

**VOLUME 8    NUMBER 3    Aug 2016**

**ISSN 2076-9202 (Print)  
ISSN 2218-046X (Online)**

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# **International Journal of Information, Business and Management**



**ELITE HALL PUBLISHING HOUSE**

## **International Journal of Information, Business and Management**

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**CONTENTS**

- 1 PUBLISHER, EDITOR IN CHIEF, MANAGING EDITOR AND EDITORIAL BOARD**
- 2 FOREIGN INVESTMENT INFLOWS AND GROWTH OF THE SECONDARY AND TERTIARY SECTOR OF THE INDIAN ECONOMY**  
MOUSUMI BHATTACHARYA, SHARAD NATH BHATTACHARYA
- 3 THE RELATIONSHIP BETWEEN THE EMOTIONAL INTELLIGENCE LEVEL AND THE EFFECTIVENESS OF A PROJECT MANAGER: THE CASE OF JORDAN**  
AFNAN R ALAWNEH, RATEB J SWEIS
- 4 PRINCIPLES OF MANAGING CURRENCY RISKS BY MACEDONIAN COMPANIES**  
GLIGOR BISHEV, TATJANA BOSHKOV
- 5 SURVEY EVIDENCE FOR INFLUENCE IN IMPROVEMENT ON TRADE FACILITATION AND ECONOMY GROWTH: THE CASE OF REPUBLIC OF MACEDONIA**  
TATJANA BOSHKOV, ZARKO RADJENOVIC
- 6 ETHICAL DECISION MAKING IN BUSINESSES: LINKING RATIONAL AND NON-RATIONAL THEORIES**  
SYED AFZAL MOSHADI SHAH, SHEHLA AMJAD
- 7 STRATEGIC HUMAN RESOURCE MANAGEMENT: ASSESSMENT AND EVALUATION OF HUMAN RESOURCES AS FACTORS TO ACHIEVING BETTER ECONOMIC PERFORMANCE**  
KRUME NIKOLOSKI
- 8 DESIGN & ANALYSIS OF E-LEARNING SYSTEM FOR MCA PROGRAMME**  
M. RAZAULLHA KHAN, RAJEEV B. KHARAT
- 9 EFFECTIVE STAKEHOLDERS MANAGEMENT IN BANKING INDUSTRIES**  
OKOLI IFEANYI E., MONANU OGE G., ADIBE CHARLES GOZIE.
- 10 MULTIFACETEDNESS OF THRIVING: ITS COGNITIVE, AFFECTIVE, AND BEHAVIORAL DIMENSIONS**  
GHULAM ABID, ALIA AHMED
- 11 FACTORS AFFECTING BUSINESS TO BUSINESS (B2B) E-COMMERCE (EC) SECURITY SYSTEMS PERFORMANCE IN ENGINEERING, ELECTRONIC INDUSTRIES AND INFORMATION TECHNOLOGY SECTOR IN AMMAN**  
JAMEEL MOHAMMAD FALAH ALSARAYRAH
- 12 AESTHETIC EDUCATION AND PRACTICE COURSE COMMUNITY SERVICE LEARNING - "MAKEUP AESTHETICS AND LIFE" CASE**  
CHIA-YU TSOU, JE-HSIN CHEN, TSUNG-KUAN LIN

- 13 THE IMPACT OF TECHNOLOGICAL CHANGES ON HUMAN CAPITAL AND COMPANY PRODUCTIVITY**  
GLIGOROVSKI VIOLETA
- 14 DO FLEXIBLE WORK ARRANGEMENTS AFFECT JOB SATISFACTION AND WORK-LIFE BALANCE IN JORDANIAN PRIVATE AIRLINES?**  
ADNAN M. RAWASHDEH, MOHAMMAD S. ALMASARWEH, JAMEL JABER
- 15 THE RELATIONSHIP BETWEEN THE SOURCES OF KNOWLEDGE MANAGEMENT, ORGANISATIONAL INNOVATION AND ORGANISATIONAL PERFORMANCE**  
MRS RIM MAÂLEJ BEN ZAIED, MSR HABIB AFFES
- 16 MOTHER TONGUE AN EFFECTIVE MEDIUM OF EDUCATION - (EDUCATION, WHICH IS A FACTOR OF HUMAN CAPITAL DEVELOPMENT)**  
DR. MUHAMMAD TARIQ KHAN
- 17 POSITIVE CONTRIBUTIONS OF GLOBALIZATION ON DEVELOPING COUNTRIES. A FOCUS ON GHANAIAI EMPLOYEES**  
OWUSU ALFRED, NICHOLAS OPPONG MENSAH, ANTHONY KOFI BADU
- 18 THE CONTRIBUTIONS OF GOVERNMENT CAPITAL EXPENDITURE ON EDUCATION TOWARDS HUMAN DEVELOPMENT IN NIGERIA (1980-2012)**  
CHINWUDU, CHINYERE FAITH, NWAIWU, BLESSING NKECHI, CHIKWE, GODDEY CHUKWUDI
- 19 EXPLORATORY STUDY ON E-BANKING IN BANGLADESH: STATUS AND NEEDS**  
ATIKUR RAHMAN BAIZID, LUTFUNNAHAR LUTFA
- 20 RANKING AUTOMOTIVE CUSTOMER REQUIREMENTS USING CLUSTERING AND THREE PARAMETER GREY NUMBERS**  
AZIME MOZAFARI, ALI BONYADI NAEINI
- 21 NATURAL RESOURCES OF HIMALAYAS OF PAKISTAN THEIR SOCIO-ECONOMIC IMPACT AND DANGERS TO THEM**  
DR. MUHAMMAD TARIQ KHAN
- 22 JAVA DATABASE CONNECTIVITY USING JAVA DB (APACHE DERBY): A TUTORIAL**  
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ISSN 2076-9202 (Print)

ISSN 2218-046X (Online)

# FOREIGN INVESTMENT INFLOWS AND GROWTH OF THE SECONDARY AND TERTIARY SECTOR OF THE INDIAN ECONOMY

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## ABSTRACT

*The paper investigates the causal relationship between foreign investment inflows and sectoral growth pattern of the two sectors namely secondary (industrial) and tertiary (services) sector of the Indian economy during the post liberalization period (1996-2010). Cointegration test and Granger causality test is conducted in a multivariate VAR framework at level form to identify causal relationship amongst the variables. It is observed that both secondary and tertiary sector growth causes foreign investment inflows. The results suggest that there is a close connection between secondary sector and tertiary sector growth and there is likely to be spill over effects in each of these sectors.*

**Keywords:** *Foreign investment inflows, Sectoral growth pattern, Secondary and Tertiary sector, Granger causality*

## INTRODUCTION

Manufacturing (secondary) sector is an important determinant of Indian economic growth and is a contributor to production, employment, exports and investments. FDI's participation in the manufacturing sector investments is a contribution for further enhancement of the growth process of the economy. FDI, through transfer of technology and knowhow, can raise the productivity and growth of output of the FDI firms in the manufacturing sector and over time through spillovers to domestic firms *via* imitation/reverse engineering and human resource interaction and mobility.

The tertiary sector covers a wide range of activities from sophisticated information technology services (IT) to some unorganized services like that of barber and carpenter. FDI in the services sector now

accounts for the bulk of foreign investment inflows in the country. Over the years foreign investment inflows in services such as business services, finance, transport, communication and utilities have gained ground. The foreign investment inflows in the tertiary sector plays an important role in integrating emerging economies into the global financial system, bringing substantial benefit to the host country's financial system in terms of efficiency and stability.

The impact of foreign investment inflows depend on the form of foreign investments, sector, scale, duration and location of business and merely enhancing the availability of the foreign investment inflows will not be sufficient. The spillover effect of foreign investment inflows i.e. both FDI and FPI differs across the sectors of the Indian economy. Here an attempt is made to understand the role of foreign investment inflows in promoting the growth of the secondary and tertiary sector of the Indian economy.

## **REVIEW OF LITERATURE**

Hirschman (1958) showed that FDI's potential to create linkages may vary across sectors and concluded that not all the sectors have the same potential to absorb foreign technology or to create linkages with the other sectors of the economy. The theoretical work of Findlay (1978) and Wang and Blomström (1992) model the importance of foreign direct investment as a medium for transferring technology to manufacturing and services sector rather than the primary sector. However, Firebaugh (1992) pointed out several reasons why FDI inflows may be less profitable than domestic investment and may even be detrimental. He argued that FDI may be detrimental if it 'crowds out' domestic businesses and stimulates inappropriate consumption pattern. In the World Investment Report (2001) it is argued that a broad variety of linkage intensive activities is observed in the manufacturing sector, while in the primary sector the scope of linkages is often limited. In the tertiary sector, the scope is limited for dividing production into discrete stages and subcontracting out large parts to independent domestic firms. In a study conducted for 47 countries for the period 1981-1999, Alfaro (2003) conclude that FDI has an effect on growth which is positive in case of manufacturing sector but the evidence for the service sector is vague. Vu et al. (2006) studied sector-specific FDI inflows for both China and Vietnam and observed that the manufacturing sector appears to gain more than other sectors from FDI. Khaliq and Noy (2007) observed that impact of FDI across sectors are varied, have both positive and negative impacts in Indonesia.

## **DATA**

The quarter wise data of foreign investments inflows (both FDI and portfolio flows) (FI) in India covering the period from 1996 to 2010 have been collected for the study from various issues of the Reserve of India bulletin. The contributions of the secondary and tertiary sector in the quarter- wise GDP estimates at constant (1999-2000) prices are considered. In the study, the contribution of secondary sector (including mining & quarrying, manufacturing, electricity, gas & water supply and construction) to the GDP, measuring growth of the respective sector over the years is represented by SEC. The contribution made by tertiary sector (including trade, hotels, transport & communication, financing, insurance, real estate

and business services along with community, social and personal services) to the GDP, measuring growth of the respective sector over the years is denoted by TER.

## METHODOLOGY

### Regression Analysis

A simple regression model is used to predict which of the two sectors is contributing more towards foreign investment inflows in the country for the time period. The linear regression equation used here may be represented as: -

$$LnFI = \alpha + \beta_1 LnSEC + \beta_2 LnTER + \varepsilon \quad \dots (1)$$

where  $\alpha$  is the constant term, SEC denotes the secondary sector's contribution to GDP, TER denotes the tertiary sector's contribution to GDP and FI represents foreign investment inflows.  $\varepsilon$  is the error term,  $\beta_1$  and  $\beta_2$  are the coefficients to be estimated.

### Econometric Analysis

*The study uses a Granger causality test in a multivariate Vector Autoregressive (VAR) framework to examine causality between foreign investment inflows and sectoral growth pattern of the secondary and tertiary sector of the Indian economy.*

### Tests for Stationarity

It is necessary to check the stationarity of the variables before making any further analysis with the time series data, so Augmented Dickey Fuller (ADF) (1979) and Phillips-Perron (PP) (1988) test are performed.

### Test for Cointegration

Cointegration Test is conducted to determine the long-run equilibrium relationship between the variables. The study employs the Error-correction Cointegration technique of Johansen (1988) and Johansen and Juselius (1990) to identify the cointegration relationship between the variables. Johansen and Juselius' (1990) approach to the number of co-integrating vectors is applicable only if all variables are I(1). The Cointegration Test of maximum likelihood (based on the Johansen-Juselius Test) has been developed based on a VAR approach initiated by Johansen (1988). According to Johansen (1988), a p-dimensional VAR model, involving up to k-lags can be specified as below.

$$Z_t = \Pi_1 Z_{t-1} + \Pi_2 Z_{t-2} + \dots + \Pi_k Z_{t-k} + \varepsilon_t \quad \dots(2)$$

where  $Z_t$  is a  $(p \times 1)$  vector of  $p$  potential endogenous variables and each of the  $\Pi_i$  is a  $(p \times p)$



matrix of parameters and  $\varepsilon_t$  is the white noise term. Equation (2) can be formulated into an Error Correction Model (ECM) form as below.

$$\Delta Z_t = \Pi_k Z_{t-k} + \sum_{i=1}^{k-1} \theta_i \Delta Z_{t-i} + \varepsilon_t \quad \dots(3)$$

where  $\Delta$  is the first difference operator, and  $\Pi$  and  $\theta$  are  $p$  by  $p$  matrices of unknown parameters and  $k$  is the order of the VAR translated into a lag of  $k-1$  in the ECM, and  $\varepsilon_t$  is the white noise term.

$\Pi$  is a vector which represents a matrix of long-run coefficients and it is of paramount interest. Evidence of the existence of cointegration is the same as evidence of the rank ( $r$ ) for the  $\Pi$  matrix. Johansen and Juselius (1990) showed that the rank of  $r$  of  $\Pi$  in equation (3) is equal to the number of cointegrating vectors in the system. If it has full rank, i.e.,  $r = p$  then there are  $p$  cointegrating relationships and that all variables are  $I(0)$ . The system is stationary at level and the variables can be modelled by VAR in levels.

For the present study,  $\Pi=3$  will indicate that all the components of  $Z_t$  are  $I(0)$ .

The study uses two Likelihood Ratio Tests as developed by Johansen and Juselius (1990). The first test is the Likelihood Ratio Test based on the Maximal Eigen value which evaluates the null hypothesis of ‘ $r$ ’ cointegrating vector(s) against the alternative of ‘ $r+1$ ’ cointegrating vectors. The second test is the Likelihood Ratio Test based on the Trace Test which evaluates the null hypothesis of, at most, ‘ $r$ ’ cointegrating vector(s) against the alternative hypothesis of more than ‘ $r$ ’ cointegrating vectors.

*Tests for Causality*

The models used for testing Granger causality in a VAR framework at level form: -

$$LnFI_t = \sum_{j=1}^p \alpha_{11,j} LnFI_{t-j} + \sum_{j=1}^p \alpha_{12,j} LnSEC_{t-j} + \sum_{j=1}^p \alpha_{13,j} LnTER_{t-j} + \varepsilon_{1t} \dots\dots\dots(4)$$

$$LnSEC_t = \sum_{j=1}^p \alpha_{21,j} LnSEC_{t-j} + \sum_{j=1}^p \alpha_{22,j} LnFI_{t-j} + \sum_{j=1}^p \alpha_{23,j} LnTER_{t-j} + \varepsilon_{2t} \dots\dots\dots(5)$$

$$LnTER_t = \sum_{j=1}^p \alpha_{31,j} LnTER_{t-j} + \sum_{j=1}^p \alpha_{32,j} LnFI_{t-j} + \sum_{j=1}^p \alpha_{33,j} LnSEC_{t-j} + \varepsilon_{3t} \dots\dots\dots(6)$$

Where LnFI, LnSEC and LnTER in equation (4), (5) and (6) are the time series of foreign investment inflows, contribution of the secondary sector and contribution of the tertiary sector respectively to GDP (measuring growth of the respective sectors) and they are in the logarithm form.  $\varepsilon_{1t}$ ,  $\varepsilon_{2t}$  and  $\varepsilon_{3t}$  are white noises.  $p$  is the lag length of VAR which is 4 in the present study. (Table 1)

**Table 1: VAR Lag Order Selection LnFI, LnSEC, LnTER**

Lag	LL	LR	FPE	AIC	SIC	HQIC
0	84.97645	NA	7.56e-06	-3.279058	-3.164337	-3.235372
1	209.4136	228.9643	7.47e-08	-7.896543	-7.437657	-7.721796
2	212.6565	5.577846	9.45e-08	-7.666260	-6.863210	-7.360454
3	225.4638	20.49166	8.21e-08	-7.818551	-6.671338	-7.381686
4	315.7331	133.5986*	3.24e-09*	-11.06932*	-9.577945*	-10.50140*

\* indicates lag order selected by the criterion.

### Impulse Response Analysis

Examination of causality in a VAR framework will suggest the variables in the model that have statistically significant impacts on the future values of each of the variables in the system. But F test statistic will not be able to explain the sign of the relationship or explain how long these effects require to take place. Alternatively, F-test results will not reveal whether changes in the value of a given variable have a positive or negative effect on other variables in the system. Impulse responses are applied to trace out the responsiveness of the dependent variables in the VAR to shocks on each of the variables. Therefore for each variable from each equation separately, a unit shock is applied to the error, and the effects upon the VAR system over time are noted.

## FINDINGS

### Regression Analysis

**Table 2: Regression Results for the Time Period 1996-97:Q1 - 2009-10:Q2**

	Constant	LnSEC	LnTER	$R^2$	$\bar{R}^2$	F-statistic
<b>LnFI</b>	-49.58764*** (2.239019) [-22.14703]	7.573606*** (0.992496) [7.630871]	2.377982*** (0.801100) [2.968397]	0.961713	0.960211	640.5215 (p value =0.00)

The above regression results in **Table 2** reveal that both the secondary sector's contribution to GDP and tertiary sector's contribution to GDP is significant at 1% level in explaining FI inflows in India. This signifies that growth in the secondary sector and tertiary sector affects foreign investment inflows in the host country. The  $R^2$  value of 0.961713 is significant in explaining measurement of goodness of fit of the regression model. The F statistic reveals that the regression is significant. The study has employed various diagnostic tests viz., Jarque Bera normality test, heteroskedasticity test for Autoregressive Conditional Heteroskedasticity (ARCH) effect and Ramsey RESET specification test to examine the validity and reliability of the regression model.

Jarque Bera test statistic (**Table 3**) is used for testing whether the residuals of the series are normally distributed. Here the null hypothesis cannot be rejected (p value=0.514422) so it can be concluded that

the residual series is normally distributed.

**Table 3: Jarque Bera test**

Diagnostic test	Purpose	Test Statistic	Probability	Conclusion
Jarque Bera test	Normality	1.329424	0.514422	Normally distributed

Ramsey's RESET test is general test for misspecification of functional form. Both  $F$  and  $\chi^2$  versions of the test (**Table 4**) shows that there is no-apparent non-linearity and it can be concluded that the linear model for FI is appropriate.

**Table 4: Ramsey RESET Test**

$F$ -statistic	1.954149	Prob. $F$ (1,50)	0.1683
Log likelihood ratio	2.070283	Prob. Chi-Square(1)	0.1502

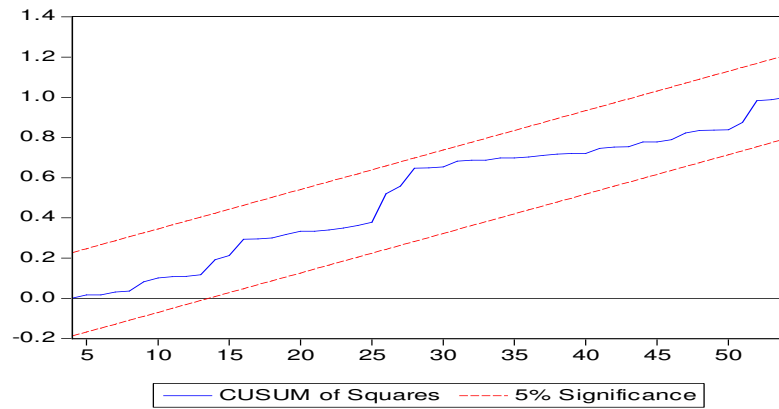
The study employs  $F$  test and Lagrange multiplier (LM) test for autoregressive conditional heteroskedasticity (ARCH) effect in the residuals. (**Table 5**) Both the  $F$  -version and the LM-statistic are not quite significant and there is no significant ARCH effect in the residuals of the estimated model.

**Table 5: Heteroskedasticity Test – ARCH**

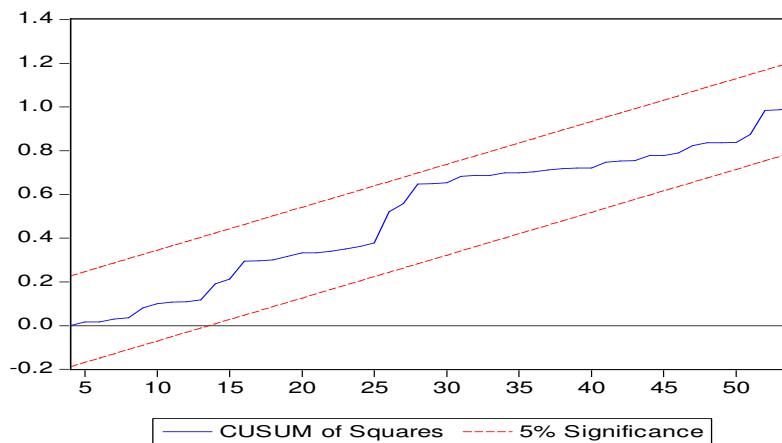
$F$ -statistic	0.113892	Prob. $F$ (1,51)	0.7371
Obs*R-squared	0.118095	Prob. Chi-Square(1)	0.7311

Finally CUSUM and CUSUMSQ tests are used to check the stability of the parameters in the model. The null hypothesis of parameter stability cannot be rejected at the 5% level of significance as the cumulated sum stays inside the 95% confidence band in case of both CUSUM and CUSUMSQ tests. The CUSUM test indicates stability in the equation during the sample period as displayed by the line (blue) that lies within the 5% critical lines (**Figure 1**). The CUSUM of squares test shows that the cumulative sum of the squares is within the 5% significance lines, suggesting that the residual variance is stable (**Figure 2**).

**Figure 1: Diagrammatic representation of CUSUM Test**



**Figure 2: Diagrammatic representation of CUSUMSQ Test**



***Test for Stationarity***

The variables LnSEC, LnTER and LnFI are I(0) processes according to ADF and PP tests as displayed in Table 6.

**Table 6: Test of Unit Root Test Hypothesis with trend**

Series		ADF Statistic		PP Test	
		Test Statistic	Lags	Test Statistic	Lags
LnSEC	Level	-3.497896**	0	-3.497896**	0
	First Difference	-8.818849***	0	-8.818849***	0
LnTER	Level	-3.557074**	1	-39.61208***	1
	First Difference	-3.957665**	3	-28.59455***	3
LnFI	Level	-3.936694**	3	-3.936694**	3

	First Difference	-3.993624**	2	-8.475629***	2
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(a) The critical values are those of MacKinnon (1991).

(b) \*\*\*, \*\* and \* represent the rejection of null hypothesis at 1%, 5% and 10% levels of significance respectively.

### Test for Cointegration

Johansen Cointegration Test results for the cointegration rank  $r$  have been presented in Table 7. As per the results of the ADF, PP, it is observed that the variables have the same order of integration, i.e.,  $I(0)$ . To crosscheck the results that the variables are level stationary as computed in the above Table 6. Johansen Cointegration Test is performed to find out the cointegration rank and the number of cointegrating vectors. The null hypothesis is rejected in the cases of both the Trace statistic and Max-Eigen value statistic. Table 7 shows that the number of statistically significant co-integration vectors is equal to 3 for both Trace statistic and Max-Eigen value statistic. Since there is full rank i.e.  $\Pi=3$  it is argued that the system is stationary at level and the variables can be modelled by VAR in levels.

**Table 7: Johansen -Juselius Cointegration Test Result**

$H_0$	$H_1$	$\lambda_{trace}$	$CV_{(trace,5\%)}$	Prob**
$r = 0$	$r \geq 1$	64.75568	29.79707	0.0000**
$r \leq 1$	$r \geq 2$	23.55104	15.49471	0.0025**
$r \leq 2$	$r \geq 3$	7.437518	3.841466	0.0064**
$H_0$	$H_1$	$\lambda_{max}$	$CV_{(max,5\%)}$	Prob**
$r = 0$	$r = 1$	41.20463	21.13162	0.0000**
$r \leq 1$	$r = 2$	16.11353	14.26460	0.0252**
$r \leq 2$	$r = 3$	7.437518	3.841466	0.0064**

(a)  $r$  is the number of cointegrating vectors.

(b) Trace test indicates 3 cointegrating equations at 0.05 level.

(c) Max-eigenvalue test indicates 3 cointegrating equations at 0.05 level.

(d) \*\* denotes rejection of the null hypothesis at 5% level of significance.

(e) The critical values (i.e., CVs) are taken from Mackinnon-Haug-Michelis (1999).

### Test for Causality

The Granger causality test is performed at the level form in the framework of VAR model. The VAR

estimates are computed taking each one of them once as the dependent variable and the other variables as the independent variables. The null hypothesis is accepted or rejected on the basis of “F statistic” to determine the joint significance of the restrictions under the null hypothesis. The lag length is justified by a minimum of Final prediction error (FPE), Schwarz information criterion (SIC) and Likelihood ratio test statistics. The test result suggests lag order of 4 as optimal lag as seen in Table 1. In Table 8 the null hypothesis “LnSEC does not Granger cause LnFI” may be rejected (p value 0.0007) and it can be concluded that secondary sector growth causes foreign investment inflows. The null hypothesis “LnFI does not Granger cause LnSEC” may be rejected (p value 0.0283) and it can be concluded that foreign investment inflows causes secondary sector growth. The null hypothesis “LnTER does not Granger cause LnFI” may be rejected (p value 0.0118) and it can be concluded that tertiary sector growth causes foreign investment inflows. The null hypothesis “LnFI does not Granger cause LnTER” cannot be rejected (p value 0.3463) and it can be concluded that foreign investment inflows does not cause tertiary sector growth. The null hypothesis “LnTER does not Granger cause LnSEC” can be rejected (p value 0.0000) and it can be concluded that tertiary sector growth causes secondary sector growth. The null hypothesis “LnSEC does not Granger cause LnTER” can be rejected (p value 0.0027) and it can be concluded that secondary sector growth causes tertiary sector growth.

**Table 8: Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
LnSEC does not Granger Cause LnFI	50	5.93664	0.0007
LnFI does not Granger Cause LnSEC		3.02407	0.0283
LnTER does not Granger Cause LnFI	50	3.68539	0.0118
LnFI does not Granger Cause LnTER		1.15126	0.3463
LnTER does not Granger Cause LnSEC	50	16.5118	0.0000
LnSEC does not Granger Cause LnTER		4.84521	0.0027

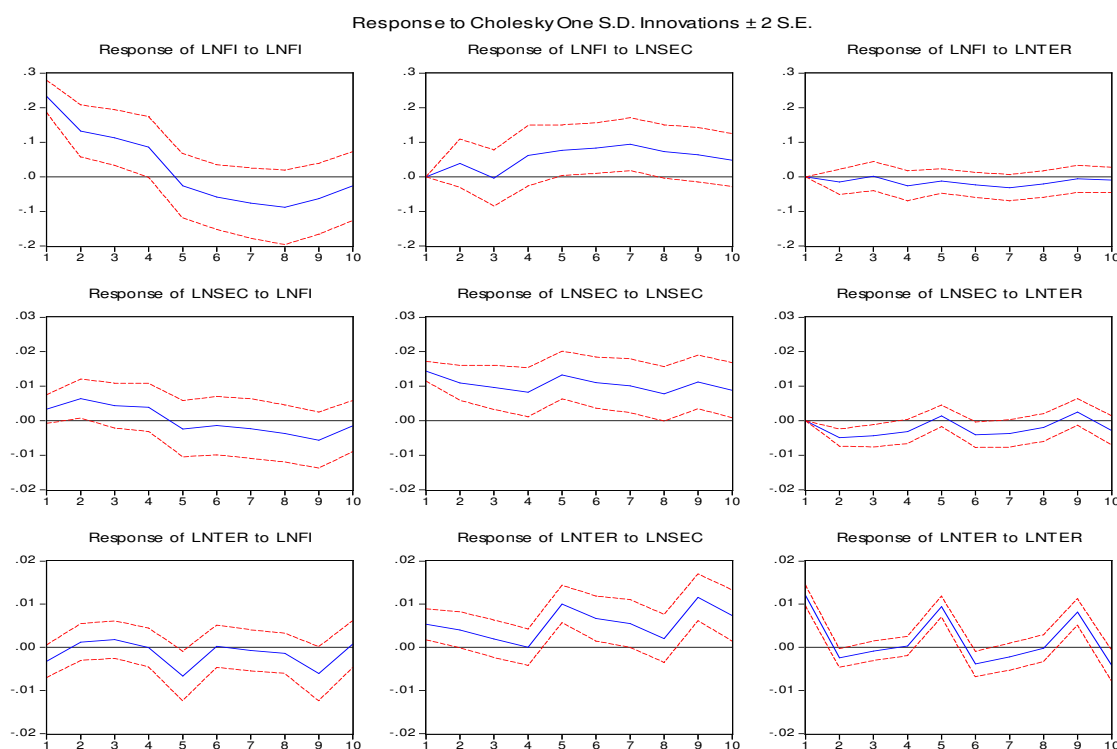
**Impulse Response Analysis**

The shock to any one of the three variables considered in the study affects all other variables in the system. The shocks are orthogonalized by using the Choleski decomposition method. The VAR is estimated at the level form of the variables and the optimum lag length is chosen to be 4 (minimum of LR or FPE or AIC or SC or HQIC). Thus, IR functions are computed to give an indication of the system’s dynamic behaviour. The IR estimates only for the variables that appear to significantly Granger cause other variables (based on Causality Test) are reported. Each of the variables in the study is taken in the natural logarithmic form. The IR function for the VAR system is calculated in the following order – FI, SEC and TER and is represented in Figure 3 below.

The response of FI to a unit shock SEC is positive in the first three quarters. The response of SEC to a unit shock in FI is also positive in the first few quarters. The response of FI to a unit shock in TER is positive in the first quarter, falls and becomes negative in the second quarter and again becomes positive

in the third quarter. The response of SEC to a unit shock in TER is negative in the first few quarters, whereas the response of TER to a unit shock in SEC is positive.

**Figure 3: Impulse response of LnFI, LnSEC and LnTER to One-standard deviation shocks in other variables**



## CONCLUSION

The regression results reveal that both secondary and tertiary growth influences foreign investment inflows. The Granger causality test reveals that secondary and tertiary sector growth causes foreign investment inflows. It also reveals the bidirectional causality between growth of the secondary and tertiary sector. Foreign firms prefer to invest in the manufacturing sector, rather than exporting to a country for either they are efficiency seeking or market seeking or a combination of both. In case of efficiency seeking, FDI is more likely to bring in the technology and know-how that is compatible with the country. It usually generates significant employment and provides training. Foreign firms usually use some level of local intermediate products. Hence, FDI has significant horizontal and backward linkages. In addition, foreign company exports increase the total exports as also the foreign currency receipts of the country. These linkages are less significant when FDI comes through enclave type of arrangements such as export-processing zones and the possibility of the crowding out effect increases as foreign firms also serve the domestic market. FDI in manufacturing is expected to have significant impact in the recipient economy.

Output is not tradable in the service sector like that of the agricultural and manufacturing sectors; so much of the FDI in the services sector is market seeking where forward linkages for FDI are well defined and potential impact of FDI in the sector is immense. In the highly capital-intensive infrastructure sector, FDI can provide the necessary funding and technology to improve capacity to meet increasing demand, as well as improve the quality and lower the cost of the services. FDI in the banking sector can also have an important impact on both the efficiency and stability of the banking system through increased competition and increased access to global financial markets. If FDI in the sector improves services in the country, all other associated sectors will be positively affected. India is yet to realize the benefits of FDI inflow in the services sector and gradually more capital flows are happening in this sector. However, FDI in the services sector may also have significant negative effects. As the market structure is less competitive and there is capital intensity of many industries in this sector, foreign investors command superior market power. Even the growth and development of the service sub-sectors are themselves related to each other as it is seen that telecommunications reforms are critical for the rapid growth in IT and ITeS. The best way to enhance competition in services industries is to attract FDI, but privatisation and foreign take-overs of domestic firms may also give rise to monopolistic pricing and excessive market power. Apart from opening up trade and investment the governments may need to set new competition rules. Strong, independent regulatory agencies and competition control authorities are required for performing these tasks although such institutions may be costly to set up and run. In developing countries technical assistance and capacity building are important, as these institutions require sophisticated skills, which bring a great challenge in front of these countries. The growth of the secondary sector and tertiary sector are interrelated in many aspects because the development of the manufactured inputs affects the growth of the services sector. In the same way with more economic development of a country the secondary sector's demand for certain services like infrastructure etc, increases.

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# THE RELATIONSHIP BETWEEN THE EMOTIONAL INTELLIGENCE LEVEL AND THE EFFECTIVENESS OF A PROJECT MANAGER: THE CASE OF JORDAN

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## Abstract

Emotional intelligence (EI) is concerned with how to influence towards achieving certain goals, thus, a project manager (PM) should be able to read others and direct them to get the best out of them. To do so a project manager should possess some EI skills. This paper investigates the relationship between the EI level of a project manager and how it contributes to his/her effectiveness in managing projects. Data is collected through a questionnaire consisting of three parts (Demographic, EI scale, Manager Effectiveness). EI is measured through a scale based on previous studies. The scale divides EI into 5 main components. The results show that there is a positive relationship between EI level of a project manager and his/her effectiveness in managing the project, and to what extent desired outcomes are achieved.

**Keywords:** Project Management, Emotional Intelligence, Effectiveness, Leadership, Jordan.

## 1. Introduction

Recently, a new paradigm of research fields has focused on EI (Emotional Intelligence) as a significant factor that affects leadership, project management, motivation and many other managerial fields. About 88% of project managers spend more than half of their working time interacting with others (Strohmeier, 1992), trying to manage conflicts and build relations with others during the project time span to insure achieving the organization goals, this indicates the importance of the intangible assets of an organization that contribute to its competitive advantage (Jugdev et al, 2013).

Project managers need to handle stress effectively, especially where the success of an endeavor is threatened by the deadlines stress, changing requirements and different opinions about the project. Therefore, the project manager must deal professionally with this stress, otherwise, he will damage his reputation as well as the reputation of the project management organization (Kirkland, 2011; Sadri, 2012). EI is more and more being recognized as an important issue in the workplace, (Goleman 1995, 1998), Goleman defines the social skills as the ability to get the desirable responses from others. The human side has been identified as a critical component of the project managers' role and their success (Cleland, 1995; Cooke-Davies, 2002). Five significant studies appeared in literature investigating EI relationship with project managers and leadership: (Butler and Chinowsky, 2006; Leban and Zulauf, 2004; Mount, 2006; Mullar and Turne, 2007; Sunindijo et al., 2007), (Clarke, 2009). In these studies they investigated the relationship between leadership styles of construction project managers and emotional intelligence (EI) and concluded that delegating, open communication, and proactive behavior could bring positive outcomes to the organization and help to achieve expected goals efficiently, those studies have concluded many points; **First**, EI should be taken into consideration when selecting new recruitments due to a strong positive relationship those studies detected between EI and management success. **Second**, EI has a strong effect on performance in project management and can lead to enhance it, where managers should focus on results more than activities by inspiration and motivation. **Third**, managers' traits such as intellectual, personality, and emotional skills and competencies are factors that lead to either success or failure of projects. **Finally**, high level of EI can generate good leadership behaviors like delegation, and good communications, thus having good outcomes of the projects. (Butler and Chinowsky, 2006; Leban and Zulauf, 2004; Mount, 2006; Mullar and Turner, 2007; Sunindijo et al. , 2007)

As a team member, it's important to understand the emotions of others. An effective approach for such purpose is that a project manager takes the time to ask questions that show appreciation for the teammates' concerns, and this appreciation can be powerful in empowering employees who feel unheard (Combe, 2009). In terms of project management the lack of understanding of other team members will sabotage the mission of the project. A recent paradigm method indicates that helping the clients develop a project mission and provide needed resources will help in avoiding negative and unconscious emotions (Sutherland, 2006). Similarly studies have revealed that emotionally intelligent managers are able to come up with more creative ideas (Sunindijo and Hadikusumo, 2013). Also EI is very important tool that can be used for integrating the team efforts (Cacamis and El-Asmar, 2013).

It is important to know that EI doesn't replace the intellectual intelligence but complements it. In another word EI is not something new, it's something that we all do have, but we have to know how to use it in order to reach the success we are striving for. EI includes being authentic with respect to others' emotions and ideas.

This study focuses on identifying the relationship between EI and the effectiveness of a project manager, in an attempt to develop and use the EI skills in project management to enhance and improve the projects, as well as increase the effectiveness of the employees and the project manager.

## 2. Literature Review

## **2.1.Emotional Intelligence Dimensions**

The term emotional intelligence started to appear in literature in the late 1980s, early 1990s by Bar-On (1988), Salovey and Mayer (1990), and Goleman (1995). According to Goleman (1995), the EI concept described as Emotional Intelligence, is managing feelings so that they are expressed appropriately and effectively, to enable people to work together toward their common goals. In other words it's the ability to master your feelings and influence others' feelings in order to accomplish certain expected goals (Sunindijo and Hadikusumo, 2013). In addition to emotional intelligence dimensions, another dimension which is proposed is the leadership behavior, to measure to what extent the leader behavior (whether the leader of the PMs themselves or the behavior of PMs as leaders to the subordinates) has an effect on the EI level and the behaviors the team members.

Goleman (1995) shared Salovey and Mayor's view that EI is mainly divided into two categories (Interpersonal, and Intrapersonal), each of which contains two dimensions: Self awareness: "intuition", knowing your feelings and using them in decision making. Self management is how to control the unfavorable feelings like anxiety and anger. And social awareness the ability to read the nonverbal reaction cues from others. Finally, the relationship management is the ability to influence the emotions of others by sensing them, listening and negotiating which helps to improve the bonds and reduce conflicts (Goleman, 1998 ; Sunindijo et al, 2007).

According to Tabish & Jha (2012) success traits are constructed of human factors and management actions, in which the study suggests that management should pay more attention to the human factors, by selecting competent employees and assuring the best understanding of these factors by management. As a good manager should be able to find the best environment for the team members to encourage them to work with their best performance abilities towards the goals of a project.

