engineer and an MBA, and currently leads the Supply Chain Management product area in IBM India. This book is an accessible guide for anyone who is curious about the different aspects of Retail Supply Chain. The author has well explained the concepts in Retail Supply Chain Management taking care of different retail categories and retail formats. The Book can be quoted as one among the few books covering

Supply Chain Management in Retail from an Indian Perspective.

The beauty of this book is that it is written in a simple manner with lot of examples and case studies. Book starts with an introduction to Retail Supply Chain. It is divided in to six parts. Part One covers various aspects like category management, space management and pricing in retail. Part Two discusses on retail product life cycle management. Part Three is all about logistics in retail. In this part the author has also discussed some of the contemporary issues like Green Retailing and Green Information Technology.

Part Four is on Retail Relationship Management discussed from the angle of suppliers and also customers. In this section the author has explained with practical examples and diagrammatic representations, the concepts like reverse logistics, measures for retail CRM processes, Kiosks and advanced payment technologies to improve customer service. Part Five takes care of Category and Format specific Retail supply chain issues. All the major retail segments and their supply chain

issues are discussed by the author. The Book also covers Supply Chain Management in many emerging areas like rural retail and non-store based retail formats.

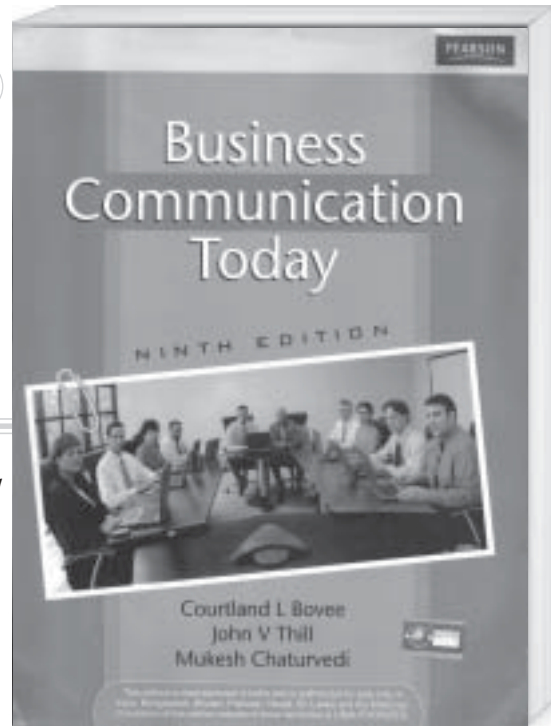
Coverage of Contemporary issues in retailing of financial products and retail banking citing examples by referring to suitable products, adds feather to the crown. Inclusion of various real time case studies helps the readers to stay tuned with the current market situation.

Part Six is on Information Technology for Retail. Technology innovations like Bar Coding, RFID and Retail ERP have been brought under discussions in this section. The author has not left out discussing the emerging areas of technology in Retail.

In nutshell, it can be recommended as one of the good books written on Retail Supply Chain Management. The above ideas are elaborated effectively. The author has suggested different ways of practising them in the present market scenario.



Skimming and Scanning



Book Title : *Business Communication Today*
Author : Courtland L. Bovee, John V. Thill, and Mukesh Chaturvedi
Edition : 2009 (Ninth)
ISBN-13 : 978-81-317-2120-9
Pages : 582
Publisher : Pearson, New Delhi.

Effective Communication is the secret of success. If one moves along with the change as it happens that is nothing but being a diligent communicator. Thus, getting acquainted with the changing attitude and approach of communication styles is highly appreciated. The book titled *Business Communication Today* is such an attempt.

As the age progresses and as the change is observed, it is mandatory to update the knowledge base as well. Hence, this book comes with all the possible updated current communication skills and styles which are inevitable in the ever dynamic world of business. The order, in which each topic has been dealt with, depicts the significance it holds in business. For instance, the first part (Part 1)

emphasizes the need to think global. The topics like cross-cultural communication, listening and non-verbal communication skills etc. are necessary in the modern business scenario as the markets are expanding and so is the chance of having multicultural workforce. One of the dilemmas one faces in this age is mainly in making ethical communication choices.



Reviewed by Prof. Divyalakshmi P., She was Assistant Professor in Business Communication in SCMS-COCHIN, Pratap Nagar, Muttom, Aluva-683106, Cochin, Email: divya.j.menon@gmail.com

Writing is one such skill which requires more precision as it is nothing different from documentation. The second and third parts of the book focus on writing as a process and writing messages for electronic media including E-mail messages, business blogs, and podcasts. The fact that writing good news differs from drafting an unpleasant message is also analyzed and

explained well in three elaborate chapters. Report writing and graphics which are quite important a task in business also receives a well-defined space in the book.

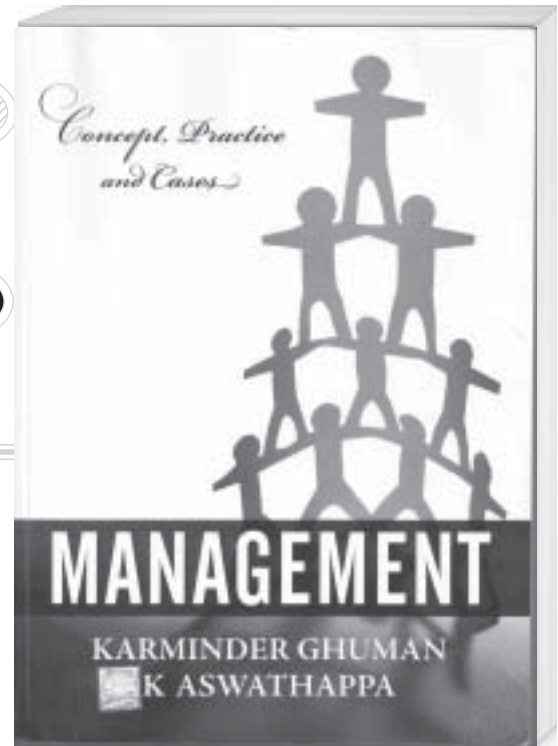
The book deals with the speaking skill in the penultimate part wherein designing and delivering oral and online presentations are focused. The technique to present well through adequate slides and other visuals, is really going with the fast age in which we are in. Keeping the presentations short yet effective and the ways to do it are mentioned in this part.

None ignores the fact that communication on the job is as important as communication to get a job. Usually, the first contact point to a prospective employer is through the Resume one frames of self. Business communication is incomplete without the mention of developing CVs and, attending GDs and Interviews. Thus, the last part ends with interviewing for the employment and the following up.

A book on communication becomes really effective when it provides easy reading, comprehension and ample instances from industry or business. This book has rightly done so and is, definitely, a good book to lay hands upon if one needs to know about business communication today!



Skimming and Scanning



Book Title : *Management*
Author : Karminder Ghuman and K. Aswathappa
Edition : 2010
ISBN-13 : 978-0-07-018218-4
Pages : 635
Publisher : Tata McGraw-Hill Hill Education Pvt. Ltd., New Delhi.

The greatest challenge facing the Indian Management education system today is not equipping learners for the conceptual, but rather the practical management of people and talent in an organizational framework. In the book titled *Management Concept, Practice and Cases*, a sincere attempt has been made by the authors towards developing literature that balances both theory and practice, with a built-in bias towards application for aspiring managers. The book tries to assign greater meaning to the clichéd managerial functions of planning, organizing, control and decision making by simplifying it as being a matter of time and technique. Students can derive huge exposure from the relevant case

studies provided at the end of each chapter and critical thinking questions based on the theory discussed chapter wise.

The author not only highlights the pros of various age-old management concepts but also touches upon contemporary growth areas like Technology Management and Knowledge Management. The first chapter discusses various business ownership formats and the nitty-gritty of forming business enterprises.

Chapter 2 discusses the steps firms need to take to sustain/operate in today's externally and internally dynamic environment. The subsequent 2 chapters offer



Reviewed by Ms. Daly Poullose, Faculty Member, SSTM, Pratap Nagar, Muttom, Aluva-683106, Cochin, Email: daly@scmsgroup.org

rare insight into the tools and strategies for sustainability in business achievable through green and CSR initiatives. The manner in which parallels are drawn between ethics in the West and India is an eye-opener in itself.