## **2.2.Project Management Effectiveness**

A successful project is achieved by observing the cost, schedule, quality, and satisfaction of the participants, where the project outcomes should meet the expectations of the clients (Goleman, 1998 ; Nwagbogwu, 2011 ; Ika et al, 2012 ; Hwang & Lim, 2013).When speaking of project manager effectiveness, emphasis is placed on timely completion of work, quality of work, and compliance with the company's norms and values while trying to affect an employee's performance, organizational punishments, and incentives (Jones, 2012). To achieve effectiveness, a project manager has to be a successful leader of his project team members; consequently he/she should be aware of resource management. Such a major resource is the human factor (members of the team). So it's required that a project manager should be able to manage this resource effectively to gain a competitive advantage for his/ her company and achieve what is expected at the end of the project (Metha, 2005).

Davis (2011) found that only 41% of the projects at IBM were able to meet their objectives on time, budget, and quality. Of course this shows that there is a need to do more research in project management, and improve knowledge and awareness of it.

Nowadays, organizations have to broaden their activities beyond efficiency and focus on effectiveness. Using social networking, the effectiveness can be increased and enhanced through combining skills and competencies from different parties and gain a collective effort that leads to high performance (Chinowsky et al, 2010). According to Hwang & Lim (2013), quality was ranked higher than cost and schedule but it is still hard to reveal an exact mean for desired quality. Therefore a PM should be aware that quality plays a vital role in customer satisfaction, which can threaten the success and reputation of any organization.

### **2.3.EI and Project Management**

EI is a major skill that a project manager must acquire, introduce and promote to the organization. Managers require different skills (technical, interpersonal, and conceptual). Managing a situation effectively requires the ability to sense employees' need and analyze their behavior (Abuyaghi, 2005). Williams (2007) studied the relationship between EI and effective management and found that what managers do and how they make decisions is affected by the personality of the manager.

Goleman (1995) defines the social skills as the ability to get out the desirable responses from others, as it is one of the PM responsibilities to get the best performance and results. The social skills constitute a very significant factor in a project's success. Human factors were found to affect the decision making, especially through delegation, trust, commitment, coordination. Better understanding by management will decrease any failure possibility (Tabish & Jha, 2012).

Based on Goleman findings; Cleland (1995); and Cooke-Davies (2002); discovered that the human side has been identified as a critical component of the project managers' role and their success. Open communication is very important to get the best out of people (Rahim, 1992; Goleman, 1998), which affects the effectiveness and competencies of a PM and leads him/ her to succeed.

According to the Center for Creative Leadership researchers (2001), the higher the level of emotional intelligence the better the performance in many areas, "co-workers seemed to appreciate the managers' ability to control their emotions, and leaders are more likely to be seen as participative, composed, and balanced". In terms of project management, the lack of understanding of other team members will sabotage the mission of the project. A recent paradigm method indicates that helping the clients develop a project mission and providing needed resources will help avoid negative and unconscious emotions sabotage for the mission (Sutherland, 2006). Project managers with high EI use rewarding, delegating, open communication, participating more often than managers with lower EI scores. Similarly, Dasborough and Ashkanasy (2003) revealed that leaders who provided encouragement to their employees were perceived by employees to be the most effective (Sunindijo et al, 2007 ; Yoon, 2008 ; Jones, 2012).

Butler and Chinowsky (2006); Leban and Zulauf (2004); Mount (2006); Mullar and Turner (2007); and Sunindijo et al. (2007), investigated EI relationship with management and leadership. They concluded that delegating, open communication, and proactive behavior could ensure positive outcomes to the

organization and help to achieve expected goals efficiently.

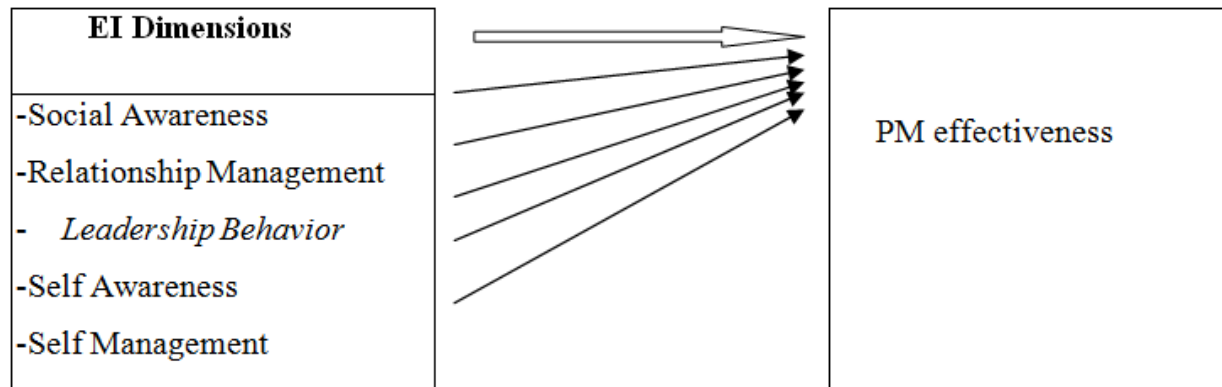
It's imperative for a team member to understand the emotions of others. Thus, success of the project can't be accomplished unless the manager gains the trust, commitment, and loyalty of the team members (Martin, 2008). An effective approach for a project manager is to take the time to ask questions that show appreciation for the teammates' concerns, and this appreciation can be powerful in empowering employees who feel unheard (Combe, 2009). This side is important because it contributes to the project success as much as the technical side. Success can be achieved by investing in those who execute the project (Cacamis & El Asmar, 2013).

Additionally, two thirds of the IT projects failed to meet the three main categories of success and effectiveness (Time, Budget, Quality) and scope, due to the lack of the project managers soft skills in dealing with people and employees (Khiz, 2010). It was found that project managers with high emotional intelligence are accommodating and collaborative in conflict management and always try to find a win-win situation to satisfy all parties involved. Besides, they are more flexible in adjusting their conflict resolution styles, thus increasing the satisfaction of all parties and getting better performance and outcomes (Carmeli, 2003 ; Sy et al, 2006 ; Sunindijo and Hadikusumo, 2013).

### **3. Methodology**

The research aims at examining the relationship between the emotional intelligence level of a project manager and his/her effectiveness. The literature review demonstrated that, although there have been many studies in the area of emotional intelligence as a requirement in the field of management, few published works relate directly to project management field. Reviewing the literature provided a basis for the identification of emotional intelligence components and project manager effectiveness in term of cost, time, and quality of the project. A questionnaire consisting of three parts (Demographic, EI scale based on Goleman Model, and Manager Effectiveness survey) is constructed to collect data. Furthermore, SPSS was used to investigate the relationship between emotional intelligence and project managers' effectiveness. The research field of this study is comprised of the Jordanian consultation companies for project management, that are registered in Amman Chamber of Commerce and counted (59) company.

#### **3.1.The suggested model of the research**



**Figure 1: The Relation between Emotional Intelligence and PM effectiveness**

This frame was constructed based on the literature review and specifically on:

- \* (Working with Emotional Intelligence, Goleman D 1999).
- \*(The Role of Emotional Intelligence In Leadership Effectiveness: A Meta analysis, Ashleigh D. Farrar 2009), and (Project Management Effectiveness as A Construct, Sheila M. Smith 2007).
- \* (The effect of emotional intelligence on Emotional competence and transformational leadership, Kirkland 2011)
- \* (Emotional Intelligence for Managing Conflicts in the Socio-Cultural Norms of the Thai Construction Industry, Sunindijo and Hadikusumo 2013)

### 3.2.Sampling and Data Collection

The questionnaire is comprised of three main parts (Demographic, EI scale built based on Goleman Model (Goleman, 1995,1998; Farrar, 2009; Sunindijo, 2013) and Manager Effectiveness survey (Doe, 2004; Smith, 2007). The questionnaire was delivered by hand to the targeted companies and respondents were personally briefed on the main purpose of the questionnaire. The population of the study consisted of the PMs working for consultation project management companies numbering 59 company in total, with a total number of 150 PMs employed by these companies. 100 questionnaires were delivered by hand to respondents and we were able to collect only 85 questionnaire. Consequently, this makes the response rate 85%.

### 3.3.Validity and reliability

The questionnaire was sent to professors and practitioners who have the knowledge about the research topic to assess and arbitrate its content.

To insure reliability Cronbach's alpha was used to measure of internal consistency, which indicates how closely, related a set of items or as a group. The results are shown in table (1)

**Table 1: The Reliability statistics- Chronbach's alpha values**

<b>Scale item</b>	<b>Cronbach's alpha value</b>	<b>No of item</b>
<b>Social awareness</b>	68%	6
<b>Self-awareness</b>	80%	5
<b>Self-management</b>	69%	5
<b>Relationship management</b>	68%	5
<b>leadership behavior</b>	78%	4
<b>Manager effectiveness</b>	69%	15
All items	75%	40

Based on table 1 above, the overall reliability equals 0.75, which is considered acceptable for the research purpose. The reliability of the items used to measure the variables is relatively high; on the other hand, most of the questionnaire items were taken from previous scales like Goleman's scale of EI (1995). So its reliability and validity is already tested.

### **3.4.Variables and Measures**

The first part was used to measure the EI level of a project Manager throughout 4 paragraphs with total of 25 questions to measure each of the EI components namely, Social awareness, Self awareness, Relationship management, and Self management. The respondents were asked to indicate their level of EI using a five points Likert scale where (Never=1, Seldom=2, sometimes=3, frequently=4, Always=5).

The second part measures the effectiveness of the project managers. The questions focused on three aspects mainly; whether the project is delivered on time, whether the project is finished within the estimated budget, and whether the project outcomes met the quality desired by the customers. Likert scale was used again with (strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1).

A multiple regression has been carried out to find the relationship between the EI components and the



project manager effectiveness, and Pearson test was carried out to find the direction of the relation between each EI component and the independent variable.

#### 4. Findings and Discussion

##### 4.1.Characteristics of the sample (Companies)

Table 2 shows the breakdown of the sample of studied companies according to their capital. Companies owing capital in access of (30,000) JDs, formed highest percentage (49.5%) of the sample study.

**Table 2: breakdown of the sample of studied companies according to their capital**

<b>Capital of the company</b>	<b>Percent in the sample study</b>
(30,000) JDs or more	(49.5%)
(20,000 - less than 30,000) JDs	(9.1%)
(10,000 - less than 20,000 JDs)	(28.8%)
equal or less than (10.000) JDs	(12.6%)
	100%

The number of project managers ranges in the sample companies from 3 up to 10 PMs, were the annual volume of projects ranged from 3 to more than 11 per year.

##### 4.2.Characteristics of the Study's Respondents

**Table 3: The respondents' percentage in the sample according to the gender**

<b>Category</b>	<b>Frequency</b>	<b>Percentage %</b>
Male	44	76%
Female	14	24%
Total	58	100%

Table 3 shows that most of the project managers in the targeted companies are males accounting for 76% of total respondents. Moreover, the sample showed respondents are 50 years old or younger, hold a bachelor degree or higher, and have at least 6 years experience in the field.

##### 4.3.Relative importance of each dimension of EI according to the mean of the sample results

Mean of the 5-point Likert scale used in this study equals 3,  $(1+2+3+4+5/5=3)$ , (3) meaning that 3 represents a medium level, less than 3 is a low level, and greater than 3 is a high level.

**Table 4: The relative importance of the main variables**

Variables	Means	Std. deviations	Degree of importance
<i>Independent variables</i>			
Social Awareness	<b>4.00</b>	<b>.52</b>	Relatively positive
Relationship management	<b>3.72</b>	<b>.597</b>	Relatively positive
Leadership behaviors	<b>3.98</b>	<b>.705</b>	Relatively positive
Self Awareness	<b>3.77</b>	<b>.728</b>	Relatively positive
Self Management	<b>3.63</b>	<b>.666</b>	Relatively positive
<i>dependent variables</i>			
Project Manager Effectiveness	<b>3.94</b>	<b>.537</b>	Relatively important

The results showed that the degree of influence for EI elements used in this study is relatively positive, since the means were higher than 3 and their standard deviations were lower than 1 for all variables. Consequently, all variables have a high degree of influence on the PM's effectiveness.

#### 4.4.Hypotheses testing and findings

**NULL hypothesis:** There is no positive statistical relation between the EI level and project manager effectiveness

The results of testing of the main hypothesis are demonstrated in tables 5 and 6.

**Table 5: The Model Summary**

Mode	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.470a	.221	.146	.49640

- a. Predictors: (Constant), Self Management, social awareness, self awareness, relationship management, and leadership behavior

**Table 6: Analysis of variance for the study model (ANOVA)**

Model	Sum of Squares	df	Mean Square	F	Sig.	Result
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	Regression	3.632	5	.726	2.948	.020b	Reject The null hypothesis
1	Residual	12.813	52	.246			
	Total	16.445	57				

- a. Dependent Variable: Project Manager Effectiveness
- b. Predictors: (Constant), Self Management, social awareness, self awareness, relationship management, and leadership behavior

The multiple correlation coefficient  $R = 47\%$  indicates that there is a positive correlation between EI elements and PM effectiveness; it demonstrates that the independent variables and dependent variable change in the same direction. The multiple correlation coefficients gauge how well the model predicts the observed data.

R square represents the variability in PM's effectiveness. The value of  $R^2 = 22\%$  indicates the amount of variations in PM's effectiveness that is explained by the EI elements. It also means that the higher the EI level, the higher the PM effectiveness. Although the value is not large but this is explained by the small sample size, and since the sample is census sample it is hard to enlarge it, so the  $R^2$  doesn't suffer the low value in this case. The adjusted  $R^2$  reflects the strength and generalizability of the model.

The (ANOVA) analysis shows that  $F\text{-ratio} = 2.948$  which is significant at  $p < .05$  (Alpha in this case is significant at .020). This result shows that there is less than a 0.05% chance that an F-ratio of this value would happen by chance alone. It follows that there is statistically significant effect of EI elements (At least one of the variables) on PM effectiveness, thus we reject the null hypothesis and accept the alternative hypothesis which states that there is a relation between EI level and PM effectiveness. The other part of multiple regression analysis is concerned with testing the effect of each predictor included in the model (that is beta  $\beta$ ) on the dependent variable.

**Table7: Coefficients a**

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.	Result of hypothesis testing
	B	Std. Error	Beta			
Social awareness	3.280	.675		4.856	.000	Fail to reject the null hypothesis
	-.172	.151	-.167	-1.142	.259	
Relationship management						Fail to reject the null hypothesis
	-.213	.134	-.237	-1.586	.119	
Leadership behavior						Reject the null hypothesis
	.372	.114	.489	3.265	.002	
Self awareness						Fail to reject the null hypothesis
	-.046	.100	-.062	-.462	.646	
Self Management						Reject the null hypothesis
	.232	.107	.288	2.166	.035	

a. Dependent Variable: PM effectiveness

The first part of the table (7) is an estimate of  $\beta$  for each of the independent variables. The  $\beta$  indicates the individual contribution of each predictor (variable) to the model if all other predictors are held constant. For Leadership behavior and Self management  $\beta$  equals to 50% and 29% respectively compared to the relatively small values of other variables.

We can infer from the values of beta that the variables that have the highest contribution in the model are the Leadership behavior followed by Self Management. As well as the fact that other variables (Social Awareness, Relationship Management, and Self Awareness) don't affect the model. This result may not seem logical, because according to the literature those variables can affect the dependant variable strongly. We think this result may be due to the following reasons:

**First**, the sample size is relatively small since there are only 59 project management consultancy companies in Jordan. **Second**, according to Hofstede scale Jordan scored low on the dimension of uncertainty avoidance, which means that Jordanians tend to be more pragmatic and less emotional. **Third**, personal differences among people, as social awareness and self awareness differ from one person to

another. **Finally**, from a psychological perspective managers tend to focus on their relations with others more than self awareness. Many previous studies from the literature recommended more studies in the field of EI in the project management, besides further research was called for in the literature due to the lack of studies in this field (Goleman, 1998 ; Butler & Chinowsky, 2006 ; Kasapoğlu, 2011 ; Nwagbogwu, 2011 ; Alkailani et al, 2012 ;Cacamis et al, 2013 ; Sunindijo, 2013).

## 5. Conclusions

The main objective of this study was to examine the relation between EI and PMs' effectiveness. For this purpose, a census sample of 59 companies specialized in consulting and construction was chosen. The unit of analyses consisted of PMs mostly having experience of not less than 6 years in project management. The study focused on the need for exploring knowledge that can increase the effectiveness of the project managers as well as enhance the quality of the outcomes by including the soft skills of project managers in decision making and using their personal abilities to enhance the outcomes of the projects they manage. Projects are considered to be successful if they meet the budget, schedule (Time), and quality (Specifications) (Goleman, 1998 ; Khiz, 2010 ;Hwang & Lim, 2013).

Results of this paper showed a significant effect of EI on the PM effectiveness, especially the effect of (leadership behaviors and Self management). Since we know now that those two are the most important elements, we can infer that this implies the project management companies in Jordan should focus on these two elements and try to strengthen other elements of EI by involving their project managers in more training courses related to EI.

Project management is more than giving orders, organizing and assigning tasks. A good project manager should gain teammates trust and build good rapport with them, which can lead to overall satisfaction, increase productivity, and enhance creativity. Adopting EI concepts in management helps to achieve those goals more easily and efficiently, and increase the ability of a project manager to influence employees to achieve organization goals. This justifies the new trends of adapting EI as an important skill when employing new workers or managers besides considering the IQ. ( Goleman, 1998 ; Nwagbogwu, 2004 ; Butler & Chinowsky, 2006 ; Martin, 2008; Sunindijo & Hadikusumo, 2013)

According to Goleman "For better and worse, intelligence can come to nothing when emotions hold sway" (Goleman, 1998).

## 6. Recommendations:

The correlation between the two constructs namely; emotional intelligence and PM's effectiveness was relatively strong with about 50%. As organizations focus on the preparation of the next generation of

CEOs and managers, it is important to consider EI in the selection criteria during recruiting. In addition current staff should be trained, to insure they are using their soft skills effectively.

Among the dimensions of EI, Leadership behavior and Self awareness are most influential. Since the study examines the project managers and their effectiveness. Concerning the other three dimensions that didn't show any effect on the managers' effectiveness, training courses or workshop focusing on these dimensions should be undertaken by project management companies, to increase the awareness of PMs and employees in this field and enhance their abilities in these dimensions.

Further studies and research are encouraged to investigate the effect of emotional intelligence on the effectiveness of PMs especially in the areas of culture and how it may influence the awareness level of EI among project managers in Jordan.

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# PRINCIPLES OF MANAGING CURRENCY RISKS BY MACEDONIAN COMPANIES

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## Abstract

*Most investors will be familiar with the concept of currency exposure, with constantly changing exchange rates affecting the cost of investing in international securities. These same issues also affect companies that operate internationally. So what effect do currency fluctuations have on company profits, and what are they doing to insulate themselves? In this paper we examine this question. Firms can choose to manage their currency exposure through business practices. Having a truly international company can help with this as, theoretically, losses made when one currency falls will be recovered when another rises. Where contracts are concerned business can also set up clauses that reduce this exposure. In many cases this comes in the form of an agreement to protect the client and the company should exchange movements exceed the agreed-upon level. Some businesses also agree on setting all contracts in their core currency, protecting them from any exposure as they always are paid the same relative amount.*

**Key words:** *Hedging, Business, Currency exposure, Exchange rate.*

## 1. INTRODUCTION

In recent years, investments in international financial securities have grown significantly among individual and institutional investors. Broadening portfolios beyond domestic borders may help investors achieve greater diversification. Although the rapid growth in international investments reflects the benefits of geographic diversification, currency risk can counteract some of these advantages. Since foreign exchange rates can have a significant impact on returns, investors may be interested in hedging this risk where possible and appropriate. Investments in overseas instruments, such as stocks and bonds, can generate substantial returns and provide a greater degree of portfolio diversification, but they introduce an added risk, that of exchange rates. Since foreign exchange rates can have a significant impact on portfolio returns, investors should consider hedging this risk where appropriate. While hedging

instruments such as currency futures, forwards and options have always been available, their relative complexity has hindered widespread adoption by the average investor.

## **2. THEORETICAL LITERATURE REVIEW**

How does the exchange rate regime affect firms' incentives to hedge their exposure to currency risk? This question has been at the center of the debate over optimal exchange rate regimes in emerging markets since the financial crises of the 1990s exposed the perils of unhedged foreign currency debt. Yet there is no clear consensus among economists on whether the type (or degree of flexibility) of the exchange rate regime affects the corporate sector's incentives to take on foreign currency denominated liabilities or to insure against depreciation risk.

Two basic views exist in this respect. On the one hand, several authors have argued that pegged exchange rate regimes biases corporate borrowing towards foreign currency, due to an implicit exchange rate guarantee given by the government (Mishkin, 1996; Goldstein and Turner, 2004). Under fixed or pegged regimes, the central bank keeps currency volatility within a pre-announced range, effectively underwriting currency risk (Dooley, 2000). Thus, firms borrow in dollars to benefit from the lower ex ante dollar interest rates, and expect the government to insure them from any potential loss in the event of a large devaluation. A second variant of this argument suggests that because of limited exchange rate volatility under fixed or tightly managed exchange rate regimes, borrowers appear to consider a steep devaluation a low-probability event, and therefore neglect or underestimate the exchange rate risk associated with borrowing in foreign currency. The fact that fixed/pegged exchange rates have played a role in every recent financial crisis since 1994, and that firms relied extensively on unhedged foreign currency financing in the years leading up to the crisis, is often used as strong evidence for these views (Dooley, 2000).

On the other hand, (Eichengreen and Hausmann (1999) and Eichengreen, Hausmann, and Panizza (2005) dispute this view. The authors suggest that at the root of currency mismatches lies the fundamental inability of emerging markets to borrow abroad in their own currency. Inevitably, this leads to an accumulation of foreign-currency denominated debt which firms are simply unable to hedge, even if they have the foresight or prudence to match the currency structure of their assets and liabilities. In addition, McKinnon and Pill (1999) argue that adopting a floating rate regime will actually exacerbate currency mismatches. Because the domestic interest rate risk premium is a direct function of the stability of the currency, exchange rate volatility associated with floating rates will increase domestic interest rates (and thus the incentives to borrow in foreign currency) and make financial hedging more expensive.

## **3. INTERNATIONAL FIRMS VS INTERNATIONAL CURRENCY**

Companies with overseas branches, or those that trade internationally, are at the mercy of global currency

fluctuations. As is the case with private investments, changes in conversion rates can wipe out profits or increase gains. When a firm has shareholders to report to, and the figures can run into millions, then it can have a serious impact on profits and losses. The rapidly changing currency landscape can have the potential to make businesses reluctant to set firms figures in contracts months before a deal takes place. If a US-based firms makes EUR 10 million, they can end up with much more or less than though depending on the movement of the EUR/USD exchange rate.

A study by SunGard Data Systems polled 275 US businesses of various sizes. It found that 59 per cent of those surveyed had seen a loss or gain of more than five per cent as a result of currency fluctuations in the previous year (Corden, W. Max, 2002). The majority of corporations are in the business of doing business, producing and manufacturing, not hedging currencies. A lot of companies were caught unawares by volatility. Also, looking at where the exposure lies of waiting for quarterly results to discover the impact of fluctuations was a better approach, although this study conceded that this is a stance more and more firms are taking.

#### **4. ATTRACTIVENESS OF HEDGING AS AN EFFECTIVE RISK MANAGEMENT TOOL IN EUROPE**

Commodity price volatility has always been with us and is the single biggest variable in forecasting EBIT for non-integrated independent exploration and production companies. The recent volatility in oil prices and the collapse of the North American gas price suggest strongly this is not going to change. Hedging using derivatives can dampen the impact of price movement on earnings and is a staple tool in the oil or gas company treasury arsenal, particularly for North American CFOs (Bordo et al., 2009).

The use of commodity derivatives can mitigate or remove oil or gas price uncertainty as one of the fundamental industry variables, a variable which in turn directly impacts liquidity, (the poor management of which is the biggest predictor of a small cap's impending mortality).

Like many useful tools, derivatives are a double-edged blade and their use either by CFOs or by bankers must be done cautiously with due respect to the risks both hidden and obvious. To quote Julius Caesar, "It is always the unseen dangers that are the most terrifying." There are many unseen dangers in the interaction between derivatives, the underlying reservoir, and the fiscal and commercial risks in upstream oil and gas endeavours. If used incorrectly, without a clear understanding of and regard for the interaction between the derivative product and its specific characteristics and the underlying reserve, production, timing and fiscal risks, derivatives can multiply losses in the case of reservoir-related production, under-performance.

Expanding internationally can be a great way to grow the business. Currency hedging isn't just for big companies. According to the U.S. Department of Commerce, small and medium-sized businesses account for 97.6 percent of all U.S. exporters and 97.1 percent of identified importers (Kamil, 2007). Experts are advising small businesses that import or export to the European Union to begin hedging (or consider it) (Berrospide et al., 2008). After all, if currency fluctuations could jeopardize company's cash flow,

margins, or profitability. It's fairly critical that small businesses hedge."The important thing to think about here is that business owners in a dangerous environment need to focus on running their businesses. They don't need to be focused on worrying about the financial end of things. The currency volatility we're seeing is really taking that focus off and materially damaging the bottom line. Hedging takes the risk off the table. It allows the business to really budget around the funds that they're receiving or paying.

Entrepreneurs agree that hedging is something that's been on their mind lately. Johnnie Stoker, president and CEO of K2 Energy Solutions, a Henderson, Nevada-based company that makes and sells rechargeable battery systems for electric vehicles around the world, says that even though his company is not hedging right now, they're looking into it (Berkmen et al., 2010). The cost of setting it up and managing it compared to euro revenue is too high to be worth it for now. As they keep growing euro revenue, they will probably start a strategy. Kevin MacDonald, CEO of Black Mountain Systems, a software developer in San Diego that earned \$4.4 million in 2010, says that the business isn't hedging at the moment, but if they were larger and more penetrated in the EU, would probably be very concerned (Aguiar, 2005). Schamotta, the market strategist, says that he's seen an explosion of interest over the last period in hedging and in risk management strategies. He expects this trend to continue saying that the euro is triggering volatility throughout the world. There's a cascading effect that's happening. Many businesses have a set exposure to the euro, and that can materially damage them. But they're able to offset that risk by protecting themselves in other areas of the world as well.

Paul Stafford, the director of Currency Risk Management, LLC, based in Missoula, Montana, agrees that even small companies—those that earn between two and three million dollars in foreign revenue—are finding currency hedging as an increasingly important part of their business plan (Brown et al., 2011). This means that it's very worthwhile for small businesses because they generally don't have the capital or staying power to absorb larger losses that might occasionally happen with foreign exchange. Some U.S. companies hedge currencies by doing international business in dollars, but experts say this shouldn't be the sole strategy (Burnside et al., 2010).

Forward contracts, the most common, and in many cases—practical—form of hedging, is a contractual obligation to buy from, or sell currency from a bank at a predetermined exchange rate (Magud et al., 2010). It's worth noting that this protects your company from adverse currency moves, it also prevents your company from cashing in on profit from any favorable moves as well. Forward prices are determined by an adjustment to the exchange rate made to spot (the current rate), and based on the difference between interest rates between the two currencies. In other words, between the euro and the dollar.

So, what is needed to know to start hedging?

Stafford lays out the three essential step to setting up hedging strategy.

Step 1: *Find a bank that provides the hedging tools you need.*

Step 2: *Figure out what kind of exposure you have. (If a significant percentage of your revenue comes from the euro, you're highly exposed to volatility.)*

Step 3: *Enlist someone—an expert or consultant in this area—that can offer unbiased information.*

Regarding these three steps maybe the third one is the most important part. A misquote of an interbank rate can double hedge costs. Any sort of disagreement in implied volatility can double options premiums. It's essential to have some sort of a third party that has access to interbank pricing, who can help to negotiate terms with the bank. There's another reason to consider hedging, too. It may help in beating out the competitors. When companies are able to take their exposure off the books and protect themselves against it, it can be a big boon to their efforts (Eichengreen and Hausmann, 1999). It's a huge competitive advantage for companies because many small businesses are just not that familiar with protecting themselves in this way.

## 5. EFFECTIVE RISK MANAGEMENT TOOLS FOR UPSTREAM COMPANIES: THE CASE OF CROATIA, SERBIA AND MACEDONIA

### 5.1. Serbia

In a modern business environment, there are high oscillations and threats from unforeseeable external shocks. It is of primary importance to choose an adequate method of payment that will provide, to the largest possible extent, security and/ or minimize occurrence of a risk event. To that end, financial derivatives which ensure security of receivables are becoming more important today. From the aspect of banking operations, development of modern financial products, including operations with financial derivatives, is of utmost importance.

**Table 1: Country datasheet – Serbia (Author's estimation.)**

<b>Population: 7.120.666</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Top 10 companies</b>	
GDP (real, in mn eur)	25.008	24.754	25.391	24.931	1	<i>NIS</i>
GDP (nominal, in mn eur)	33.424	31.683	34.263	33.059	2	<i>JP EPS</i>
GDP per capita in eur	3.457	3.439	3.544	3.497	3	<i>Fiat Automobili Srbija</i>
GDP per capita PPP	10.355	10.300	10.616	10.474	4	<i>Telekom Srbija</i>
GDP growth	1.4%	-1.0%	2.6%	-1.8%	5	<i>Delhaize Serbia</i>
Remittances (in mn eur)	1.751	2.154	2.234	3.660	6	<i>EFT Investments</i>
Remittances as % of GDP	7.0%	8.7%	8.8%	14.7%	7	<i>JP Srbijagas</i>
Total investments (in mn eur)	5.027	5.198	4.481	3.882	8	<i>Tarkett Backa Palanka</i>
Investments as % of GDP	20.1%	21.0%	17.7%	15.6%	9	<i>Mercator</i>

Foreign direct investments	3.320	753	1.298	1.236	10 <i>Idea Beograd</i>
Foreign direct invest.as % of GDP	13.3%	3.0%	5.1%	5.0%	
Total import (in mn eur)	16.487	16.992	17.782	18.096	
Total imports as % of GDP	65.9%	68.6%	70.0%	72.6%	
Import to EU (in mn eur)	9.016	9.659	9.927	10.373	
Import to EU as % of total import	54.7%	56.8%	55.8%	57.3%	
Total export (in mn eur)	11.145	11.469	13.937	14.451	
Total exports as % of GDP	44.6%	46.3%	54.9%	58.0%	
Export to EU (in mn eur)	5.111	5.053	6.588	7.110	
Export to EU as % of total export	45.9%	44.1%	47.3%	49.2%	

More intensive use of these instruments would contribute to long-term and more stable sources of funding for the optimization of matching the maturities of assets and liabilities. The results obtained in this research undeniably show that although currency forward contracts represent an instrument for hedging against FX risk, their use does not increase with higher volatility of foreign exchange rates. The main reason for such situation lies in the fact that forward contracts are conducted by large companies, that is, companies with developed risk management awareness. These companies use forward contracts on an ongoing basis, irrespective of the movements of the foreign exchange rate. Actually, they use these contracts subject to their own foreign currency ins and outs (i.e. liabilities). Consequently, for larger firms a business cycle is the most important determinant for the use of financial derivatives. Other firms still complain about the foreign exchange flexibility and expect the National Bank of Serbia to eliminate the risk of foreign Importance of forward contracts in the financial crisis, exchange rate changes, instead to hedge it through forward contracts.

Therefore, the higher foreign exchange rate volatility does not represent an important determinant of the demand for forward contracts for most companies in Serbia. The main reasons for the lack of use of forward contracts and other financial derivatives in Serbia are, first of all, the unclear regulatory framework and the consequent limitations only to hedging transactions due to the limited legal regulations, as well as inadequately developed companies` awareness of the necessity to hedge against risks. Other possible reasons that may explain why the economy insufficiently uses currency forwards as instruments for hedging against FX risks are neglecting the foreign exchange rate volatility, while ignoring risks and leaving it to the government and the National Bank of Serbia to stabilize the foreign exchange rate. It is true that the government and the National Bank of Serbia are responsible for establishing the macroeconomic environment that will allow stable conditions for doing business and, accordingly, they are responsible for systemic risk factors, including currency risk. Nevertheless, according to the present monetary policy, the main objective of the National Bank of Serbia is price stability (low and foreseeable inflation), not foreign exchange rate targeting (Zettelmeyer et al., 2010). Therefore, the reliance of local firms on the central bank and the state, in terms of the foreign exchange rate and risk elimination, is completely unjustified. Furthermore, underdeveloped entrepreneurial spirit

and the lack of understanding of business risks, as well as inadequate education, are just some of the reasons why local companies do not use forward contracts (Goldstein, and Turner, 2004). Besides, it is a fact that many entrepreneurs have already hedged themselves, admittedly not by means of sophisticated instruments, but simply by building their selling prices on the exchange rate of RSD 115 to 120 for 1 euro. Moreover, an objective reason also lies in the fact that it is not possible to agree forward contracts with long maturities that would serve as hedging of long-term liabilities denominated in foreign currency in a company's balance sheet liabilities. The fact is that there are numerous advantages of financial derivatives as modern financial instruments. However, taking into consideration the risks that financial derivatives potentially entail due to the undefined legal norms and at the time of the global

## 5.2. Croatia

Regarding the intensity of influence of financial risks on the performance of the Croatian companies, the results have shown that the price risk has the highest influence among the Croatian companies.

**Table 2: Country data sheet- Croatia (Author's estimation.)**

<b>Population: 4.238.400</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Top 10 companies</b>	
GDP (real, in mn eur)	38.186	37.351	37.000	36.852	1	<i>INA</i>
GDP (nominal, in mn eur)	48.100	42.811	41.961	47.132	2	<i>KONZUM</i>
GDP per capita in eur	8.921	8.752	8.694	8.699	3	<i>Hrvatska Elektroprivreda</i>
GDP per capita PPP	16.944	16.624	16.513	16.523	4	<i>Zagrebacka Banka</i>
GDP growth	-0.3%	-2.2%	-0.9%	-0.4%	5	<i>HEP</i>
Remittances (in mn eur)	1.042	1.050	1.085	1.255	6	<i>Hrvatski Telekom</i>
Remittances as % of GDP	2.7%	2.8%	2.9%	3.4%	7	<i>Petrol</i>
Total investments (in mn eur)	7.878	7.197	6.978	6.585	8	<i>Privredna Banka Zagreb</i>
Investments as % of GDP	20.6%	19.3%	18.9%	17.9%	9	<i>HEO-Production</i>
Foreign direct investments	1.147	1.070	735	2.876	10	<i>PLIVA Hrvatska</i>
Foreign direct invest.as % of GDP	3.0%	2.9%	2.0%	7.8%		
Total import (in mn eur)	19.657	17.596	17.825	20.564		
Total imports as % of GDP	51.5%	47.1%	48.2%	55.8%		
Import to EU (in mn eur)	10.065	11.770	12.220	13.082		
Import to EU as % of total import	51.2%	66.9%	68.6%	63.6%		
Total export (in mn eur)	19.435	17.799	18.020	21.555		
Total exports as % of GDP	50.9%	47.7%	48.7%	58.5%		
Export to EU (in mn eur)	5.735	5.601	5.927	6.622		
Export to EU as % of total export	29.5%	31.5%	32.9%	30.7%		

These findings could be explained by the fact that Croatia is small and open economy, which results in a high dependence on international trade. Croatian companies are more affected by currency risk. Finally, the interest-rate risk has been ranged as less important in comparison with commodity price and currency risks. The explanation of this result could be found in the fact that Croatian companies do not use debt capital heavily; therefore they are not highly exposed to the fluctuations of interest rates.

The survey's results have clearly indicated that Croatian non-financial companies manage financial risks primarily with simple risk management instruments such as natural hedging. In the case of derivatives use, forwards and swaps are by far the most important instruments. The Croatian companies use simple risk management instruments like managing assets and liabilities to a greater extent when managing price risk. Amongst the most important reasons why companies do not use derivatives, the Croatian financial managers have addressed the high costs of establishing and maintaining risk management programmes that exceed the benefits of it as the most important reason why they do not manage financial risks. Croatian managers claim that the insufficient and inadequate supply of risk management instruments offered by domestic financial industry is a very important reason why they do not use derivatives.

Croatian non-financial companies manage financial risks primarily with simple risk management instruments such as natural hedging, while in the case of derivatives usage, 'plain-vanilla' instruments like forwards and swaps are by far the most important instruments. However, exchange-traded derivatives and structured derivatives are more important in countries that have entered the Euro Zone as European financial market, together with derivative market as one of its segments, has developed significantly in recent years (Calomiris, 2007). Market for derivative instruments has introduced a broader assortment of new risk management products designed to help corporate managers handle financial risks. In addition to the development of exchange traded derivatives there has also been an increase in the volume of OTC derivatives introduced by commercial and investment banks (Foreign Exchange and Derivatives Market in 2004, BIS, 2005; Monetary and Economic Development, OTC derivatives Market Activity, BIS, 2000; 2002; 2005). A further growth and development of derivative markets will have an impact to the decrease of the transaction costs related to the use of derivative instruments what should make these instruments more available and feasible to a broader class of companies in different industries.

Regarding the risk management instruments that companies use in managing currency risk, it could be concluded that natural hedge like matching currency structure of assets and liabilities (e.g. debt in foreign currency) is the most important instrument in managing currency risk in both countries. In respect to the use of derivatives, the currency forward is the most important and frequently used instrument, followed by currency swap as the second most important derivative instrument. Other derivatives such as stock-exchange and OTC (over-the-counter) options are not important currency risk management instruments among the Croatian and Serbian companies. Interest rate risk in the Serbia as well as in the Croatian companies is hedged most frequently by natural hedge (e.g. matching maturity of assets and



liabilities or combining debt with fixed and fluctuating interest-rates). Again, forward contract and swap are the most important derivative instruments in the risk management strategy, but in contrast to currency risk management, interest rate swap is more important than interest rate forward.

### 5.3. MACEDONIA

Refinancing risk is significant for Macedonia. It will need to repay large Eurobonds maturing in 2013 and 2015, as well as the PLL purchase (in 2014–16) and the bank loan guaranteed by the World Bank PBG (in 2016) . Market volatility has been high since the onset of the global crisis, due to external rather than domestic factors. This was evident in 2009, when the government issued a 3½-year Eurobond at a yield of 9<sup>7</sup>/<sub>8</sub> percent, more than double the 4<sup>5</sup>/<sub>8</sub> percent yield of the 10- year issuance in 2005, and in 2010 when it canceled a planned Eurobond issuance after market rates spiked in the run-up to the Greek program. In addition, domestic debt features a very short average maturity of just 6 months, and hence the need to roll over existing debt on average 2 times per year.

Macedonia’s exposure to currency risk could gradually be reduced by increasing domestic non FX-indexed denar issuance. Currency exposure is considerable: all external debt is in FX, and almost half of outstanding domestic government debt is FX-linked (Table 1). Taken together, almost 90 percent of general government debt is hence denominated in or linked to foreign currency. Currency risk—defined as the (high) exposure multiplied by the (low) probability of a shock—may not appear to be high in light of the stability of the peg over the past 15 years. However, reducing it would add to policy flexibility in the event of unforeseen shocks in the future. Gradually increasing the share of domestic denar-denominated, non FX-linked debt would be a prudent strategy in this context, together with increasing the share of domestic debt in fiscal financing. These actions would also bring other benefits, including developing the domestic currency yield curve, improving the monetary policy transmission mechanism, and in general promoting greater use of denars in financial transactions.

**Table 3 Percentage of foreign currency debt in domestic debt**

**Note:**Domestic debt denominated in or linked to foreign exchange. Data for Macedonia includes structural bonds.

Croatia	53
Macedonia	51
Bulgaria	33
Romania	26
Serbia	13
Ukraine	4
Hungary	0

By developing and following a medium-term debt strategy along these lines, Macedonia can achieve the goal of minimizing medium-term costs subject to keeping risks within appropriate pre-set bounds. As described above, the government has taken the first initial steps toward renewed market development. Further gradual moves in this direction, guided by a comprehensive debt strategy, would bring the goal within reach. Achieving this goal would benefit the budget through lower interest expense and lower risks over the medium term. At the same time, developing a domestic yield curve would yield positive externalities for the real economy, as it would clearly establish a denar yield curve that can be used in pricing private sector loans and bonds.

Traditionally, Macedonia has had low fiscal deficits, ranging from  $-1\%$  to  $+1\%$ , but during the crisis in 2009 this grew initially to  $2.5\%$  then to  $2.8\%$  with our highest in 2012 at  $3.8\%$ . In 2013, due to the financial stimulus were at  $3.5\%$ . NBRM was able to mitigate successfully because Macedonian public debt was low at around  $20\%$  of GDP which afforded us room for expansion which we used during this crisis period.

**Table 4: Country data sheet- Macedonia (Author's estimation.)**

<b>Population: 2.075.625</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>Top 10 companies</b>	
GDP (real, in mn eur)	6.415	6.386	6.556	6.803	1	<i>Johnson Matthey</i>
GDP (nominal, in mn eur)	7.544	7.585	8.112	8.533	2	<i>Oktal AD</i>
GDP per capita in eur	3.105	3.086	3.163	3.227	3	<i>EVN</i>
GDP per capita PPP	9.588	9.529	9.768	10.120		<i>Elektrostopanstvo na Makedonija AD</i>
GDP growth	2.3%	-0.5%	2.7%	3.8%	4	<i>Makpetrol AD</i>
Remittances (in mn eur)	195	198	191	204	5	<i>Elektrani na Makedonija AD</i>
Remittances as % of GDP	3.0%	3.1%	2.9%	3.0%		<i>Feni Industry AD</i>
Total investments (in mn eur)	1.668	1.845	1.868	2.082	6	<i>Makedonski Telekom AD</i>
Investments as % of GDP	26.0%	28.9%	28.5%	30.6%	7	<i>T-Mobile Makedonija AD</i>
Foreign direct investments	344	111	252	262	8	<i>Lukoil Makedonija AD</i>
Foreign direct invest.as % of GDP	5.4%	1.7%	3.8%	3.9%		<i>Arcelormittal Skopje AD</i>
Total import (in mn eur)	5.053	5.071	4.983	5.485	9	
Total imports as % of GDP	78.8%	79.4%	76.0%	80.6%		
Import to EU (in mn eur)	3.038	3.372	3.397	3.821	10	
Import to EU as % of total import	60.1%	66.5%	68.2%	69.7%		
Total export (in mn eur)	3.215	3.124	3.235	3.723		
Total exports as % of GDP	50.1%	48.9%	49.3%	54.7%		
Export to EU (in mn eur)	2.281	2.110	2.386	3.025		
Export to EU as % of total export	70.9%	67.5%	73.8%	81.3%		

Apart from the macro-economy concerns, the crisis with the Euro as a currency helped boost confidence in Macedonian domestic currency [MKD denar]. This is because people naturally began to wonder what would happen with Europe; therefore, its primary currency. As a result, some people began to orient more towards the MKD. Macedonia, like most former Yugoslavian countries are highly Euro-rized, which means people save and use credits in Euros, with a 65% Euro to 35% MKD ratio. During the crisis and continuing today, the ratio of households and their propensity to save in MKD has elevated to 50%.

## 6. METHODOLOGY

The study involved a field survey conducted in July 2015, by applying a self-administered questionnaire which was distributed among the managers and employees in companies in Macedonia, Serbia and Croatia which are clients in Sparkasse bank. Respondents were asked to explain six question which were very important for us to determine and get the answers about using risk effective management tools or in another words to evaluate the most important factors for not using derivatives. We were interested to know is the cost of risk management greater than benefits, what are the financial reporting requirements for risk management activities, further respondents determined the lack of knowledge on financial derivatives by the company's management. Also to get the "picture" about using financial derivatives, we asked respondents about the difficulties in monitoring/measuring contract effectiveness as exposures to currency, interest rate or commodity price risk are not significant for them. We applied simple test by processing with the SPSS.

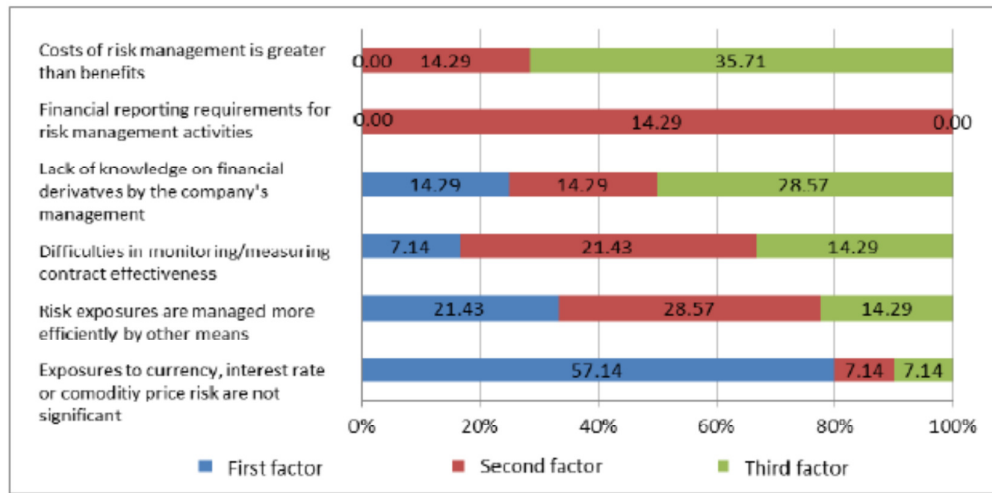
## 7. ANALYSIS, RESULTS AND DISCUSSION

Companies in Croatia, Serbia and Macedonia reported that are not using (and are not going to use) financial derivatives for risk hedging indicated following reasons to explain the limited practice in the derivatives market:

- Costs of risk management are greater than benefits;
- Financial reporting requirements for risk management activities;
- Lack of knowledge on financial derivatives by the firm's management;
- Difficulties in monitoring/measuring contract effectiveness;
- Risk exposures are managed more efficiently by other means;
- Exposures to currency, interest rate, or commodity price risk are not significant.

Fig. 1 illustrates the most important factors for not using derivatives by the fraction of the surveyed firms

reported that they are not using derivative financial instruments.



**Figure 1: The most important factors for not using derivatives**

From the figure above could be concluded that the biggest reason why companies not use derivatives is the non significant exposure to currency, interest rate or commodity price risk.

## 8. CONCLUSION

Organizations have to evaluate the risks of doing business on an international level. But it doesn't always work in their favour. For instance, McDonalds's saw sales in Europe increase in 2011, but the yearly profits were actually down as a result of a weakening euro. Another example of this at eBay, with CFO Bob Swan admitting that currency fluctuations will hit the bottom line by around their points in 2012. Ralph Lauren reported that although currency changes have gone in its favour so far in 2012, they survived a turnaround in fortunes in 2013.

### *What can firms do?*

As with private investors, business essentially have four options to counteract their currency exposure. The simplest approach is just to monitor the changes, and this can be the best option if companies do not think that they are at a particular high risk from exchange rate fluctuations.

Another is to lock into an exchange rate for a fixed period of time by setting up a forward contract. If the exposure estimates are correct, this can be a beneficial approach. Some business will also purchase currency in advance if they know that they will be making big purchases and are concerned about volatility.

Third option is to hedge against this exposure via derivatives. Although this may be the most complicated option, it can be effective in limiting exposure to volatility. It can also give a clearer picture of how a company's overseas operations are really performing.

Finally, firms can choose to manage their currency exposure through business practices. Having a truly international company can help with this as, theoretically, losses made when one currency falls will be recovered when another rises. Where contracts are concerned business can also set up clauses that reduce this exposure. In many cases this comes in the form of an agreement to protect the client and the company should exchange movements exceed the agreed-upon level. Some businesses also agree on setting all contracts in their core currency, protecting them from any exposure as they always be paid the same relative amount. Dealing with the currency exposure is all about managing risk, as fluctuations are by very nature unpredictable. However, while private investors only have their own savings to worry about if they fail to manage this risk appropriately, businesses face angry shareholders and a drop in share value – as well as a drop in profits.

In general, developing countries - the Balkan countries have a shortage of savings and they imported foreign savings. Companies tend to borrow in foreign currency-Euro which is particularly popular in Serbia and Croatia, due to the lower interest rates compared to interest rates on credits in national currency. Differences in interest rates are an indicator of expected future depreciation / appreciation currency in terms of fluctuating exchange rates. The currency risk can be hedged in two ways: if the company is a net exporter and lend in currency of the net exports, or in short-term loans, if agreed today a term exchange rate to repay the loan at the time of the mature. But, in the Western Balkans as we have seen from the above researches there is no developed market of term rates to use this tool.

Namely, as an instrument to mitigate foreign exchange risk can serve the following rule - if the company does not generate income in the same currency as the loan is, repayment capacity of the loan should not exceed 50-60 EBIT of the company. In the case of depreciation, the company has the capacity to back the loan.

So, those countries which are small and open (as Croatia, Serbia and Macedonia) have high indicator on protection of the EUR currency risk through their exports in Euros. These sectors can avoid currency risk by borrowing in Euros.

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# **SURVEY EVIDENCE FOR INFLUENCE IN IMPROVEMENT ON TRADE FACILITATION AND ECONOMY GROWTH: THE CASE OF REPUBLIC OF MACEDONIA**

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## **Abstract:**

Implementation of law on customs valuation rules for achieving improved application is providing greater uniformity and reliability in this application. Our focus is Macedonia, in mean that needs to implement a fair, uniform and impartial system for determining the value of goods for the customs clearance, will prevent the application of arbitrary or fictitious customs values.

In this context, considering the provisions which are implemented in the Republic of Macedonia, and analyzing its relationships beyond the field of trade and economy, further its should be aimed at raising the general standard of living, ensuring full employment and and steadily growing volume of real income as effective demand too. The purpose of this paper is to contribute with a research all these things how to be applied correctly, for better managing trade flows according globalization. Trade facilitation is a challenge for the Republic of Macedonia in terms of development and full use of world resources and increasing production as exchange of goods. If the Republic of Macedonia has a tendency to enter into mutually advantageous agreements, it will be vital to substantially reduce the tariffs and other barriers to trade. The research serves to confirm that introduction of trade facilitation measures is necessary for assisting Macedonian companies to compete more effectively in the international marketplace.

## **Key words:**

Customs valuation, Trade facilitation, Economic development, Macedonia

## **1. INTRODUCTION**

Liberalization of trade implies a gradual reduction or elimination of barriers associated with the movement of goods, including tariff and non-tariff measures to promote trade flows of capital, goods and services, technologies and human resources. Today in a world where national economies were relatively



autonomous entities, isolated one from each other by border barriers in trade and investment, with distance in time zones, different languages, national differences in government regulations, cultural and business environment - is a past.

The trend of globalization means globalizing markets and products. Globalization of markets relates to overcoming historical distinctiveness and separate national markets as creating a huge global market (Biljanoska, 2003). Differences remain between national markets in parallel with some relevant dimensions, including preferences and tastes of consumers, distribution channels built cultural value systems, business systems and legislation. Globalization of production concerns the creation of products and services from locations around the globe, utilizing the advantages of national differences, especially in price and quality and utilization of factors of production (human resources, energy, land and capital) (Duval, 2006).

Markets are becoming more open and internally linked. Competition is increasingly transcending national boundaries and penetrates deeply into national markets. The process of trade and investment liberalization to a certain extent, the emphasis shifts from trade restrictions by national governments to competitive constraints by private firms as barriers to international trade or investment flows (Djankov et al, 2007). So, trade liberalization involves establishing a link between business, governments and international organizations. In this respect, development of business incubation process is very important. Business incubation means an interactive process between the functional utility and benefits of research and design, production and marketing. Namely, governments towards liberalization process usually approach in accordance with some major criteria:

- level of development
- strategic direction
- international status
- priority rating
- acceptance of the rules
- diversity tolerance
- industrial competitiveness
- ideological separate mission.

In addition to government agencies and international organizations, those have their own business agenda which include (Hausmann et al, 2005).:

- transparency in the performance of investment markets
- harmonization of standards
- links between market goods, services, information and human resources
- resolve transboundary disputes
- standardized procedures
- input sense of security in the community.

Yet, in turn, this will create a stable business environment that will contribute for successful business ventures. Therefore, all the interests of businesses, governments and international organizations need to comply. The challenge is to maximize the interests that coincide with negotiations for trade liberalization

(Raven, 2001).

## **2. LITERATURE REVIEW**

Recent quantitative studies on trade facilitation continue to show its importance. Using a probit model, Hummels (2001) estimates that each day saved in shipping time, in part due to faster customs clearance, is equivalent to about 0.5 percentage point reduction in ad valorem tariffs. Fox et al, (2003), observes that a 1 percent reduction in the cost of maritime and air transport services in developing countries could increase global GDP by some US\$ 7 billion. Fink, Mattoo and Neagu (2002), using probit models, observe that a 10 percent decrease in the bilateral price of phone calls is associated with an 8 percent increase in bilateral trade. Using a more comprehensive measure of trade facilitation (including indicators of port efficiency, customs environment, regulatory environment, and service sector) in a gravity model, Wilson et al. (2004) observe a \$377 billion increase in global trade of manufacturing goods arising from improvements in trade facilitation. Furthermore they find that the response of exports to unilateral improvements in trade facilitation exceeds that of imports. All the above studies use partial equilibrium techniques and are somewhat limited in providing estimates of the welfare impacts of trade facilitation.

## **3. SNAPSHOT ON MACEDONIAN EXPERIENCE IN IMPLEMENTATION OF MODERN TRADE PROCEDURES**

Macedonia has successfully implemented the modernization of trade procedures, through the implementation of telecommunications and information technology.

Experiences from other advanced countries in the area of trade facilitation may serve as examples to modernize the operations of commercial firms and meet the dynamic needs of the 21st century. In Macedonia, has already taken the first steps in adopting the processing of data in electronic form and electronic signature. On 21.10.2008 the Decree was adopted to establish a way to use the information system for processing data in electronic form and electronic signature for imports, exports and transit of goods. This Decree regulates the establishment, method of use, registration and operation of information system for processing data in electronic form, and the use of electronic signature for import, export and transit of goods.

Especially important is creating a trade network that provides electronic data exchange between stakeholders and accelerate the processing of the large number of trade documents. The network of stakeholders include: government agencies, state authority, private organizations, banks and Internet agency. The system works with all stakeholders that are involved in international trade, including customs administration, ministries, agencies, technical control, the central bank, private traders, brokers, forwarding, customs brokers and banks. In Macedonia adjustments to the customs computer system

provides support for internal and standard documents, which are automatically processed (this includes declarations). These changes reduce personal contact between customs staff and declarants, the accelerated allowances, help for transparent and consistent processing of trade declarations and eliminate routine checks, and make possible the "risk" management by managing the available data declarations.

Macedonia must improve its trade logistics to fit into the global trade and, of course, to feel the uses of globalization. When the integration of global supply chains will achieve a satisfactory level, then it will confirm the ability of firms to intensify the processes of trade across borders. So far, some progress has been made in telecommunications and information technology, but logistics needs to match the requirements for quality physical infrastructure in Macedonia. Modernizing the customs service, with the coordination of border procedures between it and other agencies remains inadequate logistical needs which are increasingly determined by the availability, quality and competitiveness of private services (transportation, customs brokerage and warehousing). Macedonia, in this context should focus on improving road infrastructure and information technology in customs, and reforms the logistical services market to reduce errors in public agencies, as active stakeholders in border control. It requires an integrated and comprehensive approach to reform in the supply chain.

Trade facilitation in the context of the World Customs Organization (WCO) means avoiding unnecessary trade restrictions. This can be achieved by applying modern techniques and technology, by improving quality control and acceptance of internationally harmonized way of clearance. The mission of the WCO is to improve efficiency and effectiveness of customs administration, through simplification and harmonization of customs procedures. R. Macedonia needs to be admirers of the conventions, standards and programs. Here are thinking of providing technical assistance and capacity building support. Through these instruments and activities, the Customs Administration of Republic of Macedonia (CARM) will be able to offer appropriate stakeholders trade incentives, combined with effective controls.

Linking Macedonia and other countries must be realized due to competitive match, which should be a challenge. If Republic of Macedonia manages to increase the participation in global production, there will be a powerful strategic resource for achieving competitive advantage. To intensify the relief and to ensure security in these regulatory trends and impacts, should be considered permanent use of intensive technological change. So necessary information for managing international transactions from product origin to destination should be generated, shared, recorded and processed (Zikov A. & Kikerkova I., 2000). The business involves group and quickly go. Therefore Macedonian customs has no choice but to intensify its trade and make permanent improvements in customs techniques to exploit the benefits of modernization.

All these observations imply a need to create the basis for a radical and complete international harmonization and simplification of border control systems (Satapathy, 2001).

#### **4. IMPLEMENTATION OF SINGLE WINDOW AND IMPORTANCE OF REFORMS FOR**

## MACEDONIAN COMPANIES

In Macedonia began the process of improving the services of Customs and reducing barriers to trade and transport, through reconstruction of Customs Service. Thus, there is a modernization of customs law and procedures. In close cooperation with the EU, the International Monetary Fund and World Bank have already undertaken a series of steps to improve customs legislation, procedures and documentation. Customs Administration in Republic of Macedonia has introduced the application of the Single Administrative Document (SAD). It was introduced and linked with international standards, and also consolidated various categories of activities. Customs Administration in Republic of Macedonia has undertaken various activities to strengthen the administrative capacity and the further harmonization of legislation. As the most significant change separates the electronic one-stop shop for issuing licenses for import, export quotas - (Single Window / One Stop Shop for Licences for Import, Export and Transit of Goods and Tariff Quotas) – EXIM.

Single window system for import, export and transit of goods and tariff quotas - EXIM, in fact, is an electronic system used by 16 institutions that have responsibilities in the field of trade operations abroad. EXIM provides search by the heading of the goods and getting information on what permits are required for import, export or transit. Through the "quotas" under the "prescribed amount of tariff quotas," the business community can be informed which tariff quotas and which countries are available for distribution. EXIM enables electronic submission of applications for permission to import, export and transit of goods from the business community, as well as electronic licensing by the competent institutions. Through this system, in fact, applicants can monitor the status of processing their requests, and their final release. Through EXIM, importers have the opportunity for electronic submission of applications for allocation of tariff quotas available under the trade agreements concluded by the Republic of Macedonia. The tariff quotas on a daily basis, are allocated according to the principle "first come - first served". With the implementation of EXIM, the benefits are greater as availability of service is 24 hours, 7 days a week, savings of time and costs for companies that use electronic filing requirements, increasing efficiency of the process for issuing permits; standardized and harmonized future data requirements to allow more extensive exchange of data, electronic monitoring for using permits and filing requirements, that is transparent electronic distribution of tariff quotas (Biljanoska, 2009). Further harmonization of national legislation with European Union legislation requires the adoption of the amendments of the Stabilization and Association Agreement between the Republic and the European Union and its Member States. These changes impose special requirements for creating conditions for introducing accumulation of the Stabilization and Association Process (SAP + - Stabilization and association process). This allows for cumulation of origin between Member States, signatory countries of the Stabilisation and Association Process and Turkey after the fulfillment of certain conditions. Integrated Information System (Integrated Information System - IIS) is installed at the Customs Administration in 2008. In early January 2009 the Customs Administration has initiated the implementation of the developed system for archiving and managing / monitoring the workflow. The aim of this project is to establish an electronic system for document management (Electronic Document Management System - eDMS) and material and financial

management of the Customs Administration. Already been carried out staff training for using new equipment (Biljanoska, 2009). The modernization of customs procedures involves the application of new technological equipment .

Regulatory reforms could be difficult and take time, especially in legal changes. Some reforms require difficult political balancing. External pressures are often necessary to realize significant legislative changes. In this sense, sometime a crisis could be seen as an opportunity. Historically, many reforms are prompted by recession or financial crisis. Regulatory reform tends to be implemented when the pressure increases. One reason may be the increase in competition as economies join the common market or trade agreements such as the European Union (EU) or North American Free Trade Agreement (NAFTA). The financial crisis and economic downturn has stronger incentives for implementation reforms. To restore an economy, one of the objectives in the agenda - is increasing the competitiveness of companies in an economy. The most of the reforms observed in 2008/09 which were aimed for reducing trade barriers, now are implemented.

Common to all successful and further concentrated reformers remain loyal to their vision for the realization of their goals and creating developed economies. Usually they are economies that aim to become a center of trade and technology at least in regions which are closer to their economy. It is appreciated technology to be available in all parts of the world. Thus it should be possible to use modern technology and in that way it should encourage and meets the criteria for appropriate use (including the necessary legal and regulatory system) in a way that will be introduced in countries that are interested.

It is obvious that replacing paperwork with electronic data doesn't change trade requests and needs between partners in international trade transactions. Basic functions should be fulfilled, and partners continue through Electronic Data Information (EDI), send and receive orders or declares goods for customs, place inventories and arrange payments. The implementation of e-business as a solution will lead to a variety of treatments and further simplification. For international information flows use in trade and transport, electronic data interchange will provide significant procedural rationalization and more efficient trade/transportation. That is the case with the domain of community systems which are largely based on the use of information technology including EDI. This requires changes in laws and regulations, such as allowing for replacement of traditional paper documents, customs declaration and so on. With e-mails or delivering such messages, have the same legal effect as the previous traditional paper documentation. Macedonia will best carry out the modernization of trade procedures through implementation of telecommunications and information technology.

## **5. METHODOLOGY**

For the Republic of Macedonia, a small, open and import-dependent country, the implementation of trade facilitation measures is an important and necessary process for improving its position on the international trade scene and realizing higher rates of economic growth. Conducting research that assessed simplified trade facilitation measures and the benefits that economic operators should gain from their

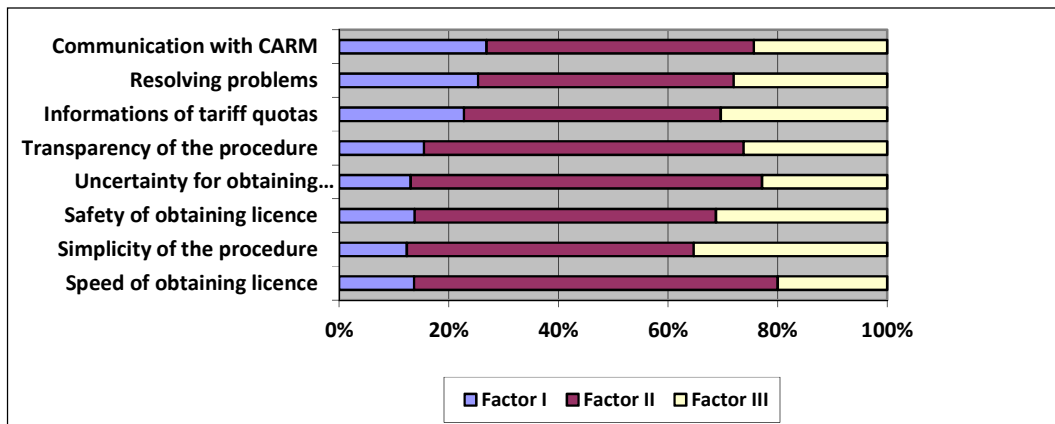
implementation has enabled further development and has been very important for the national economy, for the business community, and for the science of economics.

The objective of the research detailed in this paper was to assess and evaluate the efficiency of the trade facilitation measures undertaken by Custom Administration of Republic of Macedonia with the implementation of the EXIM and with the application of simplified customs procedures. On this basis, a questionnaire was delivered to Macedonian companies that were actively involved in international trade. The research was carried out in 2014 and the data gathered were for the year 2014. We applied simple test by processing with the SPSS.

### 6. ANALYSIS, RESULTS AND DISCUSSION

Companies were asked to evaluate the level of facilitation they received with the application of the single window. The respondents were asked to assess the following aspects: speed of the process of obtaining a license, savings in time, human resources, and finances, and general facilitation of their work. The second part of the questionnaire referred to the simplified customs procedures and the impact that EXIM which have on the overall facilitation of trading procedures. According the number of respondents, the direct costs were measured in terms of caused costs.

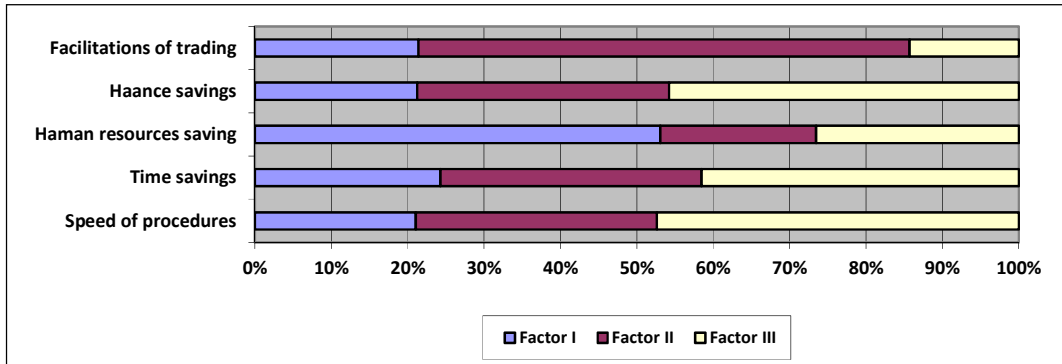
Figure 1. Evaluation of the characteristics of EXIM



Source: Authors estimation

As can be seen from Figure 1, the lowest ranks received were for the criteria of uncertainty for obtaining licenses and speed for resolving problems. The recommendation is that CARM should work on improving the ability to resolve problems more quickly and more efficiently, although in most cases they are technical problems such as issues with computer systems.

Figure 2. Evaluation of the impact EXIM

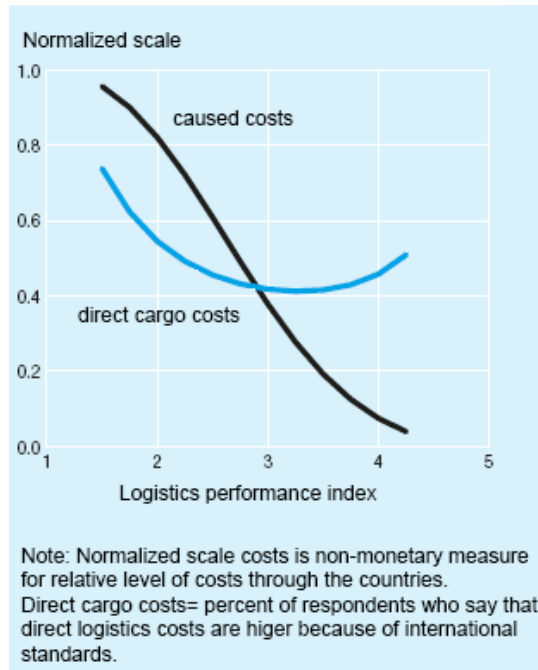


Source: Authors estimation

Figure 2 shows the ranks allocated to the impact that EXIM was having on the overall facilitation of trading procedures. The average ranks received on the satisfaction of the Macedonian companies indicated that the users of EXIM received greatest facilitation of the trading process with savings in time and human resources. These savings have also had a flow-on effect in time saved in the process of obtaining licenses for import, export and transit, and in the process of tariff quota allocation.

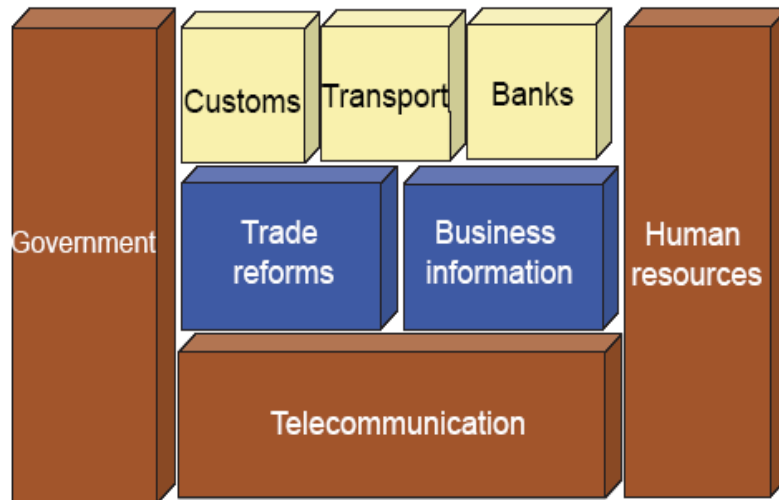
On the question about direct costs in terms of caused costs, the results showed that the caused costs are lower today (its were bigger in the time before EXIM).These differences determine the product competitiveness on international markets.

Figure 3. Normalized scale



Regarding the results it could be offer a model for Trade efficiency where the anchor is the functioning of EXIM.

Figure 4: Model for trade efficiency



From the model could be concluded that for trade efficiency in Macedonia is very important the functioning between Government, Customs, Transport, Banks, Trade reforms, business information, human resources and telecommunication. Subsequently, in circumstances where work is on the basis of standardized parameters, procedures, formalities, international best practices, the relevance is contribution



in the relief of the trade in all its aspects. Such telecommunication and information systems enable a couple of important performances like:

- *one submission of data and information*
- *single and synchronous processing of data and information*
- *one decision-for customs issuing and customs clearance.*

*Once the decision is made, it will be uniformly interpreted as a single point of decision for the release of the cargo by Customs on the basis of decisions, if necessary, taken by ministers and agencies and the timely notification of customs. This allows for all of countries to secure their transactions, processes and decisions based on advanced telecommunications and electronic information infrastructure to comply with the principles of:*

- *consistency*
- *simplicity*
- *transparency*
- *efficiency.*

Macedonia, example for small and open economy, should continue in leading free trade policies thus creating its own economic dynamism-nourishing source of freedom, opportunity and prosperity which are benefits for every citizen. It is important to show the power of principle and to be respected too. The tendency is to break the cycle of poverty and every country even the poor one, to start in creating their own dynamics through prosperity.

For Republic of Macedonia, the accelerated trend of trade liberalization, globally and regionally, puts the modernization of customs in hands of the most uses in form of virtuous circle in four steps :

- Increasing levels of trade liberalization becomes a reality worldwide reality through WTO and regional negotiations
- Trade facilitation encourages the need to invest after tariff barriers, so the investors are freer to seek business - friendly environment, rather than being forced to invest in countries with high tariff barriers
- Countries that tend to modernize their customs administrations, recognize the increasing flows of Foreign Direct Investment, in this way creating pressure on their trading partners to respond kindly.
- Improving the customs authorities provides further trade liberalization by ensuring that states will collect awards from trade negotiations. The high level of trade liberalization will increase competitive advantages of the modernization of customs.

## 5. CONCLUSION

Besides the modernization, implementation of procedures in the CARM requires further monitoring and new efforts to facilitate trade and transport activities. In that sense, we should constantly strengthen contacts with stakeholders. Namely, to allow timely reporting of changes in the legal system and

regulation, the customs regulations specifically for law enforcement at border crossings, and coordination among border agencies. Meanwhile, the management of the Customs Administration takes action on improving the relationship and responsibilities of customs and border police. In this context, here are efforts to provide necessary training to accept the changes and legal procedures by commercial operators and customs officers.

Trade liberalization through customs facilitation involves improving physical infrastructure and equipment at border crossings, mainly to prevent delays. So the necessary activities are upgrading with appropriate equipment for improving the quality of inspection and data processing at the main border stations, and in that sense communication equipment to be complement with national customs network. Here should be mentioned that enhancement of customs ethics is a major goal of CARM. CARM with the help of World Bank, International Monetary Fund (IMF) and the European Union Code of Conduct develops the basic principles of ethical behavior (as specified in the Arusha Declaration on Integrity in Customs), then communication with customers and the introduction of disciplinary procedures. CARM is the first in the region that implement a training program on ethical application of this module. This act reduces the opportunities for smuggling and corruption by customs staff. Improvement of the CARM means implementation of new legislation in line with EU legislation. This in turn implies adoption of simplified and standardized customs and inspection procedures. Also it is required for:

- development of human resources management for developing custom/border inspection expertise and to increase the integrity of the system;
- creating partnerships between border inspection agencies and commercial/industrial community to improve and coordinate operations, procedures and information exchange,
- adoption and implementation of audit and accounting processing to facilitate trade
- exchange of trade data.

It must be emphasized that it is especially important to improve private-public interactions. Limited or late consultation with the trade community contributes for congestion in contacts and interaction. It is expected that customs reform and reduction of trade costs contribute for increasing the quality of customs procedures, providing safer business environment and economic development, on the basis of lower prices of imports and competitive prices / services for export. Reduction of trade costs and increased reliability in the delivery is expected in the medium term, to lead, to a significant increase in trade volume, which would have used of existing excess production capacity (Roceska,2003). So the benefits would be:

- cheaper import goods / inputs for Macedonian consumers and industries
- better and safer business environment for private sector activities, mainly for trade activities of small and medium business entities,
- predictable and reliable economic setting for foreign companies
- facilitation of transit traffic
- protection against corruption and opportunities for smuggling,
- efforts to improve revenue collection by the Customs Administration of Macedonia and increased reduction of tariffs,
- permanent service of ICIS and better integrity of data,

- comply with EU standards and procedures.

Trade has economic importance, as reflected by reducing the waiting time at border crossings, and increased reliability in the delivery of goods. On competitive markets, these two elements affect the price of traded goods, thus stimulating trade. Increased reliability in the delivery facilitates integration between local companies into international production, and supply chains. These two elements should enable a significant increase in trade volume and profits will be realized by combining the use of policies and effects of substitution. With increased volume of imports domestic consumers benefit (including local companies relying on foreign inputs for their production), primarily through consumer surplus and create losses for some local producers whose products are replaced with those from the new import. Large volume of exports means usefulness for domestic manufacturers, which can be achieved by opening markets and reducing local consumer surplus by reducing the quantity of goods in the local market through an initial price.

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# ETHICAL DECISION MAKING IN BUSINESSES: LINKING RATIONAL AND NON-RATIONAL THEORIES

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Mr. Shah and Dr. Amjad have jointly published three research papers and have earned a research project of funding Pak Rs. 1.61 million from Higher Education Commission of Pakistan.

## Abstract

A plethora of studies on ethical decision making in marketing literature focus on rational theories that consider human decision making a rational process of choices. The literature suggests that such theories fail to fully explain the aberrant human behavior. The discrepancy between individuals' explicit ethical norms, intention and subsequent behavior is more or less remains unexplored. The basic objective of the study is to synthesis major models in the field of business ethics as a whole and tries to link other relevant theories that have a potential and value for future research in ethics. The study is qualitative in nature in which a review of the literature in the field of business ethics has been carried out. The study discusses the models relevant to ethical decision making in two broader categories i) Rational Models and ii) Humanistic Models. The study develops a link between both types of models and paves a way forward in developing a comprehensive model by synthesizing both types of models. The study does not attempt to provide an exhaustive discussion on all the models in the field, however only most

famous models have been taken into consideration. The study provides useful guidelines for future research and opens new avenues of research.