While Chapter 5 mainly discusses various roles, skills and reporting structures in the organizational hierarchy, the chapter that follows emphasizes the importance of being leaders vis-à-vis ordinary managers, against the backdrop of the classical management theories. The highlight of this chapter is the emphasis on managing the transition from being a manager to a leader to being a facilitator and ultimately a mentor who is likened to an orchestra conductor keeping everyone on the same page and key. The author's effort to throw light upon the 21st century approach to management is indeed commendable. Exploration of nuances of organizational roles and the natural outcomes of team dynamics, change management, conflict and negotiation management and fallouts of power politics form the canvas for subsequent chapters.

Chapter 13 suddenly takes a Human Resource perspective with elaborate discussions on recruitment, training, appraisal, retention and motivation whilst also touching

upon quintessential management approaches like MBO and TQM.

The key take-home from the book is the manner in which the author has focused on the global business management perspective, at the same time citing extensively from small business management scenarios, thus satiating the new-found appetite among Indians for entrepreneurial risk taking and the renewed focus on 'rural inclusion.' A set of chapters have been dedicated to topics of technology management assuming importance in the wake of controversies like Bt Brinjal and information security issues.

The author wraps up the vast content in the book citing comparative management styles across nations like USA, Japan, China and India, again using useful case-lets to drive home the point.

Karminder Ghuman's book on Management concepts exceeds reader expectations at various levels. This book promises to be an invaluable resource for both students and teachers alike, thanks to the simple writing style and live examples and case studies discussed.