**Keywords:**

Ethics, Business Ethics, Decision Making Models, Neutralization Techniques, Self-Conscious Emotions, Naturalistic Decision Making

## 1. Introduction

Ethics has remained a corner stone of societies since inception. Industrial revolution, globalization and technological advancement have imposed new challenges to ethical conduct. Incidents like the failure of Enron, Worldcom, and many other firms that engaged in deception, fraud, and misconduct have spurred the need to further explore the area. The importance of ethics in businesses at large and marketing is eminent and well established in literature, however the focus on the ethical responsibilities of the consumers has recently been acknowledged. Consumers' awareness of the ethical dilemma, their process of ethical decision making, development of their ethical intention and subsequent behavior is a critical area to investigate in order to develop appropriate business strategies / policies. Despite a significant academic rigor, still consumer ethics poses a great challenge to investigate. Little work has been carried out in this regard particularly in collectivist societies like Pakistan.

Recently, ethical decision making has earned a special interest among the researchers of business ethics, who have attempted to develop several theoretical models in order to unfold the processes that managers undergo to make ethical decisions (Ford & Richardson, 2013). The research conducted in the field is mainly dominated by two streams Positivist Research and Normative Research (O'Fallon & Butterfield, 2005; Loe, Ferrell, & Mansfield, 2013).

The era of 1980's experienced a significant contribution in the field of ethical decision by witnessing the development of some famous ethical decision making models (Beu & Buckley, 2001). It was the time when famous models of Zey-Ferrell & Ferrell (1982), Ferrell and Gresham (1985), Hunt and Vitell (1986), Trevino (1986), Boomer et al (1987), Ferrell, Gresham and Fraedrich (1989), Dubinsky and Loken (1989), Jones (1991) were developed. The work of Rest (1986) provides a foundation to the majority of ethical models developed in the field (Groves, Vance, & Paik, 2008).

Marketing field is no exception, as one would find a wide range of work (both empirical and conceptual) on the business ethics. However, majority of the work done in the marketing field is from the aspect of seller/buyer dyad which is mainly focused on the seller side alone (Huang, Dubinsky, & Nataraajan, 2006; Vitell, 2003, Singhapakdi, Vitell, Rao, and Kurtz, 1999). Only 5 percent of the research efforts are undertaken to learn about ethics from consumers' perspective (Murphy & Laczniak, 1981). Consumers are an integral part of the whole business process, and failing to understand consumers' ethical beliefs means incomplete information about their purchase, usage and disposition of goods (Brinkmann, 2004; Swaidan, Vitell, & Rawwas, 2003). A comprehensive model on consumer ethical decision making (CEDM) is

missing (Granovetter , 1992). This is the reason that certain theorist such as Hunt & Vitell (1986) and Trevino (1986) have combined different models in pursuit to comprehensively define and understand the process of CEDM (Beu & Buckley (2001:60).

The domain of rational models and have broadened now and researchers have started studying the non-rational (non-cognitive) perspectives such as the role of self conscious emotions and neutralization technique. It is evident from literature that positive emotions play a transformational effect whereas negative emotions have an influential impact upon decision making. (Ahn & Picard, 2006; Babin & Babin, 1996; Bagozzi, Dholakia, & Basuroy, 2003; Khodayari & Hanzae, 2011; Perugini & Conner, 2000; Polman & Ruttan, 2012; Schlösser, Dunning, & Fetchenhauer, 2013). The theory of Neutralization Techniques is developed by Sykes & Matza's (1957) explaining juveniles' delinquent behavior and subsequent justifications can help to understand the consumers' unethical behaviors in a better way. They identified five different types of justifications that a juvenile may use as a neutralization technique. These are "denial of responsibility, denial of injury, denial of victim, appeal to higher loyalties and condemning the condemners. There is a growing importance of usage of neutralization techniques in understanding delinquent behaviors in business studies (Mallin & Serviere-Munoz, 2013; Strutton, Pelton, & Ferrell, 1997; Strutton, Vitell, & Pelton, 1994).

This section will try to summarize the literature on ethics; its link with consumers, different theories, latest development made in the area, and will link it with testable hypotheses. Towards the end of the chapter, author will try to present the research problem and highlight the research gap with the help of literature.

## 2. Ethics:

The study of ethics is basically the study of morality, gives insights into individuals morality criteria of distinguishing between good, bad, right and wrong and their philosophical reflection of their beliefs and philosophies (Foote & Ruona, 2008). Ethical decision making is the one that are morally and legally correct according to a larger community Jones (1991). In relation to consumer behavior, it is the distinguishing between right or wrong in consumer situations where the consumer buy or plan to buy (Fullerton, Kerch, & Dodge, 1996). McGregor (2008) has differentiated consumer motivation into social, economic and moral. Consumer that are motivated to abide social norms and always care about what others think are called social consumers, while the consumers that are primarily influenced by their desire towards money, things and experiences are termed as economic consumers, whereas the consumer who are more motivated towards making morally right decisions are categorized as moral consumers.

Trevino & Brown (2004) calls for attention to avoid the myth of considering ethics is easy, because it leads to the assumption that individuals (consumers) have the awareness about the ethical posed situation. Most of the individuals do not know that they have faced an ethical situation and had to make ethical decisions.

The majority of models in ethical decision making start with the assumption that individuals have prompted with ethically posed situation and then they have to decide about future plan of action.

## 2.1 The debate on ethics: Subjectivity vs. Relativism

(Graham, 2004) in his famous book “Eight Theories of Ethics” have discussed the arguments surrounding the subjectivity or objectivity of ethics. According to him, A common and ancient view about ethics is that it is highly subjective and don’t have any moral facts. ‘Sophists’ (a group of scholars) believed that the world of facts is significantly different from the world of values. The believe that when we talk about the matter of the value we can’t straight away term that True or False, Right or Wrong (Graham, 2004). Plato and Socrates firmly believed that there are indeed right and wrong ways to categorize good and bad. According to him this mainly depends upon the power of reasoning to justify the nature of it. Lots of people think that the morality is subjective because of following three things:

**Table1 : Commonly raised questions**

1	Different people have different sorts of moral opinions
2	It’s impossible to judge who’s opinion is superior over another
3	Proving one’s opinion is superior than another is difficult because of the unavailability of observable moral facts.

Source: (Graham, 2004, p3)

The matter of fact according to Hume is a substance of feeling not of reason and that it lies within us and not in the substance. (Graham, 2004, p3). (Graham, 2004, p3) believes that there exits a lots of agreement among society regarding what is right and what is wrong. And this is down to this reason that a good majority of the people consider rape, murder or theft a bad thing, or believed honesty, loyalty and generosity to be good things.

“The laws of nature remain the same everywhere, rules of conduct differ from place to place”(Graham, 2004, p3). Gilbert Harman identified the basic difference between the observation carried out in studying a scientific experiment and in studying moral phenomena. According to him, you make certain assumptions regarding the occurrence of a certain observation with the help of scientific theory, while in the case of moral phenomena regarding the outcome of such observations. What you can do is to make assumptions about the psychology of the person make the moral observation. In the scientific case, theory is tested against the world. (Harman, 1977:6)

## 2.2 Historical development of consumer ethics

Even though the literature on marketing ethics started emerging since 1960, however it was till 1990’s when consumer ethics earned an interest among researchers. (Schlegelmilch & Magdalena, 2010). The most popular themes were consumer ethical values, socially responsible consumer and ethical concerns (Schlegelmilch & Magdalena, 2010). Consumer ethics was among the few themes that remained favorite during 2000 as well. Schlegelmilch & Magdalena (2010) reported consumer ethics as one of the most popular themes in marketing ethics research besides “Corporate Decision Making” and “Norms & Codes”. Consumer behavior studies regarding ethics can be broadly classified into two main streams of studies i) consumer ethics ii) ethical consumerism (Chatzidakis & Mitussis, 2007, p306).



There exists four major contributions of literature that successfully synthesizes all the empirical work carried out in the field of ethically decision making till 2008.

- Ford & Richardson(1994) comprehensively synthesized the empirical work in the field of ethical decision making till 1994.
- Loe et al. (2000) extended the work of Ford & Richardson(1994) by comprehensively synthesizing the work on ethical decision making within organization setting and related it with the work of Jones (1991) till 1996.
- O’Fallon & Butterfield (2005) further extended the work of Loe et al. (2000) and Ford & Richardson(1994) from 1996 to 2003.
- Schlegelmilch & Magdalena (2010) very comprehensively and tactfully synthesized all the major work done in the field of marketing ethics spanned over the period of almost half a century from 1960 to 2008.

Vitell (2003) has comprehensively synthesized all the work carried out in the field of consumer ethics till 2000 especially regarding work done on Muncy & Vitell (1992) scale. In another paper, (Vitell & Ho, 1997) have synthesized and evaluated the scales developed and used in the field of marketing.

In the next section, first we will discuss some of the most prominent rational models, non-rational models and new generation models in decision making.

### **3.Rational / Descriptive Ethical Theories and Model**

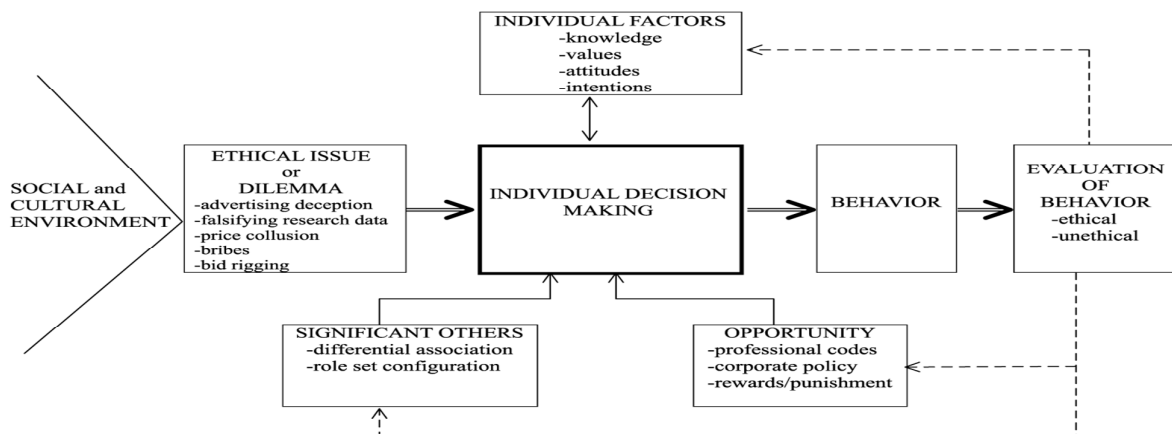
The field of ethics is broadly divided into two major streams i) Normative Ethics and ii) Descriptive Ethics. Normative ethics emphasizes on how one should behave while the descriptive ethics explains how ones behavior is performed and how it can be predicted (O’Fallon & Butterfield, 2005). Some of the famous descriptive ethical models are O C Ferrell & Gresham ( 1985), Rest (1986), Trevino (1986), Hunt & Vitell (1986), Brommer, Gratto, Gravender & Tuttle (1987), Dubinsky & Loken (1989), O.C. Ferrell, Gresham, & Fraedrich (1989) and Jones (1991).

#### **3.1 Ferrell & Gresham (1985) Model**

During 1985, (O C Ferrell & Gresham, 1985) developed a famous model on ethical decision and can be considered as pioneering works in the field of marketing ethics. The individuals’ ethical decision making process triggers with his/her interaction of some ethical issue or dilemma. Individual decision making is again influenced by Individuals’ personal characteristics (i.e. Knowledge, Values, Attitudes & Intentions), Opportunity Factor (personal codes, corporate policy and rewards/ punishment) and Significant Others (i.e. differential association, role set configuration). The model is a unique from previous models as it extends the arising of ethical issue to the broader social and cultural environment, and puts special emphasis on social pressures that an individual may faces by “significant others” and

opportunity to get rewards due to inadequate environmental resistance in the shape of lack of professional codes, corporate policy, punishments. The model also beautifully extends individuals' behavior to another phase called evaluation of behavior and which further reinforcing the "significant others", "opportunity" and "individual" factors. The model has earned a special place among the researchers and is cited around 1388 (See table below).

**Figure 1: Ferrell & Gresham (1985) Model**

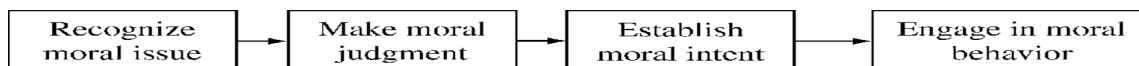


Source: Ferrell and Gresham (1985, p.89)

### 3.2 Rest (1986) Model

Rest (1986) provides the foundation to almost all the major models developed in the field (Groves et al., 2008). His model starts with realization of ethical issues, followed by moral judgment made by the individual that helps him/her to establish moral intent and ultimately engaging in moral behaviors. Figure 2 below shows Rest (1986) model in a graphical form.

**Figure 2 Rests (1986) Model**



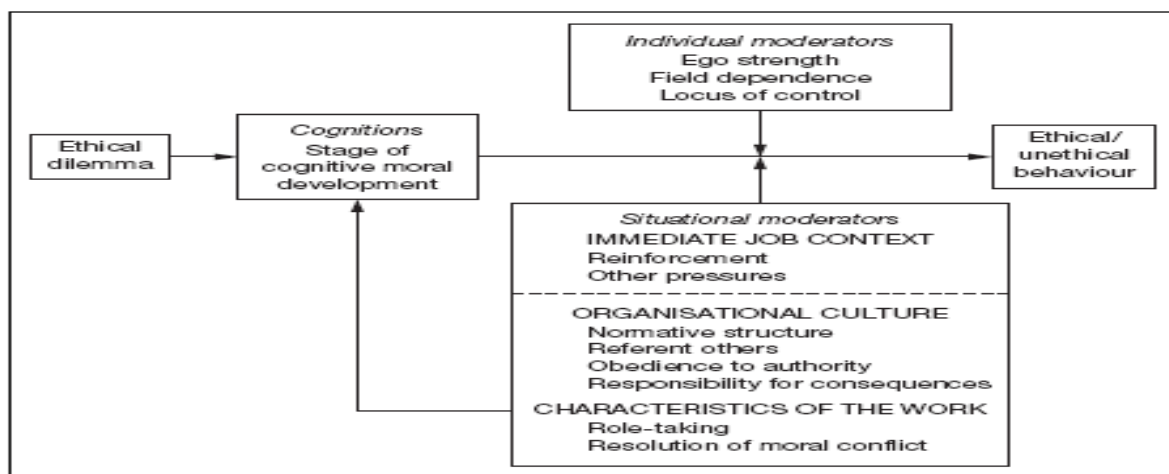
Source: Rest et al. (1986)

### 3.3 Trevino (1986) Model

Linda Trevino also put forward her model during 1986, her model was for ethical decision making within the framework of organization with a particular focus on interaction between individuals' characteristics and with situational characteristics (Trevino, 1986). Like Rest (1986) she also considers the ethical dilemma is the source of initiating the process of ethical decision making. The model acknowledges the stage of cognition moral development as a key predictor of ethical behavior which is moderated by further individual characteristics (i.e. ego strength, field dependences and locus of control) and situational characteristics. Situational moderators are further divided into i) Immediate Job Context (i.e.

Reinforcement & other pressures) ii) Organizational Culture (i.e. Normative structure, Referent others, Obedience to authority, Responsibility to consequences) iii) The characteristic of the work (i.e. Role taking, Resolution of moral conflict). However, the work presents a competing model of Rest (1986) instead of building upon this model (Jones, 1991). Also the model does not account for mediating role of individuals' intention between ethical beliefs (i.e. Stage of cognition development) and Moral Behavior, which is later acknowledged in the literature. The model has earned a special place among the researchers and is cited around 2205 (See table 3 below)

**Figure 3: Trevino (1986) Model**

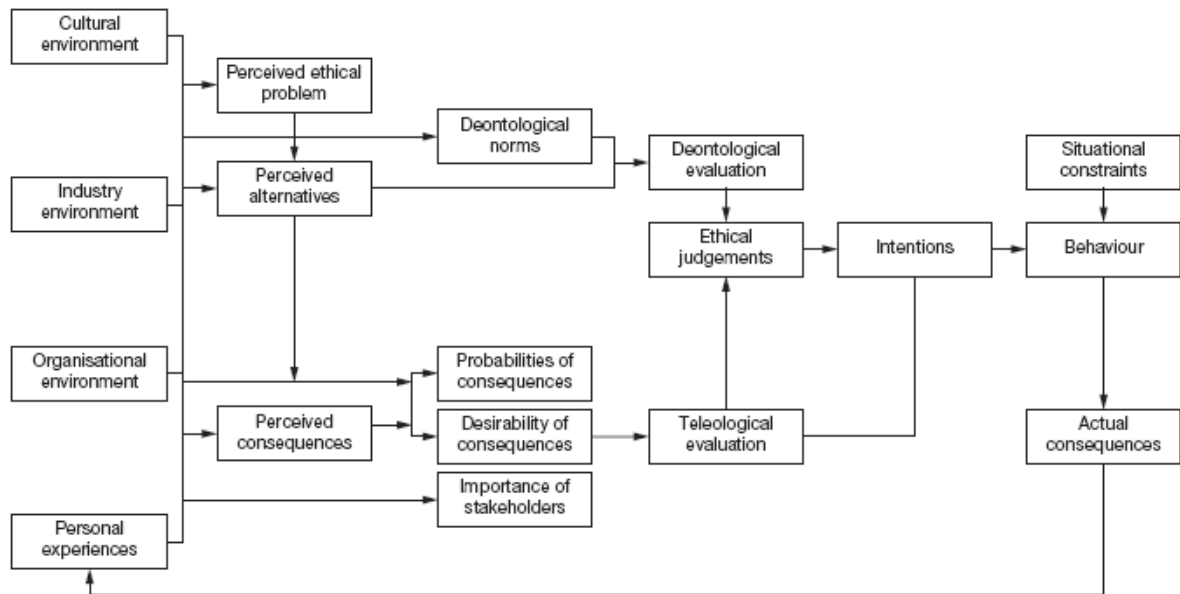


Source: (Trevino, 1986, p.603)

### 3.4 Hunt and Vitell (1986)

During 1986, another pioneering work in the field of marketing ethics emerged. It was termed as “The General Theory of Marketing Ethics” by Hunt & Vitell (1986). The work is similar to (O C Ferrell & Gresham, 1985) LR057 in many aspects e.g. both acknowledges the influence of external environment, consider ethical judgment with a complex interaction of different factors and the reinforcement of ultimate behavior to individuals enhanced learning (experiences). However, the major point of departure are the step wise evaluation process of the individuals in the Hunt & Vitell (1986) and impressing upon the importance of “Situational Constraints” at final behavior. The model is one of the famous models and is cited around 1847 to date (see table 4).

**Figure 4 Hunt and Vitell (1986) Model**

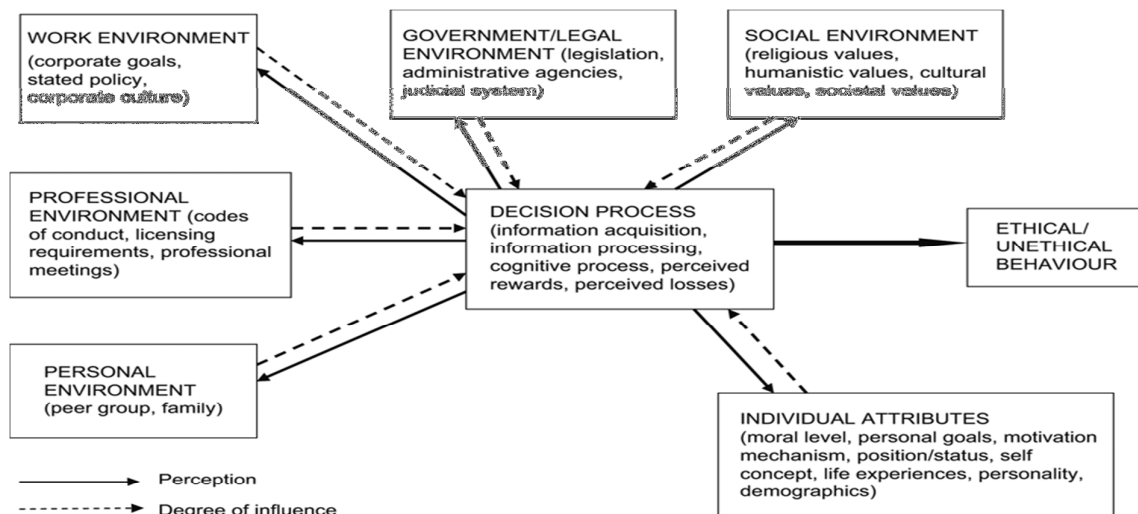


Source: Hunt & Vitell (1986, p.8)

### 3.5 Brommer et al (1987) Model

Brommer, Gratto, Gravender & Tuttle (1987) purports to present another model on ethical decision making, which can be called a catalog of variables that effect (Jones, 1991). The model mainly focuses on major environmental factors and individual factors affecting consumer decision making process that in return directly affect their ethical/ unethical decision makings. In this model, around 20 factors are shown to have an influence on consumer ethical decision making (Jones, 1991). The model is cited around 473 times as per Google search (see table 2).

**Figure 5: Boomer et al (1987) Model**



Source: Bommer et al. (1987, p. 266)

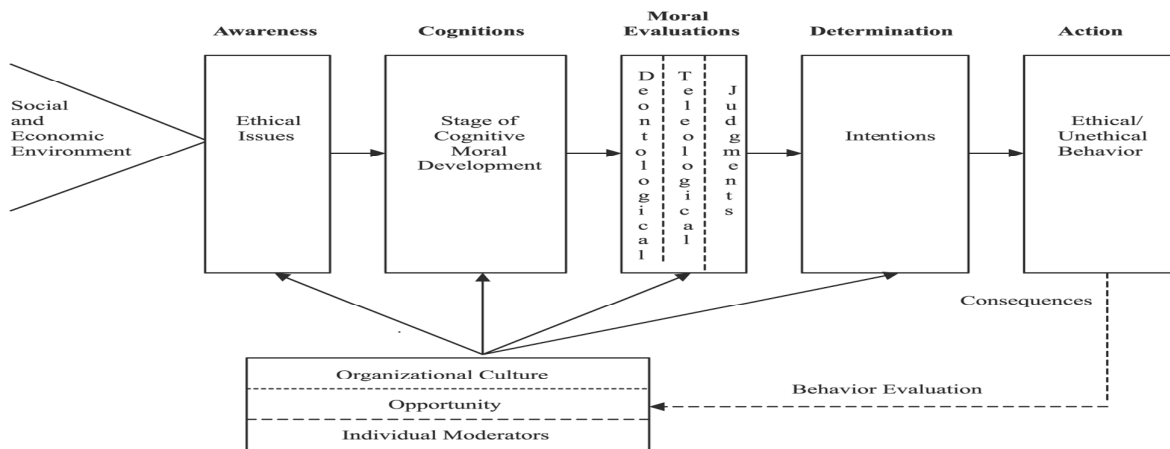
### 3.6 Dubinsky & Loken (1989) Model

Dubinsky & Loken (1989) developed an ethical decision making model by extending the theory of reasoned action (TRA) the famous theory of Fishbein & Ajzen (1975). The model is unique as it takes Behavioral Beliefs and Outcome Evaluations antecedent variables for Attitude towards ethical / unethical behavior while Normative Beliefs and Motivation for Subjective Norms towards Ethical/ Unethical Behavior. Whereas, individuals' attitude and subjective norms helps to develop intention which predicts behavior. It is relatively a simple model that show only one way relationship where no backward relationships are shown. The model could not earn the attention of the researchers as other models did and is cited by only 370 articles (see table 2).

### 3.7 Ferrell, Gresham & Fraedrich (1989) Model

O.C. Ferrell, Gresham, & Fraedrich (1989) presented a five stage descriptive ethical decision making model. The models again is similar to Rests (1986) model whereas stages are also defined differently. The first stage of ethical issue is associated with awareness stage, followed by cognition stage, moral evaluation stage, determination stage and lastly action / behavioral stage. External variables from macro-environment are social and economic factors whereas the external factors from micro-environment are Organizational culture, opportunity and Individual moderators. A backward loop from behavior (action) to micro-level external environment is shown.

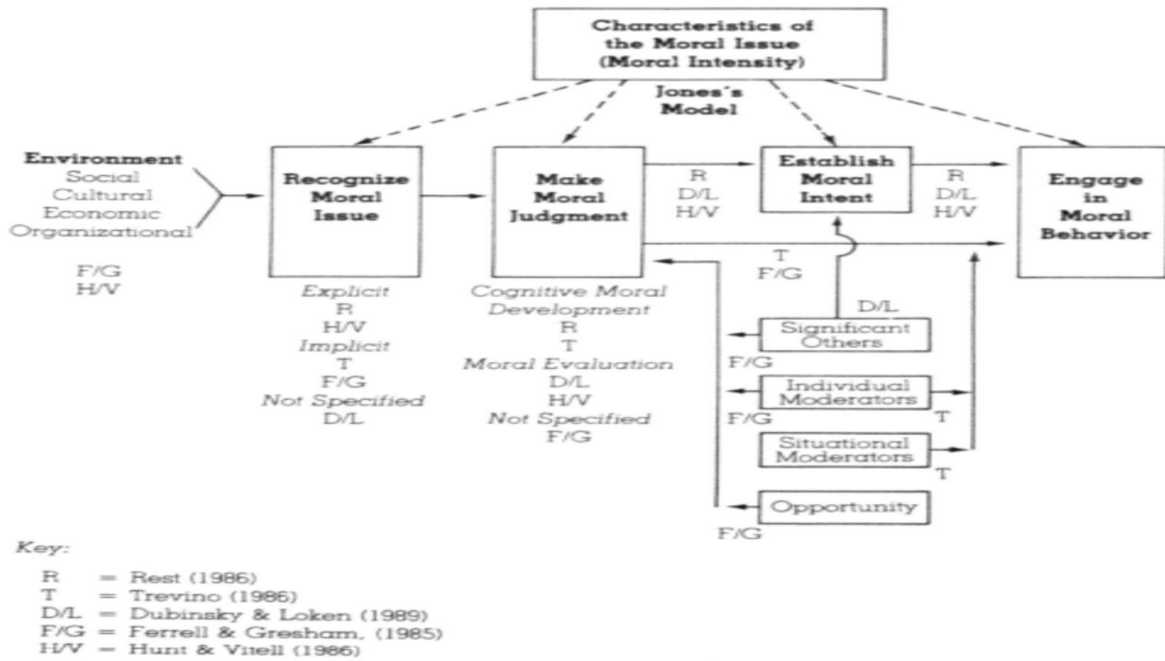
**Figure 6: Ferrell, Gresham, & Fraedrich (1989) Model**



### 3.8 Jones (1991) Model

In his famous work Jones, extended the famous work of Rest (1986) and included a new dimension of “Moral Intensity”. He also reviewed and synthesized the existing models (Rest, 1986; Trevino, 1986; Dubinsky & Loken, 1989, Ferrell & Gresham, 1985; Hunt & Vitell, 1986) in one model form and argued that mostly these all models are similar to each other (Jones, 1991).

**Figure 7: Jones (1991) Model**



Source: (Jones, 1991, p.370)

The work of Jones (1991) has earned a special place among researchers and is among the most cited papers. Citation as per Google search on May 27, 2014 is 2283 (please see table 2)

**Table 2: Citations of famous models**

Study	Title	Google citation as on May 25, 2014
O C Ferrell & Gresham ( 1985)	A contingency Framework for Understanding Ethical Decision Making in Marketing	1388
Rest (1986)	Moral development: Advances in research and theory	n/a
Trevino (1986)	Ethical Decision Making in Organizations : A Person-Situation Integrationist Model	2205
Hunt & Vitell (1986)	The General Theory of Marketing	1847
Brommer, Gratto, Gravender & Tuttle (1987)	A behavioral model of ethical and unethical decision making	473
Dubinsky & Loken (1989)	Analyzing ethical decision making in marketing	370
O.C. Ferrell, Gresham, & Fraedrich (1989)	A synthesis of ethical decision making models for marketing	487
Jones (1991)	Ethical Decision Making by Individuals in	2283

## 4. Non-Rational / Humanistic Decision Making Theories

### 4.1 The Theory of Neutralization

Some time we observe an individual behaving differently than his/her explicit ethical beliefs. Almost all the prevalent ethical decision making models are somehow unable to address such delinquent behaviors. One of the major factor that is missing in all these models is the acknowledgement of the fact that individuals' have their own self-generated and controlled evaluation and justification process. The work of Sykes & Matza (1957) has earned a central place in the literature to address such abnormal behaviors. According to them when individuals get involve into some anti-social (un-ethical) behavior they develop their own set of justifications and rationalization which they called 'Neutralization' in order to avoid self and others blames. According to (Sykes & Matza, 1957, p.666) this neutralization (rationalization) process occurs prior to the actual deviant behavior and facilitate such behaviors.

In the other words, a person who drinks a can of soda in a supermarket / shop and leaves without paying for it (intentionally) has already developed a justification for such behavior. For example S/he has in her/his mind that if S/he will be caught S/he will say, "Sorry, I forgot to pay", or "I did pay you and you have forgotten", or "I have forgot my money at home", or "I am hungry for the last so many days" etc..

The role of socio-cultural (normative) pressures on consumer behavior is well established in the literature however this area has been ignored in almost all the major models of ethical decision makings. Sutherland (1955) linked the unethical behavior of an individual to his/her learning from the society in his famous work called "Theory of Differential Association". Kohlberg (1981) considers that the choice of ultimate behavior of an individual is influenced by his/ her desired to abide by social norms. However, the work of Sykes & Matza (1957) identified five different types of rationalization (neutralization) techniques i) The denial of responsibility ii) The denial of injury iii) The denial of a victim iv) The condemnation the condemner v) The appeal to higher loyalty. Recently, McGregor (2008) have reported discovery of 13 neutralization techniques so far, list of which is given in the table below:

**Table 3: List of Neutralization Techniques**

Type of claim	Lay statement representative of claim
Denial of responsibility	It is not my fault.
Denial of injury	No one got hurt.
Denial of a victim	They deserve what they get.
Condemn the condemner	Everyone else, including you, is doing it.

Appeal to higher loyalty	I did it to protect, or take care of, someone.
Defense of necessity	When times are better, I will change my behavior. Right now, it is necessary.
Metaphor of the ledger	My lack of consuming judgment is more than made up for by rightness in other parts of my life.
Deny necessity of a law	We don't need laws for this behavior.
Claim of entitlement	I know my rights. I work hard and deserve things.
Claim of relative acceptability	How I act is nothing compared to others.
Claim of individuality	I don't care what others think. Everyone for himself.
Justification by comparison	It could be more serious. This is nothing compared to "stealing."
Justification by postponement	I will act now and deal with my feelings later.

Source: (McGregor, 2008, p266)

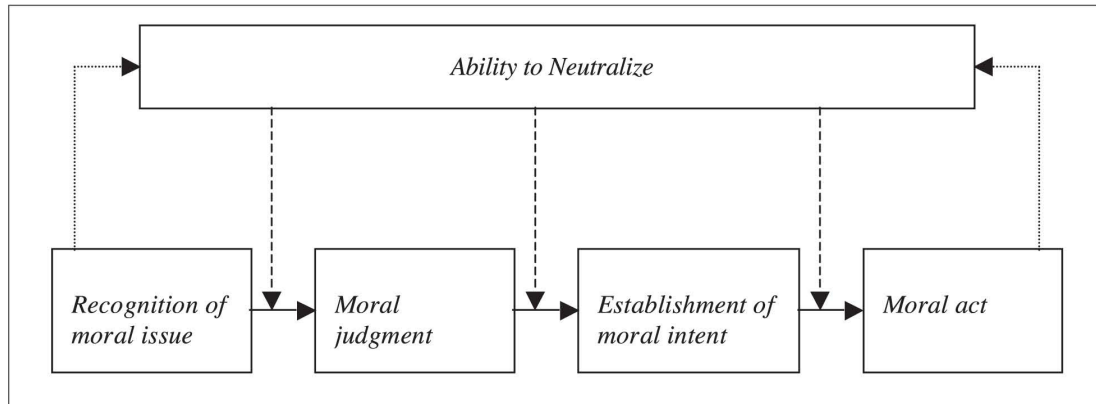
### **Model of Unethical Consumer Decision Making (MUCDM)**

(Chatzidakis, Hibbert, & Smith, 2006) have proposed a new model extending the famous Rests model, which serves a backbone to most of the famous ethical decision making models. They called their model as "Model of Unethical Consumer Decision Making". Rest's model is a four stage model, which starts with recognition of an ethical/moral issue and subsequent ethical judgment of the consumers. Then the consumers develop their ethical/moral intent which will be followed by fourth and final step of the ethical/unethical behavior. (Chatzidakis et al., 2006) have proposed application of Neutralization Theory by consumers on each and/or every stage Rest (1979) ethical decision making process as shown in the figure below.



## Figure 8: Model of Unethical Consumer Decision Making (MUCDM)

The Influence of Ability to Neutralize on the Ethical Decision Process



Source: (Chatzidakis et al., 2006, p.696)

The use of neutralization technique as a variable can be effectively used for Hunt and Vitell's (1986, 1992) model (Chatzidakis et al., 2006). They based their initial findings on Rest's model which is also the backbone of Hunt & Vitell model. Also they believe that it is relevant as Hunt & Vitell's model as it has the flexibility to moderating or exogenous factors.

### Current issues in consumer behavior and neutralization techniques

Earlier studies on consumer ethics and neutralization techniques are predominate with exploratory studies and theorizing the concept. Strutton et al. (1994) conducted one of the pioneer exploratory studies on investigation of the use of neutralization technique by consumers in market settings. They discovered an existence of difference among consumers neutralization technique on the basis of unethical acquisition and disposition situations. They reported condemning-the-condemner and appeal-to-higher-loyalties as commonly used neutralization technique whereas denial-of-responsibility as the least preferred techniques used. However, there was no single neutralization technique that can be categorized as a widely acceptable neutralization technique. (Chatzidakis et al., 2006) have approached towards addressing unethical issues among consumers by proposing a Neutralization Technique Theory. According to them, consumers apply neutralization technique on all the four stages of consumer ethical decision making as proposed by Rest (1979).

Mallin & Serviere-Munoz (2013) have conducted an exploratory study on investigating the role of neutralization in ethical intentions of sales persons. The findings of the study indicate a significant relationship between salespersons using of neutralization technique with higher levels of role ambiguity, lower levels of organizational commitment and relationship orientation. In an earlier study, McGregor (2008) N008 have very logically conceptualized the neutralization techniques to consumption and have developed 13 consumer vignettes. Kozar & Marcketti (2011) empirically investigated undergraduate students ethical beliefs and relationship with materialism regarding purchase of counterfeit apparel

products. They reported materialism as a strong indicator of students' ethical beliefs and purchase behavior. Students who were more inclined towards materialistic values showed less sensitivity towards purchasing of counterfeited apparel products and were lower on ethics.

The concept of abiding by norms and values of the society is also being explored by researchers recently. Odou & Bonnin (2014) have investigated normative pressures experienced by the consumers while illegal downloading. They have reported three neutralization techniques (disempowerment as neutralizing, pragmatic neutralization, ideological neutralization) that strongly effecting consumers ultimate behavior. Earlier, Gruber & Schlegelmilch (2013) explored the concept and found reasonable grounds to support the neutralization technique is one of the underlying reasons of discrepancy between societal norms and actual consumer behavior. Another concept that is earning great interest is the socially conscious consumers. Hanel (2010) explored socially conscious consumers with relation to ethical self-identity. The findings indicate that socially conscious consumers review their past behaviors when face ethical dilemma.

Brinkmann (2005) investigated the fraudulent claims of insurance customers and Cromwell & Thurman (2003) studied shoplifters' shoplifting rational using neutralization theory.

**Table 4: Latest Research in Techniques of neutralization**

Authors	Year	Journal	Title	Findings
Steve Hall	2013	Routledge, 17-Jun-2013 - Social Science - 264 pages	Criminal Identities Consumer Culture: Crime, Exclusion and the New Culture of Narcissm	Book on reporting the relationship between criminal identities and consumer culture
Majid Yar	2013	SAGE Publication, Social Science - 232 pages	Cybercrime and Society	Book discussing the cybercrime and its affect on the shaping social, political, cultural and economic change
(Vitell & Muncy, 2013)	2013	Advances in Business Ethics Research Volume 2, 2013, pp 549-564	Consumer Ethics : An Empirical Investigation of Factors Influencing Ethical Judgments of the Final Consumer	Authors used neutralization techniques in order to buttress their arguments on ethical/unethical beliefs and attitudes.
Heith Copes	2014	Wiley Publications, 26 MAR 2014 10.1002/97811185173	Techniques of Neutralization	Book reviews the use of neutralization technique and discussed the mixed

		90.wbetc003		empirical support. However it the theory has earned widespread acceptance within criminology and has been incorporated into many mainstream criminological theories.
Treviño L.K , Nieuwenboer N.A , and Kish-Gephart J.J	2014	Annual Review of Psychology, Vol. 65: 635-660	(Un)Ethical Behavior in Organizations	Review paper on ethical and unethical behaviors in organizations
Sean R. Martin , Jennifer J. Kish-Gephart & James R. Detert	2014	Organizational Psychology Review, January 16, 2014 20413866135185 76	Blind forces: Ethical infrastructures and moral disengagement in organizations	Reviews organizations' ethical infrastructure and moral disengagement. Employees perception of strong ethical infrastructure will reduce their tendencies of neutralization.

## 4.2 Self-Conscious Emotions:

There are numerous definitions of ethical / moral emotions. According to Haidt (2003) moral/ ethical emotions are connected to either the interest of the society or persons other than the judge or the agent himself. Kroll & Egan (2004) considers ethical emotions as a powerful source of energy that serves as a motivational factor to do well and to avoid the bad. (Tangney, Stuewig, & Mashek, 2007) considers ethical emotions significantly influences ethical standards and ethical decisions and/ or ethical behavior.

Self-conscious emotions (SCE) are the emotions that are triggered through self-reflection or self-evaluation. (Tangney et al., 2007) have categorized guilt, shame, embarrassment and pride as different form of self-conscious emotions. According to them, they serve as indicators of the social / moral acceptance and rejection in form of salient and immediate feedback. It is not necessary that individual actually undergo the behavior in order to experience the switch on self-conscious mode, the process can be an start with anticipation of the outcome. (Tangney et al., 2007).

(Tangney et al., 2007) argues the understanding of SCE can have a strong implication for both i) actual behavior and /or anticipated behavior, whereas in the case of anticipated behavior the feedback will be in the form of anticipatory shame, guilt, or pride.

- i) Shame
- ii) Guilt
- iii) Embarrassment
- iv) Pride

v) Empathy

**Table 5: Self-conscious Emotions**

		Attribute type	
<b>Valance</b>		<b>Stable/ Global</b>	<b>Unstable/ Specific</b>
	<b>Positive</b>	<i>Hubristic Pride</i>	<i>Achievement oriented Pride</i>
	<b>Negative</b>	<i>Shame</i>	<i>Guilt</i>

(Campbell, Foster, &amp; Brunell, 2004, 150)

Haidt (2003) purports specific self-conscious emotions (ie. guilt, shame, embarrassment) are directly connected with individuals' consideration of the interests or welfare of the society. Hence we may consider them as important antecedents of moral emotions. There are three ways in which self-conscious emotions are investigated i) self-reporting scales ii) codification of nonverbal behavior (Robins, Nofle, & Tracy, 2007). In a recent article by Robins et al. (2007) have listed down the studies that have been carried out to investigate the facial and non-facial actions related to known or identifiable expressions of self-conscious emotions.

**Table 6: Studies on facial and non-facial actions indicating self-conscious emotions**

<b>Emotions</b>	<b>Non-verbal expressions</b>	<b>Mean recognition rates (Western samples)</b>	<b>Cross cultural recognition</b>	<b>References</b>
Embarrassment (dynamic display)	Gaze down, followed by lip press, then smile, then head turn away, then gaze shift	53% - 61%		Keltner, D. (1995). Journal of Personality and Social Psychology, 68, 441-454
Embarrassment (static "snapshot image" display)	Non-Duchenne smile, lip press, gaze down, head movement to the left and down, face touch (AUs 12, 24, 51, 54, 64)	40% - 56%	U.S, India	(1) Haidt, J., & Keltner, D. (1999). Culture and facial expression: Open-ended methods find more expressions and a gradient of recognition. Cognition and Emotion, 13, 225-266. (2) Keltner, D. (1995). Journal of Personality and Social

				Psychology 68, 441-454. (3) Keltner & Buswell (1997). Psychological Bulletin, 122, 250-270
Pride	Head tilted back approx. 15 degrees (AU 53b or 53c), small non-Duchenne smile (AU 12a or 12b), expanded posture (shoulders back, chest out), and arms either (a) akimbo with hands on hips; (b) raised above the head with hands in fists; or (c) crossed on chest	74% - 84%; recognition is highest for arm position (a), then (b), then (c)	U.S., Italy, Burkina Faso (preliterate)	(1) Tracy, J. L., & Robins, R. W. (2004). Show your pride: Evidence for a discrete emotion expression. Psychological Science, 15, 194-197. (2) Tracy & Robins (under review). The Nonverbal Expression of Pride: Evidence for Cross-Cultural
Shame	Head and gaze down (AUs 54, 64)	47% - 73%	U.S., England, Germany, Sweden, France, Switzerland, Greece, Japan, Burkina Faso (preliterate)	(1) Izard, C. E. (1971). The face of emotion. East Norwalk, CT: Appleton-Century-Crofts. (2) Keltner, D. (1995). Journal of Personality and Social Psychology 68, 441-454. (3) Tracy & Robins (under review). The Nonverbal Expression of Pride: Evidence for Cross-Cultural Recognition

### 4.3 The social intuitionist theory

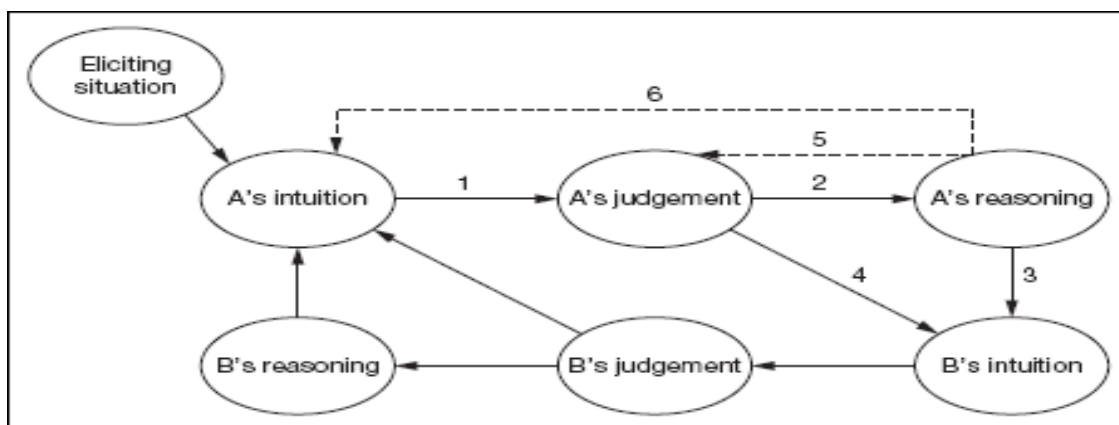
Recently, Jonathan Haidt (2001) has proposed an “ The social intuitionist model of moral judgment” that strongly condemns the narrow approach adopted by all the prevailing rationalist models. The popularity and practicability of the theory can be understood by a staggering citation of 3339 since 2001 to May 25, 2014. He has given four reasons to doubt the rational models of ethical decision making. First, in reality individuals make decision on the basis of reasoning and intuition, whereas the prevailing rational models solely account for rational aspect and lack significantly the intuition one. Second, all the rational

processes the reasoning is often motivated by one way or another. Third, the justification thus produced after the reasoning process is a post hoc phenomenon, yet we experience the illusion of objective reasoning. Forth, in reality the moral actions go hands in hand with moral emotions more than moral reasoning.

The theory has two parts first one deals with intuition while the second deals with social aspect. According to Haidt (2001) the intuition is a moral truth that are more perceptual in nature without going into the judgment of true and false, while the social aspect of the theory purports that moral judgments viewed through interpersonal (social) processes. The theory is comprises of four links or processes that are listed below:

- i) The intuitive judgment link
- ii) The post hoc reasoning link
- iii) The reasoned persuasion link
- iv) The social persuasion link

**Figure9: The social-intuitionist model of moral judgment**



Source: Jonathan Haidt (2001, p.815)

According to this theory, when an individual experiences an ethically posed situation, he/she make judgment on the basis of his/her intuitions, than he/she develops rationales (justifications or neutralization techniques) for already intuitive decisions, than he/she verbally promote his/her already decided decisions, and ultimately would try to link it with prevailing social (group) norms.

**Table7 : Differentiation between intuitive and reasoning system**

The intuitive system	The Reasoning System
Fats and effortless	Slow and effortful
Process in unintentional and runs automatically	Process in intentional and controllable
Process is inaccessible; only results enter awareness	Process is consciously accessible and viewable
Does not demand attentional resources	Demands attentional resources, which are

	limited
Parallel distributed processes	Serial Processing
Pattern matching, thought is metaphorical, holistic	Symbol manipulation, thought is truth preserving, analytical
Common to all mammals	Unique to humans over age 2 and perhaps to some language-trained apes
Context dependent	Context independent
Plate form dependent (depends on the brain and body that houses it)	Platform independent (the process can be transported to any rule following organism or machine)

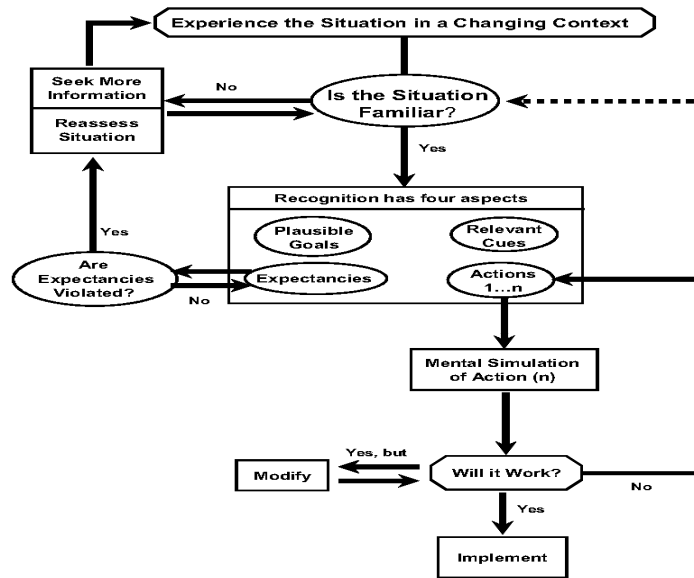
Source: Haidt (2001, p815)

#### 4.4 The Naturalistic Decision Making Theory

The concept of naturalistic decision making is relatively new emerged in 1989, however it purports it adequately explains the actual process of decision making in real life. Lipshitz, Klein, Orasanu, & Salas (2001) considers that the theories in decision making process have evaluated tremendously over the period of time, from Classical Decision Making (CDM), Behavioral Decision Theory (BDT), Judgment and Decision Making (JDM), Organizational Decision Making (ODM) to a Naturalistic Decision Making (NDM) Theory. The concept of heuristics and biases emerged during 1982 by Kahneman, Slovic & Tversky (1982) already paved the way to accept the concept of naturalistic decision making among researchers (Klein, 2008). Instead of the prevailing methods for exploring the decision making process through developing models the researchers designed a field research in order to better understand how people making decisions in real life. The main contributions of NDM are five i) recognition primed decisions, coping with uncertainty, team decision making, decision errors and methodology (Lipshitz et al., 2001).

Klein's (1993, 1998) Model of Recognition Primed-Decision Making (RPD) is one of the most relevant models for explaining NDM is real life (Klein, 2008; Lipshitz et al., 2001). The RPD model explains how individuals use their experiences in the form of range of different patterns. RPD explains how individuals make good decisions without comparison of alternative and by the virtue of their past experiences (Klein, 2008). The process of RPD starts with evaluating the familiarity of the situation, if the situation is not relevant the individual will search for more relevant information. If the situation is familiar to the individuals than he/she will check all the four aspects of recognition (i.e. Plausible goals, Relevant cues, Expectancies, and different actions). If at this stage again the individual feels that there is a discrepancy between desired expectancies than again he/she reassesses the situation and the process loops back to stage 1, whereas when the individual could resolves expectancies violation process he than does the mental simulation of different actions that he/she can perform and their expected outcomes. The individual after assessing the most appropriate action, and modifying it according to the situation undertake the behavior.

**Figure 10: Recognition-Primed Decision Making (RPD)**



*Figure 1. Model of recognition-primed decision making. (Decision making in action: Models and methods. G. A. Klein, J. Orasanu, R. Calderwood, C. E. Zsombok, Editors. Copyright © 1993 by Ablex Publishing Corporation, Norwood, NJ. Reproduced with permission of Greenwood Publishing Group, Inc., Westport, CT.)*

Source: Klein (2008, p.459)

### 5. Summary and Implications:

The field of ethics, in general and consumer ethics particularly has remained dominated with rational models; however these models could not fully explain the delinquent behaviors of the consumers. The researchers have fully acknowledged this limitation of the rational model and have been trying to mix and match different rational models in order to overcome this limitation or to fully understand the cause for aberrant behaviors. This has further resulted in exploring other dimensions outside the rational domain which we called Humanistic Models i.e. the role of emotions, the role of neutralization techniques etc. Emotion is studied from the perspective of self-conscious emotions; while neutralization techniques of Skyes and Martza (1957) are also getting its place to explain ethical justifications of the consumers. More recently, the focus has shifted to more realistic view of decision making through efforts of Kahneman, Slovic & Tversky (1982) regarding Naturalistic Decision Makings. The shift is broadly explained by Lipshitz, Klein, Orasanu, & Salas (2001) from Classical Decision Making (CDM), Behavioral Decision Theory (BDT), Judgment and Decision Making (JDM), Organizational Decision Making (ODM) to Naturalistic Decision Making (NDM) Theory and Social Intuitionist Theory. We have categorized these as rational models and Humanistic Models.

A more holistic approach towards understanding the ethical issues in business is required. This can be achieved if the researchers get benefits from both streams of knowledge i.e. Rational Models and Humanistic Models. Rational models on one hand provide a very logical array of important variables, on the other hand Humanistic Models would help us to understand the other apparently unimportant



variables. These variables are generally felt and have mostly found weak acknowledgement in the literature, e.g. the perceived positive or negative impact of the situation, or what triggers the self-conscious emotions (i.e. Shame, Guilt, Embarrassment, Pride, Empathy) and what is the magnitude in terms of its impact on the final behavior. Or studying individuals' making decisions on the basis of their intuitive judgment and making use of their past behaviors for final behavior. Individuals can also be studied in a natural environment while posing an ethical situation and learn their naturalistic decision making approaches without any intervening into the event.

The study has primarily focused on prominent models in the field and does not provide a comprehensive account of all the models relevant to the field. Even though this is done on purpose, however a complete list of all the relevant models would have given a better understanding to the readers.

If we keep in view the past trends in ethics and decision making literature, future researches converging two or more different themes would have a value for exploration. Future researches that will mix rational models with new-generation or non-rational models will result into more comprehensive models of ethical decision makings. For example, extending any one of the famous rational models( i.e. ( Ferrell & Gresham, 1985; Rest, 1986; Trevino, 1986; Hunt & Vitell, 1986; Boomer et al, 1987; Dubinsky & Loken,1989; O.C. Ferrell, Gresham, & Fraedrich,1989 ; Jones, 1991) by adding Emotions particularly Self-Conscious Emotions, Naturalistic decision making or Social Intuitionist Theory would open new horizons of knowledge and understanding of the consumer ethics.

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# **STRATEGIC HUMAN RESOURCE MANAGEMENT: ASSESSMENT AND EVALUATION OF HUMAN RESOURCES AS FACTORS TO ACHIEVING BETTER ECONOMIC PERFORMANCE**

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## **Abstract**

To achieve the economic performance of companies despite the successful selection, the evaluation is important also for the success of the work of managers or managers in various forms of business organizations, especially if it is for profit sector. Therefore it is necessary to conduct research on how successful as organizers and leaders of the working process, both through research their personal characteristics and by assessing their organizational abilities and skills by their colleagues (employees who are hierarchically sort of managers in the organization). Also, for evaluating the performance of human resources in organizations two basic methods are preferred: qualitative and quantitative. The highest quality results are obtained by combining quantitative and qualitative methods. The purpose of this paper is to emphasize the importance of proper assessment of human resource performance, their rewarding, and thus their motivation and effectuation by the application of appropriate standards.

## **Keywords:**

Evaluation; Selection; Business organizations; Human resources; Economic performance.

## **1. Introduction**

Management of human resources or managing with human resources, as it is called in the domestic professional practice, is not only a recognized discipline, but also important working and managing function in the organization. The selection of human resources and evaluation of the work of managers are important activities in the management of human resources in various forms of business organizations. The main goal of the selection process is adequate choice of individuals on the basis of analysis of their characteristics, because that way you can predict how successfully they perform the work and whether they will be more successful than the other candidates for the respective job. According, Mathis and Jackson the term "human resources management" refers to the design and implementation of formal systems in an organization to ensure effective and efficient use of human talent to meet organizational

goals (Robert L. Mathis and John H. Jackson, 2002).

Hence this system includes taking actions that are aimed at attracting, developing and retaining effective workforce. The goal of human resource management is to ensure that the resources in the organization, human capital, the employer has provided most of their abilities, while employees gain a material and psychological satisfaction for their work. Managers in various forms of business organizations are increasingly concerned about the employment of skilled and qualified staff and the possibilities of retaining quality workers. In this regard the active cooperation not only refers to the knowledge of the people, professional techniques, methods and procedures, or technology of human capital and general human aspects of the operation, but the knowledge of economic, financial, technological, competitive and other aspects of actions, and successfully linking activities and programs for human resources with business needs and objectives of a particular form of business organization (Robert L. Mathis and John H. Jackson, 2002).

Also, employee performance evaluation is a process that assesses the contribution of employees in achieving organizational goals in a defined period of time. Performance or an achievement could be a measurable result that is achieved, either through behavior or personal characteristics necessary to perform certain activities in a defined period of time. In this regard, it is the subject of the assessment to be relevant dimensions of the work. Standard for evaluating the performance should be precisely defined and by reception staff, to be kept up to date and systematic records on individual effort, and careful combination of objective and subjective criteria.

Finally, this cooperation requires understanding and appreciation of the human dimension of business problems and the importance of specific expert knowledge, as well as methods for their successful resolution. In fact, employees in such organizational structures are the main source of competitive advantage on the one hand, and human resources management plays an essential role in finding and developing people as a vital resource material which directly affect achieving the economic results and improving economic performance.

## **2. Literature Review**

In the Strategic Human Resource Management (SHRM) literature there are numerous constructs that have only been loosely defined or so poorly defined that measures often vary greatly from one study to the next. For example, researchers have focused on “selective staffing” “the use of valid selection devices” “the percentage of the workforce given a pre-employment test” and “the percentage of skilled workers” when examining specific selection practices and in all of these cases, similar discussions are provided of the underlying construct purportedly being studied. Namely, Schuler (1992) suggests that (SHRM) has many different components, including policies, culture, values and practices. Strategic business needs of an organization are influenced by its internal (which mainly consist of factors such as organizational culture and nature of business) and external characteristics (consisting of the nature and state of economy in which the organization is existing and critical success factors, i. e., opportunities and threats provided by the industry), which are influenced by HR activities. According to Boxall and Purcell (2003) it is possible to find strategy in every business because it is embedded in the important choices managers and staff of

the organization make about what to do and how to do it'. It is referred to by them as strategic choice or as the strategies organizations adopt in dealing with strategic problems.

Formbrun (1984) identifies technological, economical, socio-cultural and political environment as interrelated external factors that have impact on the strategy formulation of organizations. The one and only way for these factor's changes is the one in which they are manifested through good processing and information automatization. The changes refer to economic growth or growth in certain sectors, changes in the demographics of the work force. Furthermore the political circumstances influence the organization strategic direction and in that way are created a need for harmonization of management with human resources connected with these changes.

The potential value of the employees is to be increased by collectively enhancing and linking their skills and capabilities in tune with the contemporary requirements of the market, and to be faster than the competitors. The success of the HRM will be determined by its ability to harness the intelligence and spirit of people by creating a learning climate, and in order to realize and improving the business performance.

Strategic HRM researchers argued that to achieve HR effectiveness, HR should be practiced as a whole and must be aligned with the business strategic goals, the primary means by which firms can influence and shape the skills, attitudes, and behaviour of individuals to do their work and thus achieve organizational goals (Collins and Clark, 2003).

## **2.1 Focus on the Strategic Management of Human Resources**

The above developments in the field of HRM highlight the contribution it can make towards business success and an emphasis on HRM to become an integral part of business strategy (Schuler and Jackson, 2007). The emergence of the term 'strategic human resource management' (SHRM) is an outcome of such efforts. It is largely concerned with 'integration' of HRM into the business strategy and 'adaptation' of HRM at all levels of the organization (Guest, 1987; Schuler, 1992).

Today, as a result of the growing awareness of the strategic importance of human resource management has led to the creation of the human capital, which actually reflects the commitment of the company to employees. Human capital refers to the economic value of the combined knowledge, experience, skills and abilities of employees. The term human capital investment expresses the organization in attracting, motivating and maintaining an effective workforce.

Human capital is a tangible indicator of the value of the people who make up the organization. Administratively speaking, human resources management is the managing of personal. Any decision taken by the manager whether it is a management company or the management of human resources is a strategic, since it needs to maximize existing resources of the company, but taking action to provide a way that would have the lowest risk, and thus bring maximum profit organization. The philosophy of transferred and delegated powers requires respect for the essential characteristics as essential and very important in the business world: confidence, decentralization, distribution of information and knowledge, education, skills and abilities, clear roles and responsibilities clear, and finally freedom in functional



operation.

Broadly speaking, SHRM is about systematically linking people with the organisation; more specifically, it is about the integration of HRM strategies into corporate strategies. HR strategies are essentially plans and programmes that address and solve fundamental strategic issues related to the management of human resources in an organisation (Schuler, 1992). They focus is on alignment of the organisation's HR practices, policies and programmes with corporate and strategic business unit plans (Greer, 1995). Strategic HRM thus links corporate strategy and HRM, and emphasises the integration of HR with the business and its environment. It is believed that integration between HRM and business strategy contributes to effective management of human resources, improvement in organisational performance and finally the success of a particular business (Schuler and Jackson, 1999). Strategic Management of Human Resources is structured by three main objectives, namely:

- To draw effective workforce
- To develop the total potential of the workforce and
- To retain qualified staff for extended periods.

On the one hand the strategic planning of the company includes a set of activities aimed at making decisions about long-term goals and strategies of the company, i.e. for how the future will survive the enterprise market in terms of the economic situation, competition and so on. On the other hand, human resource planning is a process of moving people in and out of an organization, and there are designed to help human resources managers to deploy its human resources as efficiently as possible, where necessary and at the time when most needed is for the sole purpose to achieve the strategic goals of the business organization. So the managers of human resources required to find, recruit, and train, to support and retain the best workers work because they are the main tool for reaching a positive result from the operation of the organization. Marchington (2008) argue that SHRM positively influences firm performance because it generates structural cohesion, an employee - generated synergy that propels a company forward, enabling the firm to respond to its environment while still moving forward.

Hence, the training of human resources is a systematic process of enriching the knowledge, skills and guidelines in order to perfect their work performance of obligations, the structural department and organization. The evaluation of the completed tasks is actually a process of evaluation of how effectively people doing their job. The purpose of the assessment is to provide feedback on each individual separately, as do the work that is assigned to provide the basis for upgrading of those who most successfully accomplish set goals, to identify areas that require additional training and training and identify problems that may require changes in work tasks. The successful management of human resources is essential professional development of managers through training and motivation.

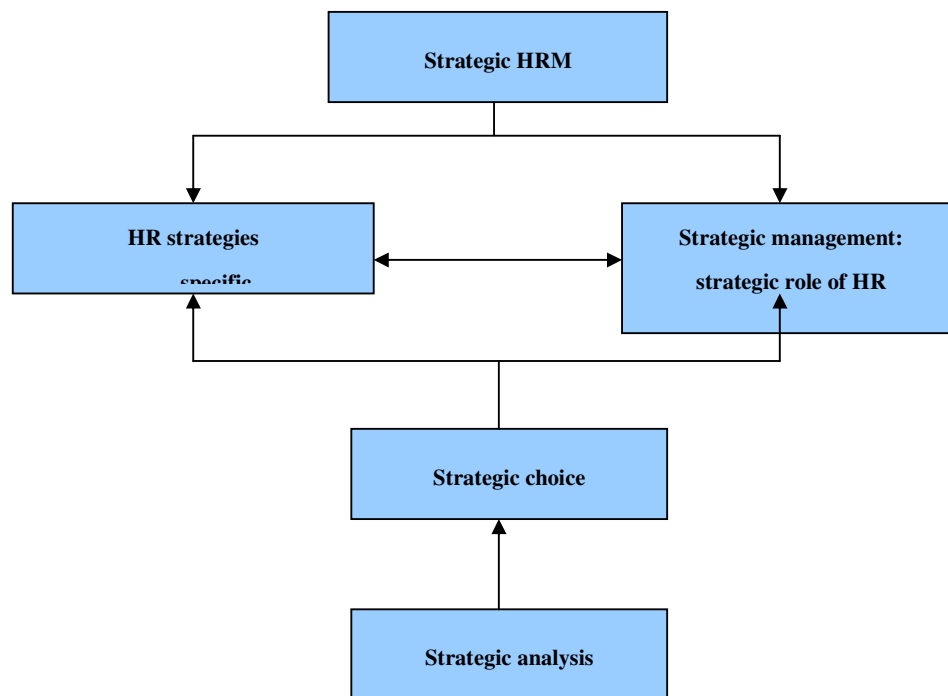


Figure 1: Strategic HRM model

## 2.2. The Process of Quality Selection

The process of selection and recruitment begins when an institution needs to fill vacant jobs that are provided in its regulations for internal organization and systematization. The outcome of this process is that from the interested applicants to hire one / one who is the best and which meets the requirements for the job. This is a fundamental principle of the laws which provide equal opportunities.

To ensure transparent and fair competition during this process, it is good to have written guidelines for the selection and employment of an easy and simple way would be put into practice effective and visible. It is undisputed that the guidelines should be based on the principle of selecting the best candidate according to the criteria of professionalism and competence. Guidelines should be a handy tool for all who have been involved or depend on the process of selection and recruitment. Working environments and organizational cultures differ, hence each institution or organization should adopt guidelines that meet their unique needs.

In 1988, The American Society of personnel Administrators published in the monthly magazine "Resource" that 84% of the members use testing in their selection decision (The American Society of Personnel Administrators, Resource, 1998). Assumptions for quality selection process of human resources:

- Good analysis of the work, which determines the tasks and responsibilities workplace, requires the executor
- Identify key areas of success and the standards or criteria for organizational success
- Selection of quality indicators for assessing the performance of the candidates in their work.
- High accuracy in forecasts of indicators

### **2.2.1 Phases of Selection**

Required qualities of the candidates should have to reflect the requirements of the job and the environment and the environment in which the organization operates. Regarding stages (steps) in the process of selection of human resources are relatively divergent views among eminent authors in this field, both in terms of numbers and in terms of the content of individual phases.

- In the first phase- Analysis and documentation of the application requirement to fill the jobs, analyze the resulting documentation for each candidate, CV, application for a job and the like. Based on this initial selection is made or eliminate a number of candidates who do not meet the criteria for the job.
- The second phase- Acceptance of selected candidates, are possible multiple scenarios: preliminary interview or test each candidate individually or organizing preliminary interview all candidates with the selection committee.
- In the third phase, with all candidates are taken etc. diagnostic interview. It is a detailed conversation with candidates with which determines professional and other characteristics of the candidates and their compliance with the requirements of the work and culture of the organization.
- The fourth phase refers to verification of references. It provides information that allows reconstruction of the career of each candidate: jobs and the organizations in which the candidate has worked before, absenteeism and the reasons for it, the moral characteristics of the candidate (Jean Francois Lis, 1988).

It now needs to be emphasized that there is no universal process and methods of selection applied in any company, but each business entity depending on their needs and opportunities, the selection process will be conducted in a more or less stages by applying more or less methods of selection. In Macedonian business reality, when a job has a greater number of candidates, reputable companies often implemented initial selection using appropriate methods.

### **2.3. The Matching Model of HRM**

One of the first explicit statements of the HRM concept was made by the Michigan School (Fombrun et al,

1984). They held that HR systems and the organization structure should be managed in a way that is congruent with organizational strategy (hence the name matching model'). They further explained that there is a human resource cycle (an adaptation of which is illustrated in Figure 1.1), which consists of four generic processes or functions that are performed in all organizations. These are:

- selection –matching available human resources to jobs; appraisal (performance management);
- rewards –‘the reward system is one of the most under-utilized and mishandled managerial tools for driving organizational performance’; it must reward short- as well as long-term achievements, bearing in mind that ‘business must perform in the present to succeed in the future;
- Development – developing high-quality employees.

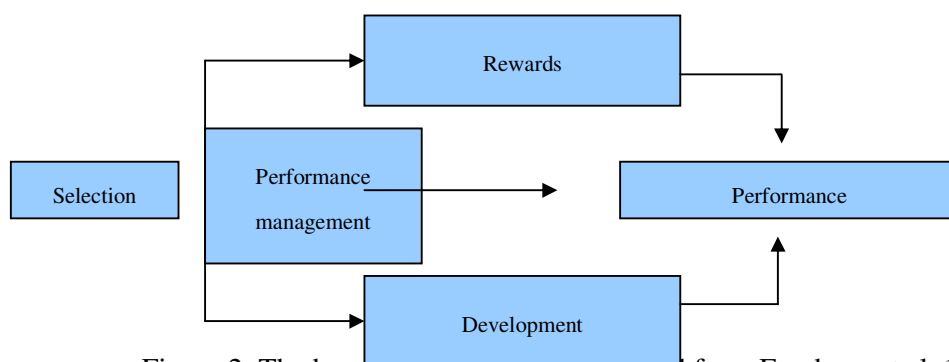


Figure 2: The human resource cycle (adapted from Fombrun et al, 1984)

### 2.3.1. Matching business strategy and HRM

HR should be practiced as a whole and must be aligned with the business strategic goals, the primary means by which firms can influence and shape the skills, attitudes, and behavior of individual Is to do their work and thus achieve organizational goals (Collins and Clark, 2003).

Gibb (2000) has created the model by observing HRM effectiveness in two dimensions. One dimension of map is considering the extent to which a concern with HRM effectiveness involves an internal, organizational orientation or an external, general standards orientation. The other dimension is concerned with the extent to which the value of either an objective or a subjective framework for operationalizing HRM effectiveness is adopted.

For example, strategic HRM models primarily emphasise implementation over strategy formulation. They also tend to focus on matching HR strategy to organisational strategy, not the other way. They also tend to emphasise fit or congruence and do not acknowledge the need for lack of such fit between HR strategies and business strategies during transitional times and when organisations have multiple or conflicting goals. This problematic further highlights the matching of HRM policies and practices to some of the established models of business strategies.

### ***Porter's generic business strategies and HRM***

Michael Porter (1985) identified three possible generic strategies for competitive advantage in business:

- Cost leadership (when the organisation cuts its prices by producing a product or service at less expense than its competitors);
- Innovation (when the organisation is able to be a unique producer); and
- Quality (when the organisation is delivering high-quality goods and services to customers).

Considering the emphasis on 'external-fit' (i.e. organisational strategy leading individual HR practices that interact with organisational strategy in order to improve organisational performance), a number of HRM combinations can be adopted by firms to support Porter's model of business strategies. In this regard, Schuler (1989) proposes corresponding HRM philosophies of 'accumulation' (careful selection of good candidates based on personality rather technical fit), 'utilization' (selection of individuals on the basis of technical fit), and 'facilitation' (the ability of employees to work together in collaborative situations). Thus, firms following a quality strategy will require a combination of accumulation and facilitation HRM philosophies in order to acquire, maintain and retain core competencies; firms pursuing a cost-reduction strategy will require a utilisation HRM philosophy and will emphasise short-run relationships, minimise training and development and highlight external pay comparability; and firms following an innovation strategy will require a facilitation HRM philosophy so as to bring out the best out of existing staff (Schuler and Jackson, 1987). In summary, according to the 'external-fit' philosophy, the effectiveness of individual HR practices is contingent on firm strategy. The performance of an organisation that adopts HR practices appropriate for its strategy will then be higher.

#### **2.4. Performance Assessors**

For evaluating the performance of the staff first need to determine the person or persons to be assessors, and will do my employee performance evaluation. Although there are numerous opportunities available, however the role of Assessors Company usually takes: immediate supervisors, colleagues (cooperators), employees themselves (judging their work and results and assessing their immediate superiors). It is possible to choose an assessor or more assessors at the same time. For which the assessor or assessors will organization decide depends on numerous factors: organizational design, management style, goals and information which they want to get. Each of these evaluators is distinguished by its approach to assessment. For example, direct managers are generally considered to be good assessors of their subordinates because they have overview of activities and have many years of experience in assessment. They have daily interaction with staff, and know what should be the result of the efforts of each job to achieve defined organizational objectives.

The manager's right to assess the performance of their subordinates is given by their hierarchical status. Quality assessing of the immediate managers depend on a number of factors. Among the others, one of the important factors is the type of organizational structure of the given organization.

The employees as evaluators of the performance of individual employees could be good evaluators, because they have the most insight into their own work, although it may not have enough information about the results of their work.

Self-assessment provides an additional source of gathering information. If an individual given grades are not much different from the grades of sources, then they can be used as an important source of increasing the reliability of the final grades, and by reducing the deficiency assessment criteria. Even when self-assessment is not formally included in the performance evaluation system, it is permanently present, because individuals tend to judge their own work and the results of the work.

Associates - colleagues can be found in the role of assessor's performance of colleagues and associates i.e. those employees whose performance is subject to evaluation. Their perspective in the assessment process is also specific - they evaluate someone from that position, as that employee treats them. During the evaluations they compare the performance of the employees at the same hierarchical level, including their own.

The "360 degrees" concept primarily was directed towards the development of managerial capabilities giving them information about that how to lead their subordinated, colleagues and clients/buyers which should provide changes in their behavior. By comparing its evaluation with the evaluation of others, anonymous evaluators, the managers should be finding themselves in a situation in which they can create much realistic picture about their strong weak sides, in purpose to eliminate or decrease their bad characteristics. This concept provides: encouraging of the team work, base for determining of wage increases individual development of the employees, promotion of the performances, potential for learning about how the employees should be lead and managed (Mohrman, A. M., Jr., Resnick-West, S.M., Lawler, E.E., 1989).

## **2.5. Evaluation instruments and methods**

According to Bratton (2007), the evaluation of HRM is a process, where the entire human resource management and its separate functions are evaluated. The effectiveness, efficiency, productivity and organization of HRM and its functions are evaluated. In evaluation of performances of the employees two basic methods are used for evaluating of the objective (quantitative) and subjective (qualitative) labor performances.

The Objective methods for evaluating of the qualitative performances of the employees, i.e. the quantity of products which one worker produces or sales, number of faulty products, the number of days for removal of one worker from work or the number of delay on job or some other direct numerical indexes which show how good and fast one employee can do his job.. For example, in order to establish the number of human resource required by an organisation on a longer term, a detailed analysis of the existent human resources is a necessity. A quantitative analysis can be made through the indicator named *the personnel rotation*:

$p = \frac{E_p}{N_1} \times 100$ , where:

- $p$  = personnel rotation, meaning the percent of the employees who left the organisation on a certain period of time;
- $E_p$  = the number of employees who left the organisation in that period of time;
- $N_1$  = the average number of the employees in that period of time.

This indicator reflects the percent of people that must be recruited in the next period of time to maintain the average number of employees in the company. To be relevant for the employment decision, we must calculate it at different levels: at the company's level, types of employees (technical personnel, administrative personnel, commercial personnel, management, etc.), types of qualifications, etc.

Furthermore, because for a great number of jobs it is impossible to determine the quantitative (objective) indicators, as well as for a great number of jobs it is important how the job is done (not just to realize results), in the practice one can find a wide application of subjective methods of evaluation

The Subjective evaluation methods can be used for evaluation of the personal characteristics of the employees and their behavior as well as for measuring of their results. A basic problem which occurs concerning the subjective methods of evaluating is the fact that the evaluator should observe and evaluate the employees' behaviors related with the job which they do. But, often the evaluators are enabling permanently to monitor the work of the employees which performances they evaluate. Even when they are in a situation to do that very often the evaluation itself it's subjected to mistakes which come from the subjective nature of this way of evaluation.

## **2.6. Quality evaluation of performance**

One of the key questions of performance evaluation of employees represents defining the criterion of the quality of evaluation. The quality of evaluation of the performances is perceived through for basic criterions: validity, security, freedom of pre convictions and practicality (Murnford, M.D, 1983).

The Validity indicates the measurement of the component of work on a representative way. As a relevant indicator it evaluates those performances which really are important in determining of the efficiency of executing of any job.

The Security indicates the degree of alignment between the evaluators during the evaluating of performances of employees. The security is high when two or more evaluators are consistent about the performances of one employee, i.e. low when they are not consistent.

The freedom of pre convictions, as a criterion that refers to two things: on the legal righteousness and the subjective judgment of one person and the performances of others. The evaluation of the performances is free of pre convictions, if it's fair towards all employees regardless of their race, sex, nationality, the physical or mental handicap etc.

The practicality, as a criterion refers on the expenses for creating and implementing of the system for evaluation of the performances of the employees. In order to create such a system is required money, time and effort. It is necessary the system to be simple for use and to secure high degree of acceptance from all employees.

### 2.7. Empirical research

In purpose to perceive how the performances of the employed are evaluated we have made a survey research in an over 30 organizational subjects in the textile, metal processing and tobacco industry. The question was the following:

- Which (who) are the evaluators of the employees in your organization (circle one of the answers)?
- Form one side were questioned the managers and from the other the employees, with the same survey questions. The obtained answers we compared also through  $\chi^2$ .

Table 1: Statements of the surveyed managers and employees

Evaluation from	The managers answers	The employees answers
The manager itself	5	126
First line/direct managers	6	27
Colleagues, i.e. associates	6	6
The employees itself	7	5
Systems of evaluation “360 degrees”, (simultaneous evaluation from the direct managers, from its subordinated, from its associates on the same hierarchical level and from itself)	12	3
Total	36	149

The obtained value of  $\chi^2$ - test is 79.38 which means it is bigger the value in the table for about 4 degrees of freedom and probability of 95% which is 9.49. Then, from the tabular display as so from the calculated value of  $\chi^2$  test, it can be seen that the manager's statements and the employee's statements differ. This leads us to conclude that are not used appropriate methods for evaluation of the performances. In fact, the



preferred model from our side, we prefer that for exact evaluation of the performances in the major number of evaluation is required to use the method of 360 degrees.

### **3. Conclusions**

The effectiveness of the organization depends directly on its staff, particularly management staff. They create a business environment, quality control, place products, manage finances and determine overall strategy and objectives of the company. Quality organization must seek quality people, or real man at the right place. Organizations are effective when managers fail to minimize the quantity of resource inputs (labor, raw materials and component parts) or the time it takes to produce a product or service. In competitive terms organizations continually seek new ways to use their resources to improve performance. Many organizations train their workforce for new skills and techniques they need to work on highly computerized facilities. Similarly, constant training gives employees the skills they need to perform many different tasks, and the organization of employees in new ways, such as in self-teams, allows better use of their skills.

During the creation and implementation of the system for evaluating of the performances of employees an important decision which should be adopted is the choice of the person-evaluator which would evaluate the performances of the employed. There are countless possibilities. The role of evaluators usually take the first line managers, the colleagues and the employees itself (evaluating their labor and results and evaluating their own direct managers) and the others evaluators. It is possible one evaluator to be chosen, but also more of them simultaneously can be chosen as well. There is a concern regarding the performance appraisal methods being used in the workplace, although the use of technically complex methods seems to be on the increase. In the evaluation of the performances are used different objective and subjective methods instruments for evaluation. The combination of the objective and subjective methods gives best results. In the evaluation of the quality of the marks of the performances are used four basic indicators: validity, security, freedom of pre conviction and practicality.

In the end, the research and actual application of SHRM shows that moving in this direction is good for business organizations. Namely, the research should leave no doubt that the transition in Macedonia is difficult, and it does require changing well-established attitudes and roles. And, these are attitudes that have existed for decades, and they are not going to change quickly.

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# DESIGN & ANALYSIS OF E-LEARNING SYSTEM FOR MCA PROGRAMME

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## **Abstract**

*Education system plays a vital role in the growth of nation. This system comprises of scientific theories, practices and other tools which are used for imparting the knowledge through teaching learning process. The use of ICT explores new opportunities for effectiveness and learner centric outcomes. E-learning is an emerging trend accepted at primary, higher secondary and higher education level. E-learning encompass CBT tools i.e. information technology i.e. internet, networking, web based learning, mobile based learning, multimedia, animation, video conferencing, online learning, etc along with traditional learning. The present paper studies challenges and opportunities for E-learning at MCA Institutes in Maharashtra. The opinions of the respondents are analyzed and then E-learning model has been designed and developed for MCA programme. The model has been presented before the students for their feedback. The interpretations, finding and conclusions are drawn by using quantitative analysis technique based on their responses.*

**Keywords: E-Learning, ICT, System, Quality, MCA**

## **Introduction**

The term E-learning is related to education system and its technology. Education system is used to impart the knowledge of a particular subject to the students at primary, secondary and higher education level. In this system teaching and learning activities are closely associated to each other. There have been

significant changes in teaching learning methodology till date. The traditional education system includes class room method along with chalk and talk technique in learning process. The introduction of ICT (Information & Communication Technology) has given different dimensions for providing educational services. E-learning can be delivered in two ways i.e. 1) Synchronous 2) Asynchronous. In synchronous mode learning environment in which everyone takes part at the same time. Lecture is an example of synchronous learning in a face-to-face environment. Asynchronous learning includes email, electronic mailing lists, threaded conferencing systems, online discussion boards, wikis, and blogs.

In the regard of E-learning the Ministry of Electronics & Information Technology Government of India has defined the vision as E-development of Indian as “The engine for transition into a developed nation and an empowered society.”<sup>1</sup>

According to Bonk and Reynolds “To promote higher order thinking on the Web, online learning must create challenging activities that enable learners to link new information to old, acquire meaningful knowledge, and use their metacognitive abilities; hence, it is the instructional strategy and not the technology that influences the quality of learning.”<sup>2</sup>

Educational system makes use of various tools and techniques for imparting the knowledge. The applications of ICT have explored number of opportunities to deliver the subject material through the use of computer, internet, multimedia, audio, video, images, animation, streaming video, satellite communication, computer based training, web based learning, etc. All these facilities are referred as E-learning.

The research study is confined to MCA institutes of Maharashtra state. The primary data has been collected by using questionnaire technique. The population is 126 units out of that 24% has been selected by using simple random sampling technique. The respondents are MCA pursuing students from institutes which are affiliated to respective universities of Maharashtra state.

### **Statement of the Problem**

The statement of the problem has been defined through the process and study of literature review. The outcomes of the literature review prove that E-learning is an emerging trend in education system adopted by the schools, colleges, institutes, universities and corporate sector. E-learning gives variety of applications for effective learning at higher education. In the present study MCA institutes as sample units have been selected from Maharashtra state. The entire selected units are approved by AICTE (All India council for Technical Education) and affiliated to respective universities of the state. The institutes follow the syllabus designed by the university and conduct the teaching process for the learners and it includes regular method of teaching. Students are using computers for their practical work of subject but there is no specific E-learning model is available for the MCA students. Hence considering this problem the present research study proposed E-learning Model which includes the facilities for studying MCA (Master of Computer Application) and may be used in teaching learning process for the benefit of the students.

### **Objectives of the Research**

This research focuses on Design and Evaluation of E-learning System: A Case Study of MCA Institutes in Maharashtra.

- 1) To find out challenges and opportunities for E-Learning system in MCA institutes within Maharashtra state.
- 2) To explore the possibilities of designing and developing E-Learning model for MCA students.
- 3) To design & develop a model based on MCA curriculum.
- 4) To evaluate the functioning of the model and assess its effectiveness through student feedback.
- 5) To make facility for learner to install and update his views, data, programs, etc. on the proposed learning model.

### **Hypotheses of the Research**

Following are the hypotheses of the present research study.

(<sup>1</sup>H<sub>0</sub>) : Institutes encourage for E-learning in Teaching Learning process irrespective of gender of respondents.

(<sup>2</sup>H<sub>0</sub>): The respondents who are pursuing MCA degree agrees that learning process to be made completely in E-oriented format irrespective of gender of the respondents.

(<sup>3</sup>H<sub>0</sub>): The developed E-Learning system is more effective than traditional learning system irrespective of gender of respondents.

(<sup>4</sup>H<sub>0</sub>): Present E-Learning model helps learners to increase their knowledge irrespective of gender of respondents.

### **Research Methodology**

The research study is confined to MCA institutes of Maharashtra state. The primary data has been collected by using questionnaire technique. The population is 126 units out of that 24% has been selected by using simple random sampling technique. The respondents have been picked from MCA institutes which are affiliated to respective university of Maharashtra state. Two questionnaire sets have been used for data collection. The first questionnaire collects the personal data of the respondents along with other technical details, E-learning concepts and the suggestions related to the topic. The second type of questionnaire is about getting the feedback of respondents. After receiving the primary data, it has been analyzed and interpreted by using quantitative analysis technique. E-learning model has been developed by including the suggestions of the respondents. Programming tools like ASP.Net, SQL Server 2000 are used for models design and development. The respondents have given their opinion after using the developed model in feedback questionnaire. Hypotheses are tested by using Chi-Square Test and then based on the outcomes conclusions are done.

### **Scope:**

The research study helps to understand the importance of E-learning tools and techniques in teaching & learning process. Through this model the students can avail the facility like syllabus, online exam, downloading features, audio/video , notes, books, PDF, programs , algorithm, result on email id, user registration, 24x7 support, etc. The developed model is a web based tool so it can be accessed globally.



**Limitation:**

This research study is restricted to the MCA institutes of Maharashtra state. The content of MCA course is included in the model.

**Brief of E-Learning Model.**

<b>Particulars</b>	<b>Details</b>
New User Registration	New users can be registered in the E-learning model by filling up the users details in a registration form and clicked on submit button. After the successful registration that user is having access to all the facilities of the developed E-learning model.
Downloading	Registered users can download the university wise syllabus, E-books, Power Point Slides, Notes, Algorithms, Programs , PDF, etc.
Current Updates	Current news or any other updates are displayed in the model.
Online Examination	Registered users can avail the facility of online examination. It is an objective type of exam. The list of 20 subjects is displayed in the menu. The subject can be selected by the student and go for the exam. After the exam is over , immediately the result is generated and displayed on the screen as well as it send on the email id of the user.
Admin user	Admin user is a super user of the E-learning model. It has all the rights to create, update , remove the other users. Create masters i.e. exam controls, question bank, question weights , exam time , report generation, etc.
Native User	This is a normal type of user who is granted access through the user registration process. This user is not having any other rights like admin user.

### Data Analysis & Interpretations

The data analysis and interpretations are given in the form of following listed tables.

**Table 1 : Number of Respondents – University wise**

Sno.	Name of University	Total	%
1	SNDT University	10	3.33
2	Mumbai University	20	6.67
3	Savitribai Phule Pune University	70	23.33
4	North Maharashtra University	30	10.00
5	Dr. Babasaheb Ambedkar Marathwada University	50	16.67
6	S. R. T. Marathwada University	30	10.00
7	Shivaji University	20	6.67
8	Sant Gadge Baba Amravati University	20	6.67
9	Rashtrasant Tukadoji Maharaj Nagpur Univ.	30	10.00
10	Solapur University	20	6.67
<b>Total :</b>		<b>300</b>	<b>100</b>

The table no. 1 gives the total number of respondents from respective universities. The largest group of respondents i.e. 70 are from Savitribai Phule University followed by 50 from Dr. Babasaheb Ambedkar Marathwada University. There are 30 respondents each from North Maharashtra University, S.R.T.Marathwada University and Rashtrasant Tukadoji Maharaj University. There are 20 respondents each from Mumbai University, Shivaji University and Solapur University and 10 respondents are from SNDT University.

**Table 2: Facilities provided by the Institutes**

Sno	Opinion	Total	%
1	Social Networking	25	8.33
2	Email	81	27.00
3	Chat room	36	12.00
4	Video Conferencing	14	4.67
5	Visual classroom	11	3.67
6	Discussion board	12	4.00
7	Bulletin Board	8	2.67
8	SCORM	12	4.00

9	Online Examination	65	21.67
10	Web portal	36	12.00
<b>Total :</b>		<b>300</b>	<b>100.00</b>

The table no. 2 reveals the opinion about the E-learning facilities given by the institute. Out of 300 respondent 81 i.e. 27% agreed for email facility, 65 i.e. 21.67% agreed for online examination facility, 36 i.e. 12% admitted to avail chat room and web portal, 25 i.e. 8.33% acknowledged to obtain social networking web site, 14 i.e. 4.67% agreed to receive video conferencing, 11 i.e. 3.67% for visual classroom, SCORM and discussion board facility. Only 8 i.e. 2.67% have accepted to have bulletin board facility.

**Table 3 : Opinion on Key Challenge Facing the Institutes**

Sno	Type of Opinion	Total	%
1	Responding to increasing technical support demands from students	35	11.67
2	Responding to increasing pedagogical support from students	32	10.67
3	Responding to seminar and workshop organized by other institutes or universities	30	10.00
4	Maintaining current technical infrastructure	33	11.00
5	Securing adequate funding to handle demands	36	12.00
6	Maintaining a standard network or platform	16	5.33
7	Providing 24 x 7 support	31	10.33
8	Upgrading classroom to enable technology.	20	6.67
9	Upgrading of IT tools and techniques required for course	17	5.67
10	Students lack of knowledge	13	4.33
11	Lack of adequate e-learning tools	25	8.33
12	Lack of online training	12	4.00
<b>Total :</b>		<b>300</b>	<b>100.00</b>

On the analysis of the table no. 3 it is noted that, there are different challenges faced by the institutes related to E-learning. Out of 300 respondent 35 i.e. 11.67% pointed the key problem i.e. problem of responding to increasing technical support demands from students followed by 32 i.e. 10.67% respondent pointed the problem i.e. securing adequate funding to handle demands and maintaining current technical infrastructure. 30 i.e. 10% respondent endorsed the problem of responding to seminar and workshop

organized by other institutes or universities and lack of providing 24 x 7 support by the institute. Out of remaining respondent 25 i.e. 8.33% focused the problem i.e. lack of adequate e-learning tools, problem of upgrading class room to enable technology. Another 20 i.e. 6.67% respondent opined for Upgrading classroom to enable technology. At the last 17 i.e. 5.67% pointed out the problem of upgrading of IT tools and techniques required for course and remaining 12 i.e. 4% have opined that student's lack of knowledge and lack of online training as key challenges.

**Table 4 : Overall Feedback of Quality in Present developed E-learning Model**

Sno	Opinion	Total	%
1	Excellent	89	37.08
2	Very Good	135	56.25
3	Average	16	6.67
4	Not Satisfactory	0	0.00
<b>Total :</b>		<b>240</b>	<b>100.00</b>

The above table no. 4 shows that out of 240 respondent the maximum number of respondent 135 i.e. 56.25% rated the tool as very good followed by 89 i.e. 37.08% rated as excellent and remaining 16 i.e.6.67% respondent rated as an average. It means the perception is very much favorable.

**Table 5 : Remark on Features in Present Developed E-learning Model**

Sno	Observation	Total	%
1	Complete study material	35	14.58
2	All formal support	85	35.42
3	Prompt evaluation & feedback	42	17.50
4	Report on mail id	78	32.50
<b>Total :</b>		<b>240</b>	<b>100.00</b>

In the above table no. 5 the analysis regarding the features of presently developed E-learning Model is given by the 240 respondent. The majority of respondents 85 i.e. 35.42% have agreed to get the feature of all formal support. It is followed by another group of 78 i.e. 32.50% respondents where they are agreed for the option of report on mail id. About 42 i.e. 17.50% respondent have admitted for getting the facility of prompt evaluation & feedback. Out of remaining 35 i.e. 14.58% respondent favored for complete study material option.

**Table 6: Opinion about Relevancy and Appropriateness of the Questions Presented in Online****Examination**

<b>Sno</b>	<b>Opinion</b>	<b>Total</b>	<b>%</b>
1	Excellent	152	63.33
2	Good	88	37.67
4	Average	0	0.00
5	Poor	0	0.00
<b>Total :</b>		<b>240</b>	<b>100.00</b>

About the relevancy and appropriateness of the presented questions in online examination above table no. 4.4.8 provided that out of 240 respondent 152 i.e. 62.33% have agreed as an excellent. Remaining 88 i.e. 37.67 respondent have shown their acceptance by clicking on good option. This analysis clearly means that all respondents are happy with above mentioned statement.

**Table 7 : E-learning Systems are more Effective than Traditional Learning Systems**

<b>Sno</b>	<b>Response</b>	<b>Total</b>	<b>%</b>
1	Yes, fully	150	62.50
2	Somewhat	82	34.17
3	Neutrally	0	0.00
4	Not much	7	2.92
5	Strongly Disagree	1	0.42
<b>Total :</b>		<b>240</b>	<b>100.00</b>

The above table no. 7 imparts the responses on the question of E-learning systems effectiveness as compared to traditional learning systems. Out of 240 respondent 150 i.e. 62.50% are fully agreed and about 82 i.e. 34.17% are somewhat agreed with the given statement. Lastly 7 i.e. 2.92% respondents votes as not much. Only 01 i.e. 0.42% is disagreed about above mentioned statement.

**Testing & Validation of Hypotheses**

- 1) The calculated value of Chi Square test is 0.80 which is less than 3.841 the table value. Therefore , Null Hypothesis ( $^1H_0$ ) is accepted which interprets that respondents irrespective of their gender respondents fully agreed that institutes encourage their students for using E-learning tools in their teaching and learning process.
- 2) The calculated value of Chi Square test is 3.11 which is less than 3.841 table value. Therefore, Null Hypothesis ( $^2H_0$ ) is accepted. It interprets that the respondents who are pursuing MCA degree course irrespective of their gender fully agreed that learning process to be made in E-oriented format.
- 3) The calculated value of Chi Square test is 1.97 which is less than 3.841 table value. Therefore, Null Hypothesis ( $^3H_0$ ) is accepted which interprets that the irrespective of their respondents gender they have agreed that E-learning systems are more effective than traditional learning system.
- 4) The calculated value of Chi Square tests calculated value is 1.67 which is less than 3.841 table value. Therefore, Null Hypothesis ( $^4H_0$ ) is accepted. It means that the respondents have agreed that present E-learning model helps learners to increase their knowledge irrespective of their gender.

### **Conclusions:**

The conclusions of the research study are in the format of paragraphs as follows.

In the present research study entitled “Design and Evaluation of E-learning System: A Case Study of MCA Institutes in Maharashtra” the respondents from MCA institutes of Maharashtra state has been taken for the study. These institutes are affiliated to respective universities. In this study 540 respondents have contributed their opinion through questionnaires. Two types of questionnaire sets were used i.e. 1) Questionnaire 2) Feedback. The first questionnaire set was introduced for collecting personal details and opinion about the E-learning concepts. It is duly filled by 300 respondents from Maharashtra state. The responses were analyzed and interpreted by using quantitative analysis technique. It includes the analysis and interpretations of the respondents’ views, skills, knowledge, interest, etc. These responses have been considered in the development of E-learning Model. The developed E-learning model was

presented before the respondents for getting their responses. The second type of questionnaire set i.e. feedback has been used to receive their responses and it is responded by 240 respondents.

The research study indicates that out of 300 respondent 187 are male and 113 are female who responded for first questionnaire. Out of this 240 respondents have given their feedback about the developed E-learning model where 147 are male and 113 are female. This statistics shows that the majority of the respondents are male.

Since all the respondents are in the age group of 20 – 25 years and only 3% are above 25 years of age.

In this research study the respondents are MCA students who are pursuing the degree in the respective institutes and they are qualified in different discipline like BSC, BCS, BCA and other faculty. So, the majority of respondents are BCA followed by BCS and BSC degree qualified. Only 5 respondents have completed basic degree from other faculties.

All the respondents are pursuing MCA professional degree course in respective institutes which is affiliated to the state University. The majority of the respondents 70 are from Savitribai Phule Pune University followed by 50 respondents from Dr. Babasaheb Ambedkar Marathwada University and SDNT University is at lowest number.

In the research study it is found that the majority of the respondents 162 have shown their interest in the subject Programming Language for their subject specialization.

The present study discovered that majority of the respondents use IT Tools for additional study or as a support core study.

The research study revealed that the majority of the respondents are frequent users of E-learning tools for learning MCA course. Other users used E-learning tools at occasional basis.

It is founded that, respondents are using various types of devices like desktop, smartphone, laptop, tabs, etc for accessing the E-learning facilities. The study found that majority of the respondent preferred to use

desktop device for their academic as well as accessing E-learning material.

In the research study it is found that the largest number of users are using E-learning phenomenon in between 3 to 5 hours on daily this endorses the growing opinion that, Elearning is becoming popular and substantive time is spent on the learning.

It is noticed that various IT tools are used by the respondents like internet, chatting, online conference, etc. The study found that social networking web sites are popular term amongst the students of MCA and they are using these techniques in their academics.

Research revealed that almost all the respondent have admitted the importance of E-learning in MCA course and it is founded that Programming in C & C++, Networking and Java programming are most preferred computer subjects suggested by the respondents in E-learning model.

The present research study explored the opinion of the respondents about the E-learning tools plays an effective role in learning process. So, almost all respondents have shown their acceptance in this regard. This suggests that, E-learning tool has become effective learning process.

The current study discovered that all the respondents admitted that E-learning facilities help in understanding complex phenomenon in simple way.

Cost is one of the important factors which play an important role to get any tools or services. In the study the majority of the respondents believed that E-learning is a costly phenomenon, despite the fact that, it is effective learning process.

It is observed that respondents are getting various facilities at institute level. Out of them email is the most popular facility opined by the respondent. There are some other facilities like online examination, social networking web sites, video conferencing, chat room, web portals, etc. that are provided by the



institutes.

The present research study uncovers the platform preferred by the respondents. Majority of the respondents agreed to use Windows System followed by Android and Linux.

The respondents have expressed their opinion about including various features in E-learning model. The most rated feature is E-book which is followed by online examination. There are other features like notes, online syllabus, audio-video support, graphics, algorithm, programs and feedback forms. In addition to this, there are identification of other elements to be used in E-learning model. The most preferred element is synchronous method followed by web based tools, seminar and workshop.

It is found that the majority of respondents agreed to get encouragement on E-learning issue by the institute. Only 8% respondents are not fully agreed with this. A message is revealed that majority of respondents admitted that there is good support by the institute for E-learning facilities. It is found that only 2% respondents pointed as poor support.

In the study various key challenges were explored by the respondents. Out of that increasing technical support and maintaining current technical infrastructure are major problems for implementing E-learning system in MCA institutes of Maharashtra state.

In the present study it is found that the majority of the respondents believed that E-learning improves retention ability. The study also found that half of the respondents wished to learn by traditional as well as E-learning tools both.

In the research study it is explored that the majority of the respondents admitted that E-learning tools plays an important role & supports for quality education and believed E-learning is an enabler of higher performance. Majority of respondents are satisfied with the overall quality of present developed E-learning model.

The research reveals the responses about the various features included in the present developed E-learning model. The majority of the respondents liked the online examination feature which is followed by downloading facility, ease of learning, quick access, evaluation report facility, etc.

The study explored the ratings of tested subjects in the present developed E-learning model. C, C++ subject is given the highest priority followed by Software Engineering and Dot Net subjects. The study also found that majority of respondents feels the E-learning model provides all formal support.

In the research it is found that the online examination facility in the present developed E-learning model has been appreciated by all the respondents. It is noticed that all the respondents admitted that the questions included for online examination in the present developed E-learning model were relevant and appropriate with concerned subject.

It is observed that the online examination evaluation report feature has been acknowledged by all the respondents where they get the score card on their email id immediately after completion of the examination. It provides the complete analysis of the questions.

The present research study proved that E-learning systems are more effective than traditional learning systems. The given statement has been accepted by all the respondents and also found that present developed E-learning model helps learners to increase their knowledge.

After successfully execution of the present developed E-learning model all the respondents have agreed for recommending the model to other users and they feel the privacy and security issues is good in the present developed E-learning model. Only 10% respondents have shown seldom acceptance in this regard.

The study found that the respondents endorsed the view that the present developed E-learning Model has been accepted by entire student community and they are fully satisfied with the same.

### **Suggestions:**

The suggestions are based on the study presented below:

E-learning tools and technique may provide various facilities to the students from learning point of view.

These techniques provide mobility to the users to access the course related material from distant place.

The MCA course curriculum may include this type of E-learning model

- 1) The online examination facility is available to the respondents where they can select their preferred subject and go for online examination. The objective type exam is available to the respondents. Questions are presented before the respondents randomly from the question bank of E-learning. The result of the exam is provided immediately after the submission of exam on respective email id with details. So, this may help the candidate for self evaluation. This type of comprehensive evaluation tool can be developed by university and the online examination for MCA course may be conducted.
  
- 2) The candidates may contribute their opinion, views and course materials in the developed E-learning model. So this may help the students for being more active and get updated on regularly basis.

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# EFFECTIVE STAKEHOLDERS MANAGEMENT IN BANKING INDUSTRIES

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**Abstract:** The research work focused on analyzing the factors affecting stakeholders' management and the rate of stakeholders' significance impact to the banking industries. The uses of some selected statistical tools were adopted to analyze the objective of this research. From the analysis, it was observed that goodness of fit test and normality test revealed a significance result of 0.000 and 0.038 respectively. The results show that stakeholders' management are highly significance in the banking industry.

**Key words:** Banks, Stakeholder, management, Normality test, goodness of fit and statistics

## 1.0. INTRODUCTION

The term stakeholder firstly "appeared in the management literature in an internal memorandum at the Stanford Research Institute, in 1963" (Freeman, 1984, p. 31). The word means "any group or individual who can affect or is affected by the achievement of the organization's objectives" (Freeman, 1984, p. 46). Bryson (1995, p. 27) proposed a more comprehensive definition for the term: "A stakeholder is defined as any person, group, or organization that can place a claim on an organization's attention, resources, or output or is affected by that output".

The stakeholder theory is a theory of organizational management and business ethics that addresses morals and values in managing an organization. It was originally detailed by R. Edward Freeman in the book *Strategic Management: A Stakeholder Approach* identifies and models the groups which are stakeholders of a corporation, and both describes and recommends methods by which management can give due regard to the interests of those groups. In short, it attempts to address the "principle of who or what really counts".

In the traditional view of a company, the shareholder view, only the owners or shareholders (or stockholders) of the company are important, and the company has a binding fiduciary duty to put their needs first, to increase value for them. Stakeholder theory instead argues that there are other parties involved, including employees, customers, suppliers, financiers, communities, governmental bodies, political groups, trade associations, and trade unions. Even competitors are sometimes counted as stakeholders – their status being derived from their capacity to affect the firm and its stakeholders. The nature of what is a stakeholder is highly contested (Miles, 2012), with hundreds of definitions existing in

the academic literature (Miles, 2011).

The stakeholder view of strategy integrates both a resource-based view and a market-based view, and adds a socio-political level. One common version of stakeholder theory seeks to define the specific stakeholders of an industry (the normative theory of stakeholder identification) and then examine the conditions under which managers treat these parties as stakeholders.

Stakeholder management is a critical component to the successful delivery of any project, programme or activity. A stakeholder is any individual, group or organization that can affect, be affected by, or perceive it to be affected by a programme (Sowden, 2011).

Effective Stakeholder Management creates positive relationships with stakeholders through the appropriate management of their expectations and agreed objectives. Stakeholder management is a process and control that must be planned and guided by underlying principles.

Stakeholder management within businesses, organizations, or projects prepares a strategy utilizing information (or intelligence) gathered during the following common processes.

It is well acknowledged that any given organization will have multiple stakeholders included, but not limited to customers, shareholders, employees, suppliers, and so forth. Within the field of marketing, it is believed that customers are one of the most important stakeholders for managing its long-term value, with a firm's major objective being the management of customer satisfaction (Mittal, et al 2005). Others see employee management, though employee job satisfaction and pay, as the key issue satisfaction (Mittal, et al 2009). More recently, it has been shown that organizational stakeholder management as a multi-faceted activity. Thus, it has been shown that organizations can be more successful if they manage both their customers and employees jointly, rather than in isolation (Evanschitzky, et al 2011).

The application of the stakeholder theory in the public sector literature seems to be in accordance with the wave of "New Public Management" (Osborne & Gaebler, 1993). This body of theory aims to introduce business-based ideas to the public sector. In this vein, the stakeholder theory can be seen as an approach by which public decision-makers scan their environments in search of opportunities and threats.

Looking at the concepts, one can infer that the stakeholder theory embeds two distinct approaches: the organization focusing on its stakeholders in order to propose suitable managerial techniques, and the manner a stakeholder approaches the organization claiming his/her rights. Whilst one side of the coin seems to be related to how an organization behaves when dealing with its stakeholders, the other side seems to be related to how a stakeholder holds the organization accountable to himself/herself. It is clearly a bilateral type of relationship.

The purpose is to examine the nature of the relationships formed between banking organizations and the stakeholder's ability to participate in their decision-making process by having either power to influence this organization's decision-making or a stake in the organization's operations and outcomes. In doing so the results of an inductive investigation carried out with banking industries are presented. The investigation raised a model for demonstrating the types of stakeholder influences involved in the decision-making process of such organizations. From the model, it is clear that there is a variety of stakeholders capable of influencing, alone or in groups, how decisions are made. This fact implies that these organizations have to be accountable to those stakeholders in some way.

Although based on findings from an Anglo-Saxon context, the findings presented here indicate that the decision-making process of banking industries attracts multiple stakeholders, which have different interests and amounts of power, from their environments.

## 2 Objectives of the Study

The aim or the main objective of the study is to analyze and to show the effectiveness of the stakeholders management in banking system

## 5 Methodology

The Methodology section includes several subsections developed to reveal the logic and the framework of the current study in terms of research methods employed. Thus, research strategy, research design and data collection techniques are presented and described in this chapter which opens with research questions as a starting point for choosing appropriate research methods.

### Research design

The current degree project can be classified as a qualitative research due to its focus on qualitative data collection through interviews, observations and literature review. While gathering necessary information for further drawing conclusions or making suggestions for improvements the focus is to be made on analytical procedures and explanatory approach to existing municipal practices by means of qualitative research methods. According to Yin (2003) there are three types of research: exploratory, explanatory and descriptive. All these approaches are used in the current research study.

### 3.3 Population of the Study

The population used in this study comprised of all the bank staff in south east, Nigeria, who make informed decisions. The population was 1193 staff.

### 3.4 Sample and Sampling Techniques

There is 112 staff in First Bank Nig. Plc, Diamond Bank Nig. PLC, Access Bank Nig. PLC, Zenith Bank Nig. PLC and United Bank of Africa, Awka. For obvious reasons, the researcher was unable to study the whole population, hence the determination of an objective sample size. For the determination of sample size, the researcher adopted the formula propounded by Taro Yamane (1964).  $n = \frac{N}{1+N(e)^2}$

Where n = sample size

N = population size

I = theoretical constant

E = limit of tolerance error

In this study, the researcher used 5% (0.05) as the estimated error.

$$n = \frac{1193}{1 + 1193(0.05)^2}$$

$$n = \frac{1193}{1 + 2.9825}$$

$$n = \frac{1193}{3.9825}$$

$$n = 299.56$$

$$n = 300$$

The sample size is 100

## 5.1 Testing of the Result and Findings

### Goodness-of-Fit Test for Poisson distribution

Data column: No of Responses

Frequency column: No of Responses

Poisson mean for No of Responses = 216.739

No of Responses	Observed	Poisson Probability	Expected	Contribution to Chi-Sq
<=212	476	0.390700	586.050	20.7
213	0	0.026452	39.679	39.7
214 - 215	0	0.053799	80.698	80.7
216 - 217	0	0.054167	81.251	81.3
218 - 219	0	0.053544	80.315	80.3
220 - 221	0	0.051970	77.955	78.0
222 - 223	0	0.049539	74.309	74.3
224 - 225	0	0.046383	69.575	69.6
226 - 227	227	0.042664	63.996	415.2
228 - 229	0	0.038558	57.837	57.8
230 - 231	0	0.034245	51.367	51.4
232 - 233	0	0.029892	44.838	44.8
234 - 235	0	0.025649	38.474	38.5
236 - 237	0	0.021637	32.456	32.5
238 - 239	0	0.017948	26.922	26.9
240 - 241	0	0.014641	21.961	22.0
242 - 243	0	0.011746	17.620	17.6
244 - 245	0	0.009271	13.906	13.9



246 - 247	0	0.007198	10.797	10.8
248 - 249	0	0.005499	8.249	8.2
250 - 251	0	0.004135	6.202	6.2
252 - 253	0	0.003059	4.589	4.6
254 - 255	0	0.002228	3.343	3.3
>=256	797	0.005074	7.611	81871.8

N	N*	DF	Chi-Sq	P-Value
1500	0	22	83150.0	0.000

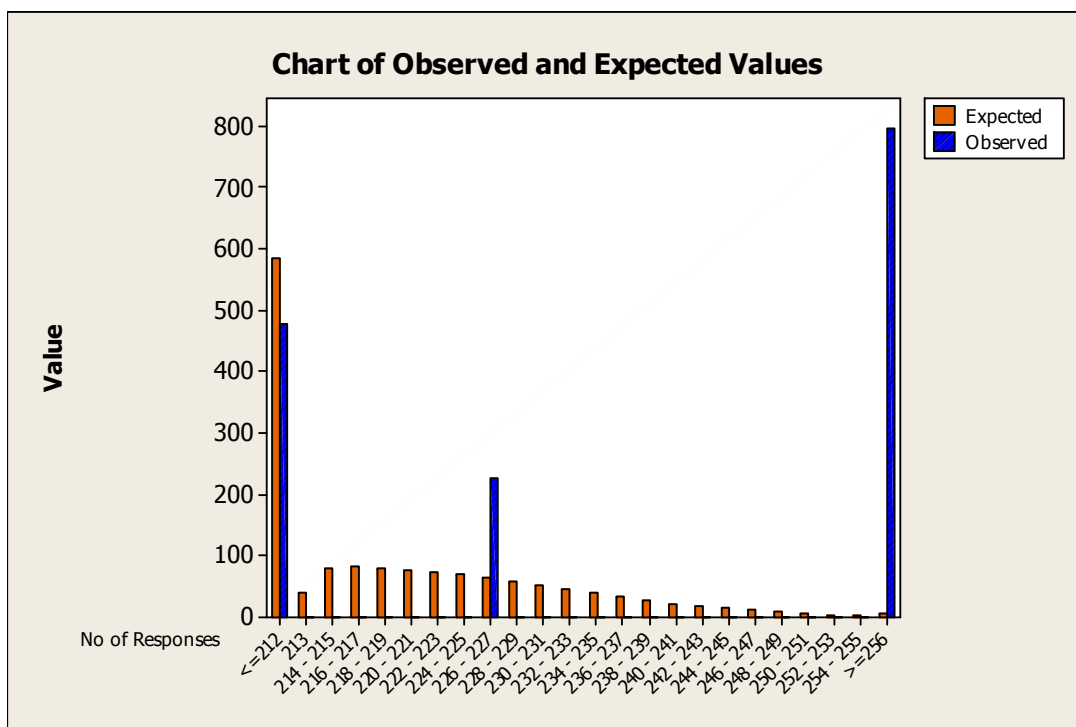


Chart of Observed and Expected Values

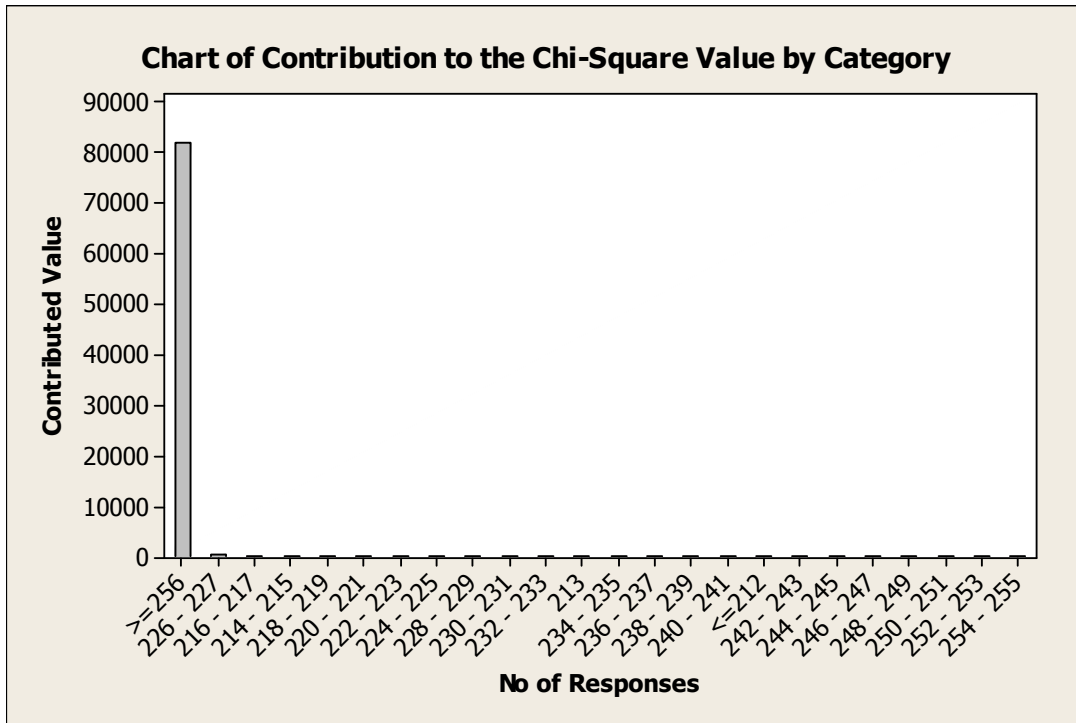
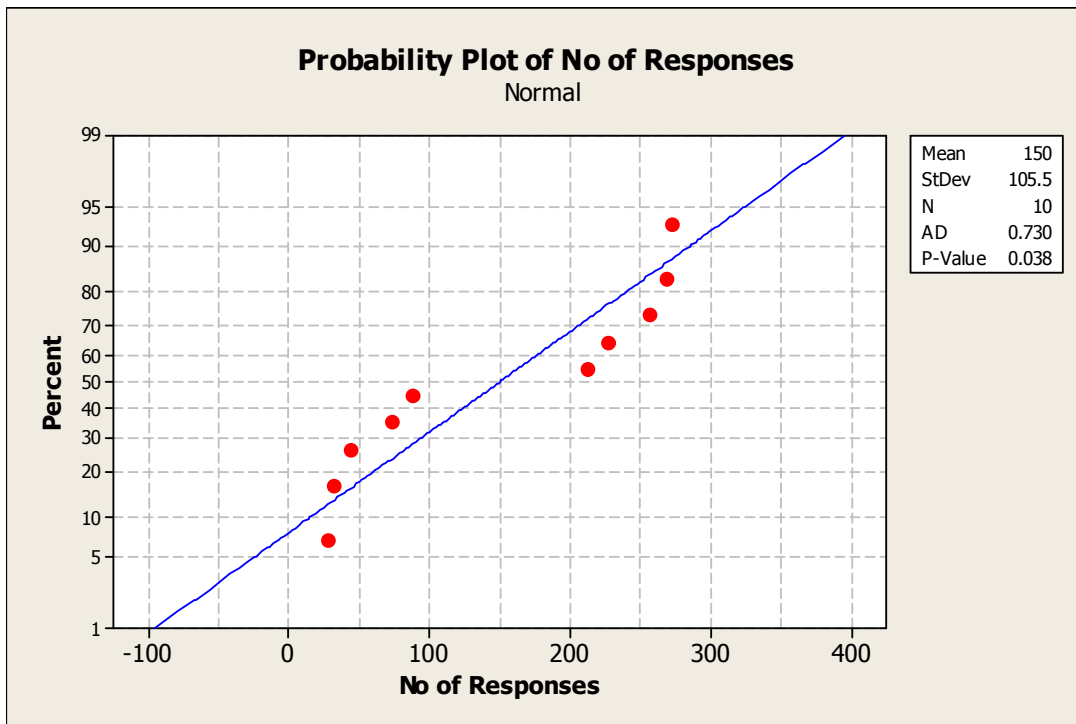


Chart of Contribution to the Chi-Square Value by Category



Probability Plot of No of Responses

The research questions were formulated for the testing of the hypotheses and these have to been tested in order to verify and to validate the working hypotheses. The normal probability test and goodness of fit

test were employed as an analytical tool. The application of the statistical tools is to test for the significance of the data. From the result, it shows that the data is fit and is significance with the significance level of 0.038. The chi-square test shows that the significance level of the data is 0.000. The results show that the stakeholders has serious impact in banking system management.

### **Decision rule**

The result is significantly acceptable for the data, if the significance level of the data is less than 0.050. If the significance level is greater than 0.050, the data result will be rejected thereby rejecting the alternative hypothesis and accepting the null hypothesis. Normality test, goodness of fit test and pie chart will be used to explain the statistical analysis of the data which shows the statistical and significance of the data. It shows that the null hypothesis will be rejected while the alternative is accepted. However, the normal probability test shows that the null hypothesis ( $H_0$ ) is rejected while the alternative is accepted due to the significance of the results. Therefore, it was concluded that the stakeholders' management has significance influence in the Nigerian banking industries.

### **Discussion of findings and management implication**

The discussion of findings is based on the results of the hypothesis test and the statistical analysis of the data. From the findings, the use of goodness of fit statistical testing tool observed that effective stakeholders' management has high significance impact of 0.000. however, the use of Normality statistical testing tool shows that the effective stakeholders management also has a significance level of 0.038. Based on this argument, the null hypothesis will be rejected while the alternative will be accepted. Finally, the discussion shows the stakeholders managerial implications of the Nigerian banking industries in details.

### **Conclusion**

In conclusion, having seen the implication of stakeholders management in the Nigerian banking sector based on the research work conducted, the researcher advice the banking industries to be aware of the stakeholders managerial effect in other to balance their managerial issues and problems for effective growth and development of their companies.

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# MULTIFACETEDNESS OF THRIVING: ITS COGNITIVE, AFFECTIVE, AND BEHAVIORAL DIMENSIONS

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## Abstract

The objectives of the study are to explore and enhance our understating about the construct of ‘thriving at work’. As it is not merely the sense of learning and vitality but also depicts an individual’s actions and behaviors. It is a very important construct as the positive organizational research shows that, thriving has ties to different behavioral outcomes, like: innovative work behavior, work engagement, health care cost, commitment, performance, productivity, resilience to change and employee well-being. During our study, we found lack of consensus in existing literature about the conceptualization of thriving at work as a construct; since, the existing research either conceptualizes it as a psychological state or as a behavioral aspect of human functioning. The conceptualization and incorporation of an additional ‘behavioral dimension’ of thriving along with the existing two dimensions, i.e. cognitive and affective, our study opens the doors for further research and provides guidance for developing a comprehensive and an objective measure of thriving which can gauge thriving in its true essence.

**Keywords:** Thriving, Human Sustainability, Multifaceted Thriving

## 1. INTRODUCTION

The uncertain and dynamic economic times with the ever increasing global competition are forcing the organizational leaders to find ways of satisfying majority of stakeholders without compromising their firms’ economic sustainability (Geiger, 2013). To be successful in today’s global business environment, organizations need knowledge, ideas, energy, and creativity of employees at every level (Spreitzer, 2008). Researchers and practitioners have considerably focused more on environment and economic side of sustainability (Pfeffer, 2010); and less focus has been placed on the people’s side of sustainability. Sustainable work organization sustains its functional capability by encouraging the sustainability of its human and social resources; and more work is required to understand the human dimension of sustainability. Sustainability means the ability to keep on functioning; the ability of a firm to adapt; to be preemptive and innovative. A sustainable employee has multifarious personal and

professional resources at his/her disposal; to rely on when there is a need for emotional, cognitive, and/or physical actions. The lack of human and organizational sustainability leads to more individual stress levels. It is stated by Spreitzer et al. (2012) that approximately 75% of United States residents may be at risk of chronic diseases such as the heart disease, depression and diabetes due to elevated stress levels.

Positive organizational scholars relate human sustainability with human thriving. Geoffrey Colvin (as cited by Spreitzer et al., 2012), while discussing a tight market for talent, describes human capital as the most important resource as compared to the financial resources. In order to compete and survive in the long run, organizations should be proactive in attracting and retaining talented employees; and, create a climate that enables employees to thrive at work; since, as argued by Spreitzer et al. (2012), thrived employees counter stress and burnout more effectively; and are healthier overall. Thriving employees and thriving organizations, usually enable healthy, high performing and engaged teams (Spreitzer et al., 2012); and organizations can benefit from an environment where employees thrive; and are able to offer a competitive advantage for the firm.

There has been rising scholarly interest to comprehend the concept of ‘employee thriving’, at workplace; and most of the work on thriving at work can be found on surviving versus thriving, physical thriving, resilience and thriving, life span theory of thriving, innovative work behavior, health and development, social environment (Harris & Biddulph, 2000; Harris et al., 2012; Jackson et al., 2007; Lam et al., 2005; Webber, 1997; Wendt et al., 2011; Carver, 1998; Spreitzer et al., 2005; Liu & Bern-klug, 2013; Haight et al., 2002).

Thriving is a means to sustain an organization’s human resources and is an important key factor that enhances organizational effectiveness and minimizes health care costs because thrived workers are high performers, more creative, committed and healthy (Porath et al., 2012). Thriving is seen to be positively related to job satisfaction and negatively related to burnout (Porath et al., 2011); and, its link to the production of resources such as positive meanings and knowledge, has also been observed (Niessen et al., 2012; Spreitzer et al., 2005). Researchers have also found that thriving, along with trust and connectivity, promotes innovative behavior (Carmeli & Spreitzer, 2009).

Our study involved exploring the concept of ‘thriving at work’; as behavioral and positive organizational research shows that thriving has ties to different behavioral outcomes like: innovative work behavior; work engagement; health care cost; commitment; performance; productivity; resiliency to change and well-being (Abid, 2014; Abid et al., 2015; Spreitzer et al., 2005; Porath et al., 2012; Rath & Harter, 2010).

## 2. THRIVING DEFINED IN VARIOUS DISCIPLINES

*In the area of Medicine* scholars describe ‘thriving’ and ‘failure to thrive (FTT)’ as: existing in a continuum; with ‘Thriving’ representing the positive end of the continuum, where individuals have peak experiences and live life fully; grow and develop; and, ‘failure to thrive’ represents the other stationary end of the continuum, where individuals along the continuum exhibits decline in all cognitive and social functions (Haight et al., 2002; Barba et al., 2002; Newbern & Krowchuk, 1994). Thriving is defined as a process of growing and developing through a continuous human-environment interaction; resulting in a social; physical; and a psychological resilience and growth (Haight et al., 2002). According to the thriving theory in aging, thriving is the successful interaction of three important factors i.e., person, human environment and a nonhuman environment. These components are ongoing; dynamic; and frequently changing; as, the human and nonhuman environments influence each other. Thriving in aging adults is indicated by people who are in tune with their ever-changing situations and manage to fully function during these changes, in a supportive and a harmonious environment (Bengtson et al., 1997; Haight et al., 2002).

The important attributes of thriving are manifested through social relatedness and physical/cognitive function. However, in the thriving theory, physical/cognitive function encompasses both; the physical function and the cognitive/affective function (Haight et al., 2002). On the exact opposite end of the Thriving continuum, FTT, often is expressed in the form of problems such as disconnectedness, non-involvement, non-attachment, and non-sharing with oneself and the inability to find meaning in life; leading to physical and cognitive dysfunction (Newbern & Krowchuk, 1994).

Failure to thrive in youths is measured by their failure to cognitively and physically mature, socially engage, and absorb sufficient nutrients to maintain normal physical and mental development patterns (see Newbern & Krowchuk 1994). From this surface review of the medical literature, it is evident that emotional, psychological, physiological and social functioning calls for reconciliation of self in order to integrate the dynamics of changing circumstances.

*In management*, the literature on organization behavior and positive organizational scholarship considers thriving as: the psychological state that entails both the sense of vitality (aliveness) and learning (greater understanding and knowledge) (Spreitzer et al., 2005). Thriving is a desirable subjective experience that allows individuals; to gauge what they are doing; and how they are doing. This helps them to develop in a positive direction in terms of sense of improvement (Porath et al., 2012). Earlier, Maslow (1954) depicted the positive outcome of thriving as self-actualization, where individuals have immense experiences. Thrived individuals live life fully, feel energized and are happier. Thrived individuals grow and develop at different rates and different ways based on their subjective interactions with the environment.



Furthermore, Thriving has also been discussed in the research on expatriate management or international adjustment; that links individuals, organization and mobility (relocation) mainly to the disciplines of human resource management or performance management or organizational behavior. FTT in the context of international assignments is widely researched (Black et al., 1991; Bjorkman et al., 2007; Forster, 1997). Failure means the lack of success in doing or achieving something especially what is expected. For decades, expatriates' failure rates accounted for the early return of expatriates due to performance inadequacies or personal problems or high turnover (Black et al., 1991; Forster, 1997; Harzing & Christensen, 2004).

### **3. THRIVING: AS A CONSTRUCT IN DIFFERENT DISCIPLINES**

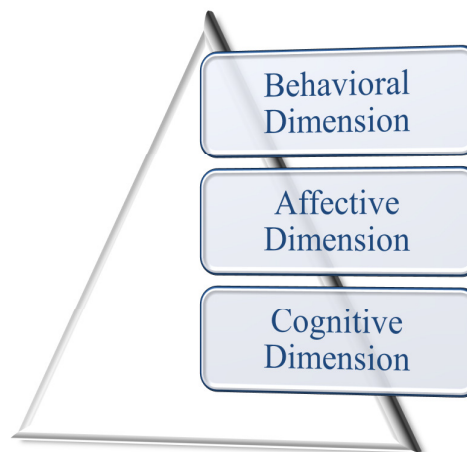
Thriving is studied in different discipline like gerontology, health care and sports medicine, and management. Theory of thriving-a continuum was developed by Haight et al. (2002) in Gerontology discipline. Later on Harris (2013) developed and defines the construct of thriving in transition in discipline of health care and sports medicine. Spreitzer et al. (2005) redefine and distinguish the thriving with other constructs in management sciences and denoted it as thriving at work construct. Finally, Porath et al. (2012) developed thriving at work measures and validated across industries.

### **4. THRIVING IS MULTIFACETED**

Thriving has been discussed as a temporary desirable state (Chaplin et al., 1988). It is about generating positive knowledge (Feldman, 2004) and positive meaning (Wrzesniewski & Dutton, 2001). Initially, it was classified as learning in a specific social setting (Gherardi et al., 1998). Later on, Spreitzer and her associates, in their paper published in organization science journal in 2005, described Thriving as a psychological state in which individuals experience both the sense of learning and vitality. Studies have also discussed it as a hedonic and an eudaimonic individual psychological functioning (Spreitzer & Porath, 2013). Hedonic individuals (having a sense of vitality) seek out pleasurable experience (Spreitzer et al., 2005) and avoid pain (Samman, 2007). Eudaimonic is a psychological state of being flourished. Where 'eu' reflects (well-being, good) and 'daimonia' as (demon or spirit).

It is a gauge or a self-regulating mechanism that aids in self-adaption (Ashford & Tsui, 1991; Tsui & Ashford, 1994) where we attempt to gain a sense of development (Porath & Bateman, 2006). Scholars noted that it is a goal directed activity over the time; and across changing circumstances (Kanfer 1990) and situational mechanism (Hedstrom & Swedberg 1998). These changing circumstances are embedded in social systems and social contagion is observed and analyzed (Miller & Stiver, 1997). In social system and situational mechanism, an individual actor is exposed to a specific social situation; and this situation inevitably affects his or her thriving.

Thriving is an individual's ability to excel in psychological functioning (Tedeschi et al., 1998). Thriving concerns the investment of individual resources at workplace. That is, thriving represents a commonality among cognitive, affective and physical energies that individual bring to their work role. Therefore, thriving is not limited to one aspect of psychological functioning (sense of learning and sense of vitality). It represents the investment of multiple dimensions i.e. cognitive, affective and behavioral. Scholars also argue that it not only is psychological, but can also be physical. It is argued here, that, thriving is a process (Harris et al., 2012) of cognitive, affective, and behavioral dimensions as depicted in Figure 1. Cognitive dimension refers to the learning, gaining of new skills, knowledge and experiences at work place over the time. When employees are regularly learning at workplace, they feel vital; and energized and thus grow and develop. The joint combination of learning and vitality is noticed as individuals' thrive (Spreitzer et al., 2005) or when they are psychologically thriving (Tedeschi et al., 1998). When individuals learn at workplace and feel energized, that ultimately leads to positive behavioral outcomes as depicted in Table 1. When individuals feel vital at workplace, they feel energized and put more energy and effort in their actions; and this action-ability gauges their physical thriving; this is the point where we can judge an individual's functioning. The aforementioned discussed arguments identify a strong need for the development of a comprehensive measure that reflects all these three dimensions (Harris et al., 2012); which can objectively measure thriving.



***Figure 1: Thriving at Work***

Researchers support our contention that psychological thriving which is the combination of cognitive dimension and affective dimension demonstrate action or behaviors which we can say is a physical thriving (see. Cole et al., 2012). With the help of examining the three dimension altogether, the experience is simultaneous and holistic (Kahn, 1992). Thus, employee who is thrived, he/she experiences

thriving with their work on multiple levels.

**Table 1: How Psychological Thriving depicts into Physical Thriving**

<b>Psychological Thriving</b>	<b>Actions / Behavior / Physical Thriving</b>
Cognitive Dimension / Learning	Grooming, sharing, supporting others, confidence, knowledge sharing, OCB, health , hard work, development
Affective Dimension / Vitality	Work more than others, fast decision making, resolve issues at the spot, punctuality, reduce absenteeism, preparation for new day at work, flourishing, raising voice when necessary, don't hesitate asking favor when is required, accepting challenging, present minded, colleagues enjoy /easy to work with, colleges always comes to ask favor

The above Table 1 shows that the cognitive dimension of thriving, which is the sense of learning, enhances confidence in human beings; they learn to share skill and knowledge; and what they gained at workplace for effective functioning of group or teams; they work hard and also help others to reciprocate by sharing what they gained; how they developed and groomed at workplace; for the betterment of other colleagues and organizations as a whole.

The affective dimension of thriving, reflects vitality and energy; individual who feel energized at workplace work more by staying late at work, because they enjoy work; they are found to be more punctual and hence reduce the absenteeism; which leads to effective functioning of the whole group or team; Individuals who feel vital at work feel flourishing; they accept challenges; have present minds; are always open-minded; ask questions or do not hesitate to ask for help when needed.

**5. DISCUSSION**

In positive organizational scholarship, research on individual's thriving has been profound, yet painstaking for the academicians and practitioners. Although conceptualization of thriving at work by Spreitzer et al. (2005); and later on, the construct development and validation by Porath et al. (2012); appear to represent a somewhat unique and valuable addition to the organizational behavior and positive

organization research; but, we still find areas that need improvement. With respect to individual's thriving, the additional physical aspect in conceptualization helps us to see thriving in its right essence and accordingly observe whether individuals are thriving or not. Furthermore, we have provided the basis for the refinement of thriving construct with its behavioral dimension as ; and . Thriving research can benefit from conceptualization in this direction; since, construct and methodological refinements need to be conducted to better understand thriving at workplace. Effort such as these should be undertaken as the current research suggests thriving as a useful construct meriting further attention.

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# **FACTORS AFFECTING BUSINESS TO BUSINESS (B2B) E-COMMERCE (EC) SECURITY SYSTEMS PERFORMANCE IN ENGINEERING, ELECTRONIC INDUSTRIES AND INFORMATION TECHNOLOGY SECTOR IN AMMAN**

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## **Abstract**

Business - to - Business (B2B) systems are one key form of electronic business (e-business) that concern with transactions between businesses conducted over computer networks (internet, intranet and extranet). These B2B systems provide business with solution in rapid changing business environment to support their business processes. This research seeks to understand the factors influencing B2B security systems performance in Amman. Using previous literature, this study develops a theoretical model that includes a set of two main factors; IT infrastructure, and perceived risk. The results of this research can help in understanding the shortcomings and enhancing the security performance of B2B systems. Using a survey conducted on the Managerial Perception in Engineering, Electrical Industries and Information Technology Sector in Amman, this research examines the effect of these factors on B2B (EC) security systems performance, Data obtained from a total of 60 enterprises respondent surveys were analyzed using statistical Analysis .The findings of this study showed a statistical significant effect for perceived risk and especially for IT infrastructure.

**Keywords:** *information security, E-commerce –business to business, It infrastructure, perceived risk*

## **1. Introduction**

Recently, Information Technology (IT) systems have changed our world and more importantly the way we do business. IT systems and networks improved business process and developed more agile, intelligent and efficient business functions [1]. Advances in technology and the growing influence of information and communication technology and computer systems in financial institutions is one of the achievements of the twenty first century to the extent that in today's world, information technology and communications provides underpinning the relationship between different groups of societies in different geographic regions and levels without any limitations of time and space. In fact everyone through the networks can obtain necessary awareness in various field through surfing t. Because today through the seventh continent (World Wide Web), the money or otherwise contained information on money, economic



data, trade and commerce are available to all users [2]. The recent developments and growth of IT and networks made it possible for business to conduct many of their functions online [3]. Electronic business (E-business) has transformed business environment towards a more efficient, globally connected and IT-oriented businesses, also buying and selling online in procurement or sales departments is now integrated in most organizations worldwide. Technological revolution made Electronic Commerce (EC) systems an essential part of E-business that not include just buying, selling, exchanging products and services but also serve customers and collaborating with business partner via computer networks to achieve competitive advantages for these businesses. Business-to-Business (B2B) systems are type of EC systems that concern with transactions between businesses conducted over computer networks (internet, intranet and extranet). A major characteristic of B2B is that Enterprises attempt to electronically Automate trading or communication processes in order to improve them [4]. There are several benefits for B2B (EC) systems such as: reducing cost, facilities, mass customizations, efficient customer services and increasing opportunities for collaboration [4]. Hence, this research attempted to examine the factors that influence B2B (EC) systems performance within Jordanian industrial sector (Engineering, Electrical Industries and Information Technology “EEIIT”) as a sample of this research.

## 2. Study Problems

The statement of the problem is: “To study the factors that have influence on B2B (EC) security systems performance for Engineering, Electrical Industries and Information Technology companies? In the above-mentioned research problem is reformulated in the following research questions:

Would Engineering, Electrical Industries and Information Technology Enterprises adopt B2B (EC) security systems?

Are the Engineering, Electrical Industries and Information Technology Enterprises adopting B2B (EC) security systems to improve competitive advantage and add values to them?

Is the performance of B2B (EC) security systems effective enough?

What are the factors that have influence on B2B (EC) security systems performance?

## 3. Study Hypotheses

Based on previous research questions related to the research matter and according to the research questions, the following hypotheses will be tested:

H<sub>01</sub>: There is no significant statistical effect of the factors of B2B (EC) security systems on B2B (EC) systems performance at level ( $\alpha \leq 0.05$ ).

*This hypothesis is divided into the following sub-hypotheses*

H<sub>01a</sub>: There is no significant statistical effect of B2B Enterprises IT Infrastructure on B2B (EC) security systems performance at level ( $\alpha \leq 0.05$ ).

H<sub>01b</sub>: There is no significant statistical effect of B2B perceived risks on B2B (EC) security systems performance at level ( $\alpha \leq 0.05$ ).

#### **4. Theoretical Framework Component**

First factor is the Enterprises IT infrastructure that's define as the architecture of hardware, software, content and data used to deliver e-business services to employee, customers and partner.

Technical infrastructure ensures that the underlying networks, hardware/software, and technical exist so that organizations can create the applications and web sites necessary for organizations to implement and sustain e-commerce ventures. Technical infrastructure exists for clients and providers and for the geographical areas between them, only the worker technical skills attribute was considered critical, all other attributes were considered very important. And Last is the Perceived risks that's refer to potential weaknesses, barriers and losses faced by organizations that have adopted e-commerce.

Risks can either occur internally or externally, by human or non-human (e.g. technology-related risks), accidental or intentional and could be caused by disclosure, destruction, modification of e-commerce transactions, and by denial of service attacks from hackers. [5]

First, perceived technology performance-related risks refer to misuse of ecommerce technologies, incompatible infrastructure, and uncertainties of ecommerce operations. Second, perceived relational risks refer to trading partner's lack of knowledge, exercising opportunistic behaviors, conflicting attitudes, and reluctance to change. Third, perceived general risks refer to poor business practices, environmental risks, and lack of standards and policies. Therefore, this paper controls for the effect of trading partner trust and perceived risks on perceived benefits and e-commerce performance.

#### **5. Study Methodology**

This study used both descriptive and analytical analysis. Descriptive study includes data collected from previous related works and literature review. These resources were used to develop the theoretical model of this study.

Furthermore, statistical techniques were used for empirical analysis and a survey was designed to collect data from the population of the study, who were IT mangers in Engineering, Electronic Industries and Information Technology (EEIIT) in Amman.

#### **6. Study Population and Sample**

The population in the current research consists of industrials companies in Amman. The industrial companies in Amman represent different industries. This research chosen sample can be used to represent the population. Given the large population of the study, a sample of industrial companies in Amman has been taken. In this research all industrial companies in Amman comprise the total population, (60) industrial companies in Amman have been chosen as a sample of (Engineering, Electrical Industries and Information Technology) sector. These industrial companies are all located in the largest sector in Amman. The population of the study will be divided into divisions to obtain a representative sample of the population study. In order to increase sample size and statistical power, enterprises in the pilot study will also included as part of the final analysis.

#### **7. Statistical Treatment**

After collecting data from the returned responses, the researcher used the Statistical Package for the Social Sciences SPSS (v19) to analyze the data. The researcher used suitable Statistical treatment for each question and hypothesis from the following tests:

Cronbach Alpha ( $\alpha$ ) to test Reliability.

Percentage and Frequency to describe the sample.

Arithmetic Mean and Standard Deviation to answer the study questions.

T-test and using ANOVA table to measure the impact of the user characteristics on the usage and the usage level of the Portal

Simple Linear and Multiple Regression analysis with (F) test

$$Class\ Interval = \frac{5-1}{3} = \frac{4}{3} = 1.33$$

Relative importance, that is assigned using:

$$Class\ Interval = \frac{Maximum\ class - Minimum\ Class}{Number\ of\ level}$$

The Low degree less than 2.33

The Median degree from 2.33 – 3.66

The High degree from 3.67 and above.

### 8. Reliability

To test the survey reliability, Cronbach Alpha ( $\alpha$ ) analysis was used to measure internal consistency. A minimum acceptable level ( $\alpha \geq 0.65$ ) suggested by (Revelle & Zinbarg, 2009) was adopted. Results show that overall Cronbach Alpha ( $\alpha$ ) = 0.9783.

### 9. Study hypothesis testing

**H01:** There is no significant statistical effect of the factors of B2B (EC) systems on B2B (EC) security systems performance at level ( $\alpha \leq 0.05$ ).

To ensure if there are any differences between the factors that affect B2B systems performance , the researcher divided the first main hypothesis into two sub-hypotheses, and used one way ANOVA to test ;

**It infrastructure and perceived risk** . The sub-hypotheses were tested and the results are shown as the following:

**H01a:** There is no significant statistical effect of B2B **IT infrastructure** on B2B (EC) security systems performance at level ( $\alpha \leq 0.05$ ).

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	20.529	1	20.529	40.105	.000 <sup>a</sup>
	Residual	26.619	52	.512		
	Total	47.148	53			

A. Predictors: (Constant), IT infrastructure

B. Dependent Variable: B2B EC security systems performance

\* The impact is significant at level ( $\alpha \leq 0.05$ )

From Table (4) it is clear that the absolute value of F calculated (40.105) is more than F tabulated at level ( $\alpha \leq 0.05$ ). This indicates that the second sub-hypothesis is valid. Therefore, the null sub-hypotheses were refused and the alternative sub-hypotheses were accepted, therefore the result is :

There is a significant statistical effect of B2B **IT infrastructure** on B2B (EC) systems performance at level ( $\alpha \leq 0.05$ ).

**Ho1b:**

There is no significant statistical effect of B2B **perceived risk** on B2B (EC) security systems performance at level ( $\alpha \leq 0.05$ ).

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	21.396	1	21.396	43.205	.000 <sup>a</sup>
	Residual	25.752	52	.495		
	Total	47.148	53			

A. Predictors: (Constant), perceived risk

B. Dependent Variable: B2B EC security systems performance e

ANOVA

\* The impact is significant at level ( $\alpha \leq 0.05$ )

From Table (6) it is clear that the absolute value of F calculated (43.205) is more than F tabulated at level ( $\alpha \leq 0.05$ ). This indicates that the third sub-hypothesis is valid. Therefore, the null sub-hypotheses were refused and the alternative sub-hypotheses were accepted m therefore the result is :

There is a significant statistical effect of B2B **perceived risk on** B2B (EC) systems performance at level ( $\alpha \leq 0.05$ ).

**10 .Conclusion**

In There is a significant statistical effect of B2B IT infrastructure on B2B (EC) systems performance at level ( $\alpha \leq 0.05$ ).

The IT infrastructure factor was the second most important and most effective factor affecting on B2B (EC) systems performance having a good IT infrastructure helping the enterprise to expand its B2B security systems transactions consist of net lines and enough PCs and servers to employment B2B (EC) systems and databases to speed up the transaction .

There is a significant statistical effect of B2B perceived risks B2B (EC) systems performance at level ( $\alpha \leq 0.05$ ).

The perceived risk factors was the fist most important and effective factor that affect B2B (EC) systems performance such as the cost of running and maintenance the system ,systems errors ,and external pressure all those have to be avoided to reach the B2B (EC) performance .And finally these factors

can lead to increasing B2B (EC) performance by :

Improve the productivity.

Improve the productivity.

Increase the profit.

Increase sales in your enterprise.

Reduce inventory costs.

Reduce cost of production & labor.

Reduce the frequency of mistakes in the receipt and translation of TPs orders.

to improve on-time delivery to and from TPs and suppliers

has improved inventory management and control

improve procurement business process

improve work-in-process (WIP)

## 11 Recommendations

Based on previous results and conclusions, the following recommendations might help in enhancing B2B (EC) systems performance:

Provide enough net lines, PCs and servers to use B2B (EC) systems.

The enterprises have to train their employees and improve top management support for the use the B2B (EC) systems. Moreover, improving employee capabilities to handle their systems by all managers at the different levels of management leaders.

Enhance the consultation of IT enterprises to help in building the enterprise's experience.

Increase the employees experience and knowledge to use B2B systems.

Running and maintenance of B2B systems monthly to deal with any errors that may occur.

Development of the E-payment tools to get the payment exchange easier and more flexible.

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# **AESTHETIC EDUCATION AND PRACTICE COURSE COMMUNITY SERVICE LEARNING - "MAKEUP AESTHETICS AND LIFE" CASE**

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## **Abstract**

This article aims to explore "aesthetics and cosmetics Living" curriculum idea how through the introduction of aesthetics and community service learning rows Dynamic integration, architecture a altruistic service learning action for the purpose of art as a medium, to move students willing to learn, Willing to move the Liberal Arts College. In actual operation, the curriculum as a team, combining art Service-learning course and five stages of learning, the integration of the new teaching model, in addition to guide students to discuss cooperation with the Acquisition The ability to integrate resources, more nurturing ability to use your mind in the creation of aesthetic conversion was complete makeup to be beautiful symbol Complete learning process experience and practice.

Through this article can be found in the corresponding discussion, "makeup aesthetics and Life" Introduction to awareness programs through aesthetics, art

Art creation, combining charity service-learning course, in addition to the acquisition humanities connotation, but also the end of the experience the students respond Seen activities from manual creation, packaging design to the actual sale and marketing to sell the course, etc., through the experience of learning Learning, reflection and growth, and further realize the happiness of self-worth can create recognition for the community with both hands. in this way, Future students have successfully construct self-employment imagination and practical ability substantive. With such a course of practice and

Analysis in this paper, records, hoping to art curriculum of practice and imagination to open a window, but also look forward to general education courses

To have a new look more dollars.

Aromatherapy and practical application of theoretical and practical courses taken in hand, consists mainly of knowledge and meridian massage aromatherapy essentials, acupuncture and loose tendons memorize the head with an object, such as communication, teaching and demonstration and focus in order to tell the real as the main, from the experience and technology learning in the curriculum, but also extend the application of this expertise to the social services. Service learning classroom teacher to lead students to nursing homes, uphold the love and care, so that students enrich the breadth and depth of their learning in the field of technical professionals learn and integrate the cumulative experience of actual services to enhance students' practical skills, experience and ability and action by the students involved in service learning and practice, students apply their knowledge to enhance the ability of self-reflection and future employability.

**Keywords :**

Makeup aesthetics, Service learning, General Education , aromatherapy

## 1. Introduction

### 1.1 Motivation Study

19th century "father of physical chemistry" scientists and the Willard Gibbs, after the last piece of advice to investment in education reform university is: "Reduce faculties required course, so that students can more undergraduate elective courses the Faculty of Arts." (Wang Group from 2005) This "College classes" that is approaching the general curriculum towards all-round development of the modern. General Education Courses Reform prompted by a number of 19th-century European and American researchers found that academic distinction contemporary university is too specialized knowledge may be serious

Heavy cutting, thus creating nature issued by Broadcom general education courses. The purpose of such courses is to develop students' independence Consideration of different disciplines have a more extensive knowledge and ability of the facility to further cultivate more goodness, more complete personality

Literacy for the purpose.

Development of General Education in Taiwan for over 20 years, by the early school science scores four credits to the current generalized The twenty credits, accounting for almost a quarter of credits to graduate, but according to Lin Siling (2011) for the Ministry of Education, General Education Gang education program can be found in the survey, teachers and students of the learning curriculum of having cognitive differences, mainly due to That teachers generally valued "teaching content", and students are the first weight "of interest in learning courses", ie courses Students need to be able to itself as the main design, to motivate students' interest in learning, not just focus on deepening the curriculum Capacity; In addition, the survey also found that although students generally positive general education curriculum value, but its learning general education Teachers' pay and still look forward to the fall; teachers face the general education curriculum and its faculty curriculum of students in comparison Learning to pay, there is still a tendency to feel "heavy and light through professional knowledge" of the students' attitudes.

For the general curriculum should be more nurturing character of the times and the requirements of the general education humanities, he opened the "Art and Design and Everyday Life" to proceed with the re-design courses attempt at technical and vocational education system, for the General Education and courses to bridge wing to enhance both its students to cultivate general education humanities, artistic skills can make a contribution to society, to the self-generated positive and positive attitude towards learning. In view of the country in the spirit of service learning into the curriculum has been around for ages, the course also tried to pass the spirit of knowledge and learning to do service link. Based on "the Ministry of Education tertiary service learning courses and activities Reference Manual" referred to service-learning is a whole social resources into teaching methods and students' learning process field, which enrich the depth and breadth of student learning, but also makes students learning outcomes from a purely theoretical knowledge to enhance the holistic development of life (Ministry of Education, 2007). The above, combined with the spirit of service learning, "Art and Design and Everyday Life" course to altruistic attempt to structure a service learning action for the purpose of art as a medium, motivated



students willing to learn, willing to move the Liberal Arts Teaching Case.

### 1.2 Research purposes

In this paper, plant-based Dewey (1980) experiential learning theory, with "Art and Design and Everyday Life" program execution Practice study, attempts to explore the "learning by doing" in the spirit of service-learning, combined with each other and how art practice into Students will step into the field of practice of the social environment, and have experience in teaching learning process-oriented multivariate significance. Because Here, the problem of consciousness and research focus of this paper can be summarized as the following three points: 1. In art and design courses, how to read art design by Multi Commodity cases, students of art to enhance the commercial value judgment? 2. Through artistic experience with the actual situation field learning how to awaken students to enjoy the fun of artistic creation, and the development of their potential altruistic service. 3. Through the fusion of art and philosophy of community service learning how to create substantive new Liberal arts curriculum teaching model?

## 2. Literature Review

Conception and experiential learning curriculum connotation

Liberal education course in the history of Taiwan's development for many years, but still can not really get rid of the presence of students in general education "Nutrition credit" negative impression, for the life between curriculum and practical knowledge through a bridge, in the actual implementation, from curriculum It began to cultivate art and design product concept development, and then to the actual creation of art embodies artistic design concept of the previous stage, and then to experience the social situation in the field service learning and practice charity course, trying to find a Liberal Arts education in the new possible. Its theoretical guidance from Dewey's experiential learning theory began, and service-learning theory model, not only to cultivate artistic ability from experience, but also combine local products do packaging design, more into the community to do charity, and ultimately try to structure a Liberal arts courses face a new development.

### 2.1 Dewey's experiential learning theory and general education

Experiential learning theory by Dewey in 1938 through the "Experience and Education," a book by the foundation, was to pass Reactionary system of teaching and passive learning. Through learning from the perspective of students to think about the curriculum, emphasis on "doing in theory Learning. " Such learning experience continuous transformation and restructuring process, through their varied experience into curriculum design Meter, so that students in the course by hands-on learning environment and the overall learning experience obtained in the target. After many Empiricism scholars also believe that practical knowledge of the subject and its importance to students of the lived experience of life, can be deep Experience connotation of learning (Lin Xiuzhen, 2007). Jurys Columbia University. Bolton (2006), the <personal Experience integrity, or art of life 'mentioned in the article, develop arts-related development and education, the need for positive Indeed supportive environment so young people can express through visual reaction personal experience profound significance. Thus education Ring Environment need to set up a supportive environment so that students can enjoy creative beauty, and their

ideas can be utilized in a meaningful way. On the event, promoting its artistic learning experience can be further linked to life and society.

Looking to develop Taiwan's art education, there is still a strong framework to limit the "School of Art", so we can see that children learn the art of parents generally expect that the academic performance, rather than to encourage children to fall in love with art, art experience, resulting in many students can not have their own artistic point of view, this point again mostly engineering students feel HKUST teaching in the field more profound; this course several experiments reflect different forms of teaching the art of learning outcomes and found that the students in engineering with the practical operation of creation the ability to more solid and easier to enhance their interest in learning, so from the "learning by doing" teaching method is more suitable for the real implementation of this program.

## 2.2 Situated Learning and General Education

Traditional teaching has long been a perception cramming teaching methods, developed in information technology today, not only may lead students cannot concentrate on classroom learning, but also to learn the knowledge cannot be flexibly applied to life. Many studies noted that effective teaching situations can significantly enhance students' willingness to learn, but also implied the acquisition of experience in context, may be cited moving students to actively participate in learning, but also led the students to touch their imagination to explore the ability of the relevant context, the action also enhance thoughts ability to solve the problem further. Ideal situation teaching is learner-centered design, aims to make learning learners interact in pluralistic environment, when in the middle of a situation where students can learn through action (action learning), reflection in the group interaction in exploration, even in the event with each other feedback and motivation with their peers, clients and teachers can be due to past experience coupled with new stimulus experience, and then in the moment appropriate development and construction of the autonomy of knowledge ability.

Although school education to environmental education has to some extent attention, but still with the curriculum for the actual operation phase have

When a large discrepancy. First, in the professional art or design department generally has a professional creative classroom teachers generally, and university Liberal arts courses and not exclusive classrooms, teaching and learning environment so that the situation cannot continue to operate or have learning outcomes cannot be displayed. Habitat weakened opportunities for students in the context of the environment is enhanced initiated learning motivation. Zhou Ru (2001) on the environment once taught Fertility study found that many of the implementation of the universal question: "Teacher will likely focus on the accumulation of knowledge, and the lack of" body Learning experience ", " Life "design, or" School education is misleading environmental resource recycling ", Limitations ENVIRONMENTAL EDUCATION Development pattern of education, lack of resources, lack of integration and development resources and professional planning, so perform rendering difficult issues limit system. "Although the course may not be in the implementation to create an environment, but it can find related resources. This course is resolved through No problem identification center of artistic creation environment that EQ borrow Art Studio Art Center lecture, so students because the conversion Environment more focused on the art of experience among the students of the course will also create works of packaging designed to be

trafficked Suppliers Products, leaving the way to campus students through the bazaar street and community learning, students look forward to the experience in activation process Communication and marketing capabilities, strategy and plan Videos teamwork, ability to learn and overcome the difficulties encountered in the context.

### 2.3 Service Learning and General Education

Today, service-learning has become one of the world's popular education method, introduced in the US in the 1990s, Taiwan's service learning

Spirit extended to the study of education above the high school level educational institutions, the school also encourages teachers to this wave of education services Into the curriculum, but what service learning spirit and meaning what? It has earlier traditional courses in "labor service" Meaning not the same spirit, according to the Ministry of Education, 2007 issue of "service learning institutions and activities Reference Manual" As described in the service-learning is derived from the experience and education so that students interact with and experience among people involved in the process of Social needs, and to enhance the effectiveness of learning and development of students through physical and spiritual reflection activities. Delve, Mintz and Stewart (1990) further noted that service learning is a reciprocal learning activities, to join in the Field of learning through the five stages of learning :( a) the exploratory stage (Exploration), (ii) the refining stage (Clarification), (three ) understanding stage (Realization), (iv) activation stage (activation), (v) internal stage (internalization) - students will be able to internalize the spirit of service learning into.

In the course of the design, in addition to imparting basic knowledge, but in order to achieve effective combination of service-learning curriculum requires students as a group, the combination of art and the creative process of learning the five stages of service learning, trying to meld the new teaching model 1. the Art of learning services action reading, 2.meaning of art creation and understanding the purpose of clarification, 3.understanding of art practice and commercialization of hand-made process, 4.community entering the activation field teaching situation as charity care, 5.Acquisition of ability to go through each experience with a course like looking out of the classroom and social field can construct new points of contact. This model may give students a new positive meaning, but also the process of establishing new experiences and new possibilities.

## 3. Makeup aesthetic to the service-learning courses

### 3.1 Curriculum Framework

Curriculum planning and expectations

This course is designed, from the creation of life and the art of service learning experience to experience the fun of artistic creation, and more activation

Students who experience art and thinking. Dewey (1980), "Art as Experience" (Art as Experience) concept tells us: "Art should not be out of work, not apart from nature, especially not from people's normal experience." He referred to the human spirit and essence of art has alienated dilemma, be understood or even classified as a high aesthetic taste experience thus separated from the life experience, the aesthetic experience seems to be an expert to enjoy the patent. At the beginning of the semester, many

students have engineering-related departments of singing "and art insulation" theory courses for students to break this concept, hoping through hands-on experience in the creation and follow-up "for the love of Papa soap" bazaar of field experience activities, so that students learn through explicit altruistic goals, step by step with the social integration of service learning, motivate students spontaneous learning process. Planning course focuses on the breadth of knowledge absorption, starting from the culture of the arts students keen to help open students' beauty book ", so often need to think about how many will be converted to the aesthetic theory of engineering students were able to easily understand. Fortunately, the United States issues linked life experience, if students are easier to resonate, students easily into the course content. The Art of Xu seeds buried in the soil, germination is the inevitable result.

### 3.2 Course Design

Teaching curriculum based on past experience, the curriculum integration has a stacked three stages of learning and expansion of benefits, namely the concept of the incubation period, Min sense of creation and speculative period. After the teacher taught, made by the team leader to guide members to discuss issues related discussion contain reading appreciation, speculative interpretation, creative concept development, the establishment of the correct interpretation of the students commodities and understanding of the meaning of creation. Typically, each new unit in the course of next week, the week before that is pre-profile teaching focus, and application experience to learn a single issue or single-focus discussion learning, to deepen and Construction students of art and learning connotation want hair design. (A) "the concept of the incubation period," Planning: Through case description and discussion activities, so that students understand the complete face of art and design goods. Planning for this period into four. 1.Introduction industry trends, learn how to take the industry and cooperation between art and design, to make products more attractive; 2.art design quality merchandise, for international and local art and design characteristics of goods; 3. international designers and National Palace Museum, when ALESS encounter Forbidden City treasures; 4.understand the art of imaging, the artist biography "the Frida" movie media learning, in order to understand the relationship between artists turned their heart between the course and paintings.

(B) "Sensitive sense of" planning: Before the unit, arrange arts and creative industries lecture, so students understand the relationship between art licensing industry and art goods, as early and cohesion of this period. The next "I found someone who" means hope students out of the classroom, from shopping on weekdays, observe life around and collect, aggregate and other activity data, allowing students to cultivate art and design goods observant further distinguish between goods the virtue or vice differences and choose a creative art and design qualities quality merchandise to other students as recommended; in addition to developing self feel force-sensitive training, students also through discussions with teachers and TA's guide, learn how to make presentation software and training for self-expression ability to comment on the amount of students peer assessment based.

(C) "speculative creation of" planning: This period is the integration of the various stages of the previous study, planning an art activity. To meet the needs of curriculum development, a total of 1.Art Hands study, 2.Works to beautify the commodity packaging design, 3.The goods for charity through multivariate

marketing model. To reflect the learner-centered teaching, teachers and students in creative mediums to discuss the choice of a way to select the resolution, select the mediums need to be able to meet the artistic creative thinking, provide playing shape, color, and can be considered as a charity performance. Hoping to artistic creation through service operations experience, students of activation and a wide knowledge and understanding of art, and can be understood based content into self-creation, and even become hand-made of human imagination, this period is part of the more deepening the internal speculative activities, but also the core of this thesis Compilation.

The curriculum design students as a group, a combination of the above three stages of art history and Service Science

Explore learning, clarifying, understanding, activation and internalization of the five stages of learning, the integration of a new teaching model as follows:

1. Read the exploration of art and service learning action through the group to discuss the possibility of various action programs.
2. The significance of art and understanding the purpose of clarification, through classroom discussions in the beginning, to clarify their own expense, the creation and enforcement bazaar course material significance and value.
3. To understand the art of hand-made practice and commercialization of course, in addition to show the creative team, but also to social welfare and do.
4. Go to the community the activation field teaching situation as charity care, so that students understand the real practical problems in the Field, Breakthrough plight through cooperation group, advance social lessons learned.
5. The ability to move with the acquisition of experience through the various stages of history, art future energy reserves and social participation experience.

### 3.3 Curriculum Planning and Features

This course is in the planning and design, it has several characteristics:

(A) for the students of art and design in professional subjects and humanities put up a bridge between: Course Readings object engineering science sub majority. Many students understand the curriculum presented and excluded the phenomenon, but in fact, "Business Week" column in 2005, noted that the aesthetic is "Taiwan's new school of learning, because it is a new competitive edge, we call the United States force." (Yang Huijing, 2005) to clarify the content of aesthetics and technology in Taiwan have parallel age, in the fierce competition, the era of excess product will" style "has become the key to decide victory or defeat, whether businesses or individuals are required to have" beauty passbook ". Unfortunately, in the department of professional teachers due to professional restrictions, generally failed this concept into the curriculum, resulting in emotional thinking professional rational thinking and aesthetics cannot be cultivated in campus learning, so students in the concept of industrial aesthetic nature tend Weak, in fact, in the overall aesthetics of industrial development has played a very important role, to enable the student can both rational and emotional thinking, beginning of the course through the weekly trend, television reports, popular or local culture industry, teachers and so easy to absorb and personal experiences read the information to help students between the professional and artistic aesthetics have

intermediation and links, therefore, through the curriculum expectations can be extended students in art and design horizons and cultivate students who integrated between the rational and emotional thinking of new capabilities, the United States will habit life collection loaded into the database, making it one of the goodness of life towards the ideal source.

(B) The operator shall meet the students learning ability and LifeCare experience of artistic creation, the development of commodity Hands thinking: of course there are many Hands-on experience, students in the choice of mediums, the choice of living in practicality high artistic soap, we found that when students mediums can be managed, it will naturally enhance the willingness to learn, and more able to extend the application of imagination of the mediums. The artistic mediums, although more time-consuming and complicated, but it can meet the challenges of the heart and curiosity of students, this is also the goal of endowing Family Support Center, make love to pass out and bazaar, expect when clarifying learning objectives the willingness of students performed relative enhancement can collect excitation energy of creative thinking and the ability to learn from the cooperation and coordination of activities.

(C) an interactive discussion groups to construct together art collective learning experience: Many of the students think that their own engineering department and the art insulation, so courses in group cooperative manner, understanding and creativity play individual and team wanted to resonate with hair capacity, expected results than individual creative way to gain more independence, and look forward to enhance the ability of team members to discuss cooperation and coordination, but also take to enhance learning effectiveness and willingness to extend more positive future life human resources network.

Create a "learning by doing" (learning by doing), general education courses tend to break the myth of a static course: general education courses teaching domestic artistic, most of the current theoretical and appreciation for the two main, unable to press ahead "from doing learn "the art of general education courses, which may be the limited resources of the environment and provide school-related, such as general education courses do not have dedicated classrooms, no creation equipment, no material creation funding arts campus atmosphere containing no other circumstances, and school in the majority of part-time arts teacher, and some hand-made required before class preparation material is quite complex, and because there is no professional art classroom, so that teachers generally cannot play in the implementation of teaching, this should be a common phenomenon in schools. This course is because the relationship between teacher professional background, life experience who are used to authoring mode articles, of students learning to lead by doing, Creative experience to overcome fear, lead students through focused discussion and promote creative thinking to amass, in a concrete manner the creation of unique works of art issue, so that students learn from practical experience in the arts. ) Stores domain substantive justice through internships, students open new experiences altruistic life: Many educators are there inherent "more blessed to give than to receive" altruistic ideas, which perhaps sustain enthusiasm for teaching where the kinetic energy, because teaching is not just self-interest (protection work), but also altruistic (for education excellence, excellence for society to make sense of mission). Course teachers can look forward to the idea of altruism infection to students at the beginning that the school is willing to dream of the students solemnly call together "Dream", although there are going to stay, but I think

definitely stay for love, for life who has a vision between theory and practice, students learning experience combined with the past, into artistic practice within and for the community to make energy.

### 3.4 Reflection of the cases and courses

Credit course not, not test, but the enthusiasm of students calling for the participation of artistic practice, make themselves aware of new possibilities for the development of life. Foster the development of art and design concepts from the start, in the case of domestic and foreign art and design curriculum and teaching students to discuss, after the packet "I found someone who is" creative unit share report findings and information integration, and then into the context of art and charity to the field experience and practice that growing art and design from concept to practical experience of creation, to the course of the last paragraph of altruistic service charity practice course. After the course of this article will pose half of art and learning situation as the main field of study, it is generally less Liberal arts curriculum planning and execution of the part.

Through the creation of an art soap substantive learning, students can understand the relevant knowledge and experience handmade soap, the process need to be fully discussed with the coordination and integration of creativity, team working experience is also valuable because of the difficulties encountered in the process, in discussions bring out new ideas solutions, such as the choice of oil, expected to Yunlin local produce soap, how to get? After completion of soap program, also through creative thinking into the packaging design to the property, students learn to fully experience the art and history of making valuable commodity. Although some students because the course of little artistic experience contact with creation, leads to self-handicapping and appears unable to reach course objectives apprehension, but also because of the chemistry of the old students experience fear lingered, but of course when it is clear the purpose and procedures and altruistic service after the step, team members generally can encourage each other and mutual learning atmosphere is boosted and enjoy learning fun, and even integrating a new creative fun, this part of the team from the end of the course still come back to experience again asked the teacher to arrange learning opportunities I can see that.

The course combines practical altruistic service creation and learning process, the experience of learning theory "learn by doing" practice at all stages of artistic creation in practice, such as art and charity activities placed in the transverse axis, the process altruistic service to motivate students to learn practice loving mind, art is no longer just confined to self-expression, but in order to be successful sale of creative services, in addition to the acquisition of social charity field marketing experience, but the ability to construct creative collaboration between peer group, the final celebration service is teachers and students together and the resulting contribution to Family Support Center, which can be used to construct a spontaneous and creative hands to reflect social care Liberal arts learning new experiences, through this course students can enhance the degree of recognition of the course and enjoy the experience of altruistic course learning, the final art and service-learning experiences within the degree of review by the report The aggregated analysis.

### 3.5 Course execution case

### Discuss status (a) Course

Figure 1 shows our program is divided into three periods, this is both coherent three periods, also advanced with a stack of learning, different periods have group discussions, make the process easier courses focused on the goal of each unit, is hereby are as follows:

1. The concept of foster discussion: my grandmother was taken through the course of fabric to motivate the international discussion, we will hear inspiring words or moving words, such as: "I suddenly remembered fabric grandmother in the countryside ..... !", "ah I have seen have a funky motorcycle seat, it is to use the cloth to do, though strange, but very handsome ... "Another example:" flower lighting makes me feel as if hidden in the flowers fairy, "" ..... original Forbidden City also has international and youthful side ", etc. in response, the courses open discussion topics through life experiences, from easy life cut theme, promoting cited previous experience of students being taken out, and further new art design case for the combination of domestic and foreign, such as the Forbidden City with the cooperation of international brands Alessi "old is new" cases, the impact of the Palace old students with cognitive, visual activation of new experiences with new discussions can present warm and play efficacy.

Min sense of the discussion: this unit, "I found someone who is" campaign, focused on the design spirit and shape characteristics of goods, the Panel through the arrangement and organization of information, clearly possessed convincing report it to the group of students to share. The first phase of the information is usually discussed generally more fragmented without structure, but the second stage in order to focus the discussion single integrated information, you can submit information to clarify the information and guidance of new skeletal structure, and find related merchandise stories, news or advertising to strengthen the product selection convincing, not only the process of integration and the ability to link training information, but also to deepen the impression of learning and performance. This stage focuses on the transfer and shape meaning and beauty, to convey the spirit of analytic philosophy commodities like last group oral presentations, strive to present a clear structure, product quality control and creativity, try to comment commodity future market trends, etc., can be apparent classroom discussion play benign results.

3. The creation of speculative discussion: general course for the engineering students, so in addition to the discussion of the theme of the unit in response to the classroom, the more we increase the number of times to discuss the creation of open lesson, which contains three-oriented:

(1) Application to discuss production techniques: soap making process is a little chemistry experiment course with danger and complexity, and therefore step before class techniques to convey the need to be very clear and explicit, through which the accident occurred in the past to avoid telling repeat the same mistakes, but also provide written information on the image, the steps (Figure 3), the course status through simulation and imagine the discussion, and to avoid the risk of failure due to execution errors caused.

(2) discuss the creation of Soap: contains three vision (sight, smell, touch) on soap making creative techniques, which constitute the discussion that contains visual images are: model use soap, soap garland, multi soap, single color soap ... etc., in the sense of smell is how to get between the oil and the skin effect is both fragrance and skin for the deployment, there are the added touch of Kamפו powder, all kinds of



pink slime, floral ... to increase the soap wash sense, in soap making full combination of diverse and fun; just the right time soap making process requires very precise control, making the classroom to provide dynamic videos to make learning by analogy, also as an intermediary for interactive discussion, the goal is to enable the students have clearer and assured to prepare creative process knowledge, and experience to do the discussion through video sharing, students can accelerate understanding of creation intention, in addition to reducing the creation of confusion students may also be reduced because the chemical reaction caused by a sense of fear, and then enjoy make fun of soap.

Discussions (3) packaging design: packaging designed for general engineering students who are more familiar, and therefore provide diverse courses to achieve visual stimulation package legend, the legend through the packaging color scheme, paper applications and make purchases with wire and packaging imagine the discussion match, hoping to think about the legend from multivariate conversion and application, so that imitation can become creative.

### 3.6 Embodiment

#### (A) program participants

China University of Science and Education Center by the service-learning course planning and design, from the commencement of the implementation of faculties, 10 to 20 students grouped units, each led by a teacher with a group of services to prepare students and students to assist during services. Each department will be scheduled with the teaching assistants commenced with a group of teachers and master teachers responsible for handling administrative matters related. In addition, service agencies are supervisors assist students in the process of field service, and participate in assessment of student performance. Select (b) service organization

China University of Science and Service Learning program consists of approximately 50 cooperative service organizations, medical institutions covered by the property, Corp., Foundation, schools, public agencies, communities. The amount by the number of students in each academic department can be assigned to several services from the main departments responsible for teacher to student services agencies, and assisted by student volunteers optional mechanism.

The Ministry of Education focused on the promotion of the concept of service learning, the establishment of a network to promote cooperation, heritage accumulated experience, to develop and promote the implementation of specific strategies to bring service-learning function consists mainly of students, schools, and community integration of resources in four areas, and through the promotion of the concept of service learning implementation, to win the whole tripartite strategic goals, the program will mesh hereby as follows:

#### 1. Students aspects:

With service-learning students from an early age to promote social and civic responsibility, service skills, personal development and ability to learn in real life situations, reflective learning ability and critical thinking skills, and service experience to participating students a positive growth experience, develop care social issues into public service, civil society participation in the new youth.

#### 2. schools:

Service Learning to bring about change by the school teacher-student relationship, to strengthen the interaction between teachers and students, and students learn to become active partners, transforming schools to become more open atmosphere and positive learning environment and school link with the surrounding community, mutual support and cooperation in the sharing of resources.

### 3. Community aspects:

Student services to the community and (institutions) new ways of thinking, to provide substantial assistance and problem-solving, community service learning partnerships between schools and teachers and students and via common development and achieve mutual function.

### 4. Resource integration:

Through service learning programs take forward the implementation of the concept of service learning to institutionalized power, government, schools, communities and non-profit organizations, service learning cooperation and jointly create a support network.

Looking at the Ministry of Education to implement the above four aspects, the student, the author believes should be to take into account the professional skills, not only service skills; school, although the Ministry of Education hopes to strengthen interaction between teachers and students, but teaching service the teacher should not have to learn academic learning theory of professional services, but also with professional and technical part of the practice, such as the hair-cutting or cooking class on the basis of professional skills, and be able to have the skills of practical application, rather than just focusing on theoretical aspects of academic knowledge; in the social sphere, should be combined with local communities volunteers, teachers and students at the same time when the service, and community volunteers to teach professional skills and techniques applied in practice mode, so that the community has not only volunteers professional skills, but also be able to serve their own community residents, and enhance community self-help capacities; and in terms of resource integration, Taiwan now has more volunteers platforms and can be integrated with different resources on a mutual platform, integration of resources We have been able to achieve mutual spirit of service-learning resource integration.

Students beginning of "service learning" this new term was strange, in fact, service-learning is to learn from the literal meaning from the service, and the use of their professional service providers to be administered, is the best giver, not As long as the service person with pleasure mood, but also with service providers spirit of service. Socially vulnerable groups of the need for service providers as well as aromatherapy and practices taught by the teacher began to nurture school students are eager to help others have the heart of a "service learning and life care" services need to be present to explain the need to have a "do not say do not speak, better spread the power of love."this humble and caring service warmly, if the course will learn the professional and technical integration services to learn to care for the life, character and life education would have a new sort of understanding, and no longer complaining about their current situation, it is a very meaningful thing. Social service industry talent and professional skills of caring for the guide, extending the school-related workplace cosmetic applications and management development, cultivate hope the industry and society really need talent, cultivate new vision students with professional

health and aesthetic services, and actively use their participation in activities related professional services, mutual exchanges, expand relationships and enrich learning experiences by services and implementation capacity to build confidence and diligent students of their professional competence.

### 3.7 the curriculum objectives

Learning Objectives (a) preparation of the service

Cognitive social care humanities

2. develop independent study habits
3. Test methods to solve problems and attitudes
4. Reflections on life experience
5. Practice teamwork attitudes and behaviors
6. experience the cultural values inherent in the education system
7. The ability to exercise Planning programs
8. participate in interactive campus of the University and Community Development

### 3.8 Course Content

Learning (a) preparation of the content and services

1. Service Learning lectures: Lecture Topic speakers and co-ordination organized by the Education Center, each semester games were held 6-7 lectures, taught students are required to participate in at least three games.
2. services visit: the teaching assistants to assist in arranging services team for each visit.
- 3.The panel discussion and preparation service learning books: Students are required to meet regularly with teachers with group discussions and prepare the book for the service learning content production services.

Learning (ii) implementation of the content and services

- 1.implementation services: Student service hours with the bodies own to demand services and to the completion of at least 20 semester hours of service, may, in accordance agencies require during school or during summer vacation execution, content and services in accordance with service learning readiness Book planning and organization assigned prevail.
- 2.Panel Discussion: During the service, the service will continue with a group of teachers and students to reflect on matters discussed.
- 3.Share and celebrate achievement: After the service, each team will implement the outcome of discussions with the service review team finishing a movie or presentation to share the achievements of the teams report will be published, and payment of a written report on the outcome.

### 3.9 Research Methods

First, the study

This study on 103 students surveyed semester academic year the Department of the Chinese University of Science and application of cosmetics, which belongs to College

1. The initiative to develop responsible habits
2. Experience of social care humanities

3. Test methods to solve problems and attitudes
4. practice teamwork attitudes and behaviors
5. Reflection and experience interactive services
6. The results of published services

### 3.10 guiding philosophy:

- (A) recognize the concept of service learning activities, and implementation issues.
- (B) the ability to care for the culture, practice goal of holistic education.
- (C) understand the problems inspired, face the problem, problem-solving attitude ability.
- (iv) the establishment of a caring community, helping the disadvantaged behavior and attitude and actions.

Design (E) Learning Service Learning program of Topics include: community service (12 hours): Students according to their expertise or interest in, select (already took the predetermined number) services to meet their own time and bodies, self-service access to complete 12 hours of service in the semester .

Classroom discussion and reflection: contains "ethic of voluntary service", "voluntary service experience to share," two topics will be taught in school hours on weekdays, and exhibition of achievements in the service end of the period.

### 3.11 Implementation services

The study by the school curriculum classes "skin aesthetics and life" into the service-learning, Students and external services, literature review and to collect relevant information for service learning, in order to successfully integrate service-learning curriculum, enhance professional skills of teachers in the course of a week the importance of teaching and the use of video advocacy service learning, so that students understand the needs and the status of the server object, and can enhance students' professional skills application, to enable students to understand the connotation of service learning, and finally writing research reports, said study process aggregated as follows shown.

Through the school of Mines indicates that the service learning programs, classroom teachers and service units in eight nursing homes are approached, that patients need nursing services, the report and director of the announcement of the class curriculum to integrate service learning. Teachers and students to share experiences previously voluntary service learning, and analyze hospital and health precautions, in a progressive manner as the psychological construction of the class, so that students from fear and increase service learning enthusiasm, so that students from technical Aromatherapy jerky to skilled, from fear to look forward to the arrival of school service-learning, is also prepared oil, towels, tissues, and other services required to implement the learning and sophistication of their professional skills, carefully record the teacher in the course of the analysis focused massage, aromatherapy tips massage acupuncture points and different symptoms positions with various application methods and taboos theory.

Teach students practical experience on-site practice aromatherapy, with the practical problems of patients subjected to effective acupuncture points massage, body, mind, health Lingjun comfortable, this is aromatherapy and practice courses, which allow students to understand LESSONS meridian massage the basic concepts and considerations, but also the history of the meridian massage and acupressure parts. Massage each other between students attending the site and find the point massage techniques, in order to be able to service, consumes minimal resources and environmental protection into account, the program to school recycling different types of folded paper boat and Longshan Temple retrieve sachets fold the roses ... and so on, with adequate preparation and then to school service learning, so that students learn less and practical atmosphere through four stages in the life of the service.

1. Preparation stage: service learning into the curriculum by the students and teachers together to plan for students to self-understanding and recognition of the application of science to memorize acupuncture to aromatherapy methods, activities carried out in small groups. The students continue to accumulate experience in practice, often in the next few bad massage frustrated frustration, the teacher with "Failure is the mother of success" to be encouraged, after repeated instructions by the service's status, so that students can Learn field service overview, and calmly and she has to have the attitude of enthusiasm service. Aromatherapy and practice into the service-learning courses to prepare self-understanding and affirmation, creative ways, the art of speaking, service skills, interpersonal and communication skills, feelings and harvest.

With actual contact with the student service providers can have a deep understanding of many places in the community, need someone to care about, like society, there are many services that need to be vulnerable, with our services, we hope to be able to give service providers substantial help, and inspire students to enable students to experience the service people is actually very simple, aromatherapy and practice, she has let us know that such a service to them on some level, is helpful, loose tendons act on aromatherapy, body and mind comfortable features. In the process of massage, so that students are interacting with the server, so that service providers know that someone is watching them, and to allow service providers and services are also very dignity is service, service providers we are able to hold the mutually beneficial and contribute to the attitude of serving them.

2. Service phase: students the art of speaking and service skills, team or individual manner, to provide diversified services, activities and services that can be linked with learning, sincere service objects — treat patients, and what they have learned into the professional courses services, and to promote the development of interpersonal capacity, improve services for the study and understanding of the values and concepts of design activities, not to obtain benefits for the purpose, and to learn how to contribute to society, promote social welfare, and the contents of service aromatherapy, folding paper cranes, origami boats, folding love carved roses and handmade paper, also contributed to the sign language and singing and dancing groups and other recreational activities. In Services, the students carefully service patients, the mentally friendly against the student said: "! Press firmly Oh, do not be afraid" to encourage patients courage inspired the students, the students are more confident as she has loose muscle massage, patients

are back the students said: "loose tendon massage is very comfortable, I like Oh!", "recalls that when I would do paper cranes will sing and dance Oh!" said a result of these activities, not only the physical and mental patients get comfortable and relax, but also to have this warm heart to each other, so that the service is trusted by our technology, service providers and to be released deep inside dusty feelings that do not want to tell, a spit faster. Be able to feel their positive attitude to face life, and then explore the meaning and value of self-life. The event, to see patients face with a pleasant smile, let us for love, have seen an unprecedented sort of understanding, When aromatherapy not only allow students more confident about their skills, but also believe they can achieve service-learning aims. Moment in the service, student experience, depth and breadth of their learning, but also to the effectiveness of student learning from a purely theoretical knowledge to enhance the holistic development of life. By participating student service learning and practice, and his family harmony and understanding of social issues and enhancing citizenship literacy, the ability to enhance self-reflection, the cumulative future competitiveness and employability.

3. The reflection period: students in the interpersonal communication skills and a great step forward, persistent continuation of activities for students to further reflection, I'm doing what service? Why should I carry out this service? I learn from the service to what? Due to lack of exercise than the Friends of psychosis, with aromatherapy massage and acupuncture points and tendons loose, so she has the body, mind, and spirit at all levels to achieve proper relaxation. Service learning to become a loving devotion, people everywhere have a warm room, by service learning allows students to realize the importance of interaction with the family. At the event, serving patients for students to increase their sense of achievement, despite the students consider themselves very caring but still needs to be strengthened in terms of technology, but also mutual encouragement among peers, the future promise of the technology has improved and breakthrough.

4. celebrate stage: enhance students' sense of achievement in the curriculum and skills, sustained and dedicated service power, while learning this lesson into the service, to show the glory of learning outcomes and services, each student Jie 8 hours service certificates and awards once, in the classroom and share the service-learning experience, see and touch treasure student services learning, happy saying: "I learned of aromatherapy," we are very happy Oh!

### Service learning activities photos



Fig. 3. 1



Fig. 3. 2



Fig. 3. 3



Fig. 3. 4



Fig. 3. 5







Fig. 3. 6



Fig. 3. 7



Fig. 3.8



Fig. 3. 9

#### 4. Results and discussion

Service-Learning allows service providers have another professional sublimation, also in response to the current Life Education occupies a pivotal position in the education of young people as masters of the country's future, the implementation of service-learning and implementation of the absolute necessity of life education, and education for life to be diversified, and students can expect from the service learning, practice life education, is that one can learn and internalize another explicit way, 'learning by doing' perception, the experience of the value and meaning of life and how different get along with others responding to dilemmas. From a "service-learning" connotations "life education" do in-depth inquiry, then

I get the following conclusions from the industry to the long-term study of academic service learning, and:

First, the current education authorities at all levels to actively promote the implementation of life education program, service learning, and related policy purposes of the strategy, which schools and students in life-enhancing education of considerable progress.

Second, the service life of study and practice of education, can reflect the meaning and value of life education. Students from the practice of service-learning, access to the value of life, but also to learn life that need to be respected, and views of life are able to re-innovation of the value of life and continuity.

Third, the business class service-learning is very important in life education part, this is an extremely kind service that allows students to achieve realization of life, and in the course of service among them, more diverse and rich understanding of professional learning, and thus Province thinking, showing the depth, breadth and validity of the life Education. And forward the practice of service-learning, so that students play inspired by the life and creative expertise and education.

Fourth, through meaningful curriculum design and reflection and criticism, to achieve the target to meet the needs of people and society.

Through this article can be found in the corresponding discussion, "Art and Design and Everyday Life" curriculum awareness through art and design, art, combined with service-learning course charity, in addition to the acquisition humanities connotation, students also experience the end of the response seen from hand creative packaging design, to marketing and actual selling and other design process, learning, reflection and growth through altruistic charity service, well able to recognize self-worth can create happiness for the community's identity through his hands. Through analysis and practical course record herein, further the following conclusions:

First, this is the new Liberal arts courses attempt to experiential learning theory, with emphasis on learner-centered teaching, from creation to manual packaging design, to marketing and other design and actual selling process, through altruistic service of charity learning, reflection and growth, to realize that you can create for society through the hands of self-recognition of the value of happiness, so that students not only learned the art conservation and aesthetic art capabilities, the ability to cultivate more taken the future of social services, has a substantive Construction new Teaching mode of Liberal Arts Curriculum. This mode of operation, teachers need to have the kinetic energy of instructional design and ingenuity, be active and willing to accompany students play the primary cognitive self-construction, because in the absence of any teaching resources grant its history the most difficult is that teaching material the advance planning and preparation, the course discussed motivate creative design, personally involved in the actual meaning of the store and the morale of the domain agitation, teachers to have more positive atmosphere management skills activities, and each step need to pour more than the general teaching mode more spirit to operate, although difficult, but if we persist, the students

Learning can be charged humanities and professional practice facility effect to foster imagination and creativity in the curriculum practices, marketing communication, the ability to plan strategy and teamwork, self-breakthrough and get difficulties encountered in the environment, positive thinking, and

teachers also get wider, substantial teaching experience in both teaching and learning in.

Second, in order to lead to altruistic service learning motivation, teaching and students in the actual response can be found, many students in the spirit of service to the community has been able to internalize self-ignite in life, they are generally not as imagined without a sense of community, also not want to do, but without the proper opportunity to learn and behave, expect to have more teachers to put together the teaching curriculum of activation, hope this course can produce more resonance effect of teaching to enhance students on the curriculum of credits positive nutrition awareness. But, domestic general education teachers structure common to serve, to be able to simultaneously plan includes courses in humanities thinking, artistic creation, altruism and service activities in the local community in conjunction courses seem to have their roots in difficulty, we can only look forward to more highly teaching dedicated teachers put together.

Third, through knowledge creation programs frequently asked questions: it is necessary to perform charity art have limited classroom time, students are able to complete it? Yes, I have also doubt whether students can be completed on schedule, and worry whether the effectiveness of teaching can be as expected? However, after the results of several years of proven, through incentives and motivate altruistic incentive of social services, and interactive panel discussions between moderately art arouse enthusiasm in charity can also cooperate with each other to break through the difficulties in the recommendations, Thus, although the class time is limited, as they are able to develop their interest in general, after school planning time to complete artistic creation, thinking to break through the road ... and other difficulties in the bazaar, in addition, students demonstrated in the creative process and the efforts passion, and at the completion of the works presented somewhat shy, but also quite rewarding expression, but the course is very important results. As Arong Liu Yuan Ze University (2005) has stated that "the course of development of certain life stages (ie ... university level) have a strong desire to create and behavior, this" intrinsic interest "(or motivation), such as

If there are good "external environment" to promote their development, both within and outside the interaction to form a large boost. "We believe that giving students can complete vision of the power of (I believe), although with difficulty faced homework, students will inspire creativity and efforts to break through.

Liberal arts curriculum on teaching, the author still looking for affirmation of self-worth as a reason for the general education teacher. I believe that if a Liberal arts courses students can not feel close to life experience, which is of course subject If you cannot enable students to reach the past and present experience motivated, after a semester of teaching and learning in the course and cannot So that students in the future will continue to extend application life classroom experience, I do not know what the course could leave? Hope Ji This course can do to each other in the link between art and design and life, so that students in the coming days to pick up again after the end of the semester to use and continue to sprout, and even become habits, teaching those who should be the greatest comfort. Hope to share this course, to be with other courses stirring creative spark learn from each other and further to innovative practice in teaching planning and common development in the new century talent suitable for learning the art of

general education courses.

## 5. Suggest

At first the necessity of student service-learning courses questioned, but no technology is more skilled aromatherapist, will also be afraid of those who despise and other service mentality. Via teachers encourage students to "learn by doing, learning to do," go to Bali sanatorium aromatherapy services and activities, the students are deeply inspiring and the importance of this program, so there are many corners of society to understand, need someone to care and services , with courses allow students to experience and after personally, something back to society, and to allow students to experience the service, and the practical application of technology, thereby allowing students to apply their knowledge to achieve the effect of. Out of the campus first contact with the Department of Health Pali nursing home care unit patients, although there are instructions in the classroom objects are sufferers, but the classmates still a little scared, but when the students saw being served by Broadwood side let classmates original Friends of psychiatric stereotypes have changed, when service to others, feel is needed and, thus, their own identity, This student is a genuine good way to encourage and increase confidence, which is the best harvest obtained service-learning courses. Service-learning training is very important, when classmates during this aromatherapy massage and acupuncture loose tendons and recreational activities, with a high degree of enthusiasm and patience, to see patients face with pleasure, teachers see students effectively enhance the skills and applications, but also saw service enthusiasm. To develop the habit of thinking, students will not be easy to rely on others, active learning attitude to life is fundamental. Cultivate feelings of caring for others, it can contribute to students willing for their own well-being of others as well as efforts to encourage students to explore educational development and mutually beneficial relationship between the groups, so that they can get assistance from the population, but also for groups to reciprocate and respect in trust and caring learning environment, students and self-confidence needed to become a good citizen attitudes, social services and can share with their families the skills, the ability to do some of the learner.

Learning self-growth, expanding relationships, social responsibility and everyone can improve social atmosphere, so that students can influence others to become role models. Integration of service-learning courses like doing good, hidden virtue, and self-help society as a whole is also brewing in the harmony of the gas. When students in the massage to help patients, coupled with a sincere heart knowledge, physical fitness, experience, technology and time to the meager forces, can promote social welfare and not to get paid for the purpose of service, dedication to serve the community become a to make the dedication to become a force, both to enhance the mutual cooperation of individuals and groups, but also more of a move and memories, so that students can remember the feeling of service learning and achievement, to make himself more sophisticated technology and more willing to participate service learning activities. Students participate in service-learning school, learned in school to provide professional services in the community of disadvantaged groups, can learn to do, learning by doing, the process of reflection and mutual benefit, the purpose of the contribution of the educational experience by learning, broaden their horizons . Currently schools need good neighbor also allow students the opportunity to learn some skills

to show and promote greater social harmony, so the younger generation machine will be better service, will be forgotten vulnerable groups allow students to take some services, enhance the students realize serve others is a happy job. And to serve as a learning leader, because of the ability to have, namely an international perspective, leadership, respect and innovation, ability, creativity, ethics and so on .. the ability to integrate.

1. The Ministry of Education actively promote community service, school teachers and students are also actively involved in the implementation of the long-term plan and hoped to make authentication service-learning more efficient.
2. With government departments to promote short-term and long-term service-learning should be two-pronged approach in order to achieve effective and long-term service plan.
3. The Ministry of Education can give professional class can have substantial technical training courses before training as aromatherapy and other services to make service-learning more efficient execution.
4. In addition to the students and sometimes beyond the concept of the number necessary to increase professional counseling courses to help students make the first contact with the mental construction is service-users.

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# THE IMPACT OF TECHNOLOGICAL CHANGES ON HUMAN CAPITAL AND COMPANY PRODUCTIVITY

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## *Abstract*

In order to be confirmed if technological changes have impact on human capital and how it is affected pilot research has been made. So, it is assumed that technological changes have a certain influence on human capital, mainly in a form of caused stress, which is expressed during the work. On the other hand, stress influences the work efficiency and decreases their productivity. so, the main subject which will be researched in this research study is influence of technological changes on human capital, mainly in a form of stress and if the stress generally changes companies productivity and how it is made. The research ought to give answers on several important issues, on the bases of findings more conclusions could be confirmed, that will justified the realization of this research. In that context causal – consequential relations, among the influence of technological changes on human capital distinguish, on one hand i.e. the stress as result of the influence and on the other hand, its projection on employee's efficiency. Primary objective of this research is to confirm if technological changes causes stress for employs and to what extend the stress influences on their productivity.

## *Introduction:*

We live in a world driven by technology, where by, the changes are continuous process, which should be absorb and use in business processes. In economic processes the latest achievements in technology are implemented permanently, there for, technological changes need to be properly managed. In that senses, the claim that technology could not be abstracted or isolated from the economy and the social contexts in every contemporary society is fully justified (Arnulf Grubler, 2003). Technology is a dynamic category, which is constantly moving and changing and consequently, the technological creativity implies economic progress, and as it is presents very significant potential power in every society (Joel Mokyr, 1990).The general definition of technological changes is given by Rosenberg (1982), and according to Rosenberg, it is required a certain amount of knowledge in order to produce 1 grater output and 2 more qualitive output with available resources. The continuous implementation of technological changes in the companies has certain and primary objective, which is to increase the productivity of the company. Or, to be more specific (Arnulf Grubler, 2003) the increasing of productivity is due to technological changes, i.e. to produce more with less input, regarding which factor of production is concerned. To the accomplishment of the objective, but decreasing of the expenditures, it is more common the management with the human resources to be the first segment on upon the changes is made. Цорџ Боландер, Скот Шнел, 2010).



Technological changes, as an integral part of every company, and adapting a new technology or adapting upon new technological changes, cause a stress for employees. According to (Subha I. and Shakil A, 2009) stress is universal condition which appears not only for employees, as well as for executives and managers of the companies. Globalization, technological progress, restructuring in companies are among the major reasons to cause stress for employees. On the other hand stress is commonly related to employees' performances, which is subject of further discussion, i.e. if stress influences the productivity of the company. Numerous theoreticians consider that the stress has negative correlations with employee's performances.

### ***Methodology***

The pilot research has been done in a companies with different sized, different activities, located on the territory in the republic of Macedonia, 42 companies are comprised. For that purpose, a questionnaire was constructed, that consist 10 questions, that I consider relevant and they will adequately treat the problem which was initially set. The questions consist the elements that are subject of research of this project. Questionnaires were distributed by e-mail to the managers of the companies. Graphics is used for analyses the results, t- test is used for analyzed the hypotheses.

\* \* \* \*

Firs, improving the performances of the companies are part of the bigger percent of the company's strategies, and that is confirmed from the fact that 98% of