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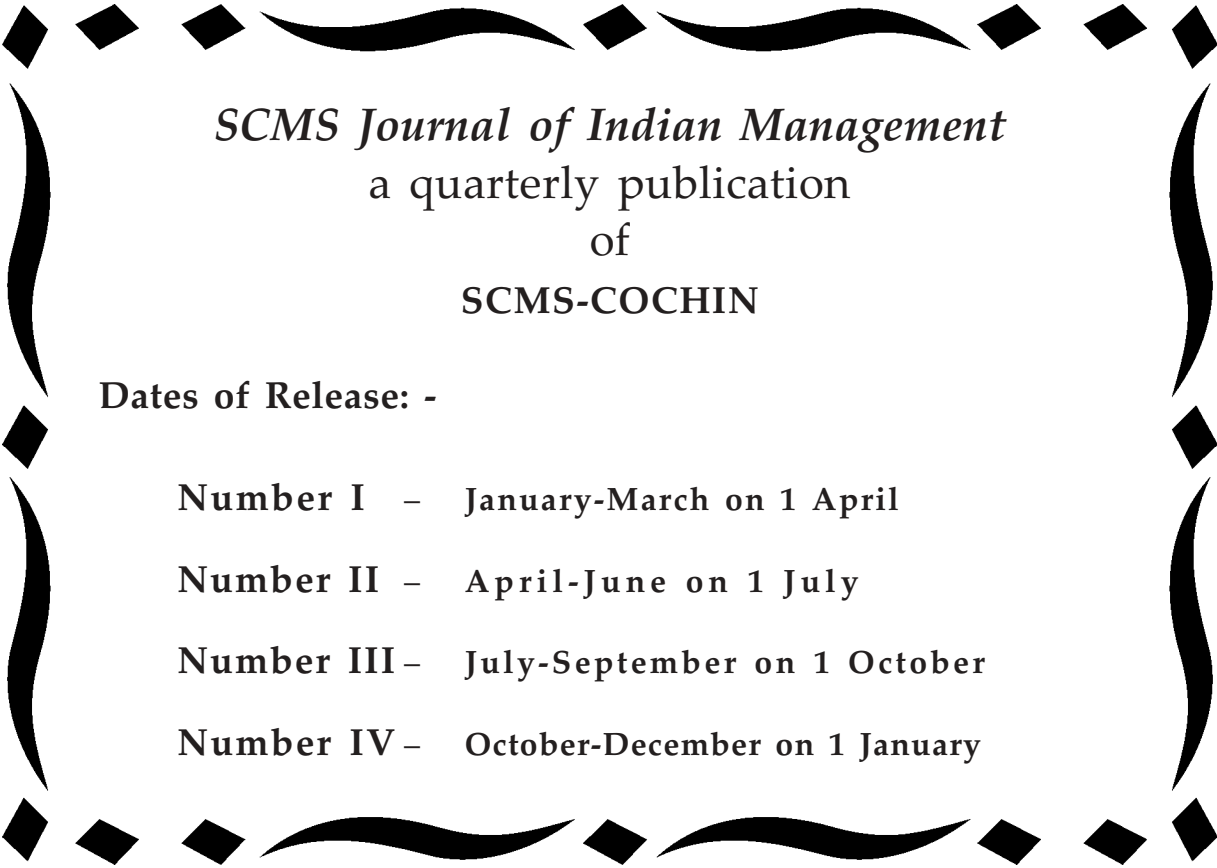
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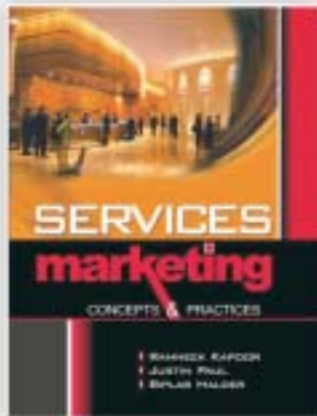
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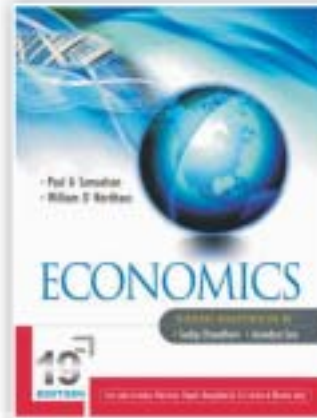
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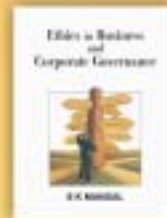
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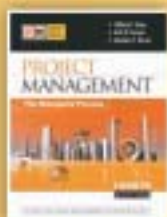
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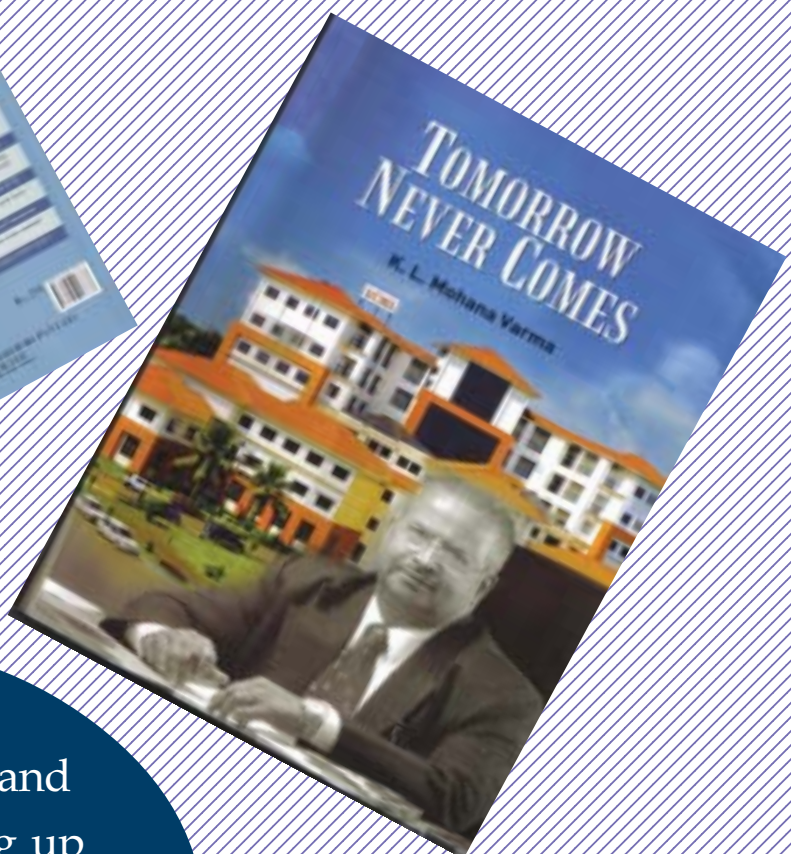
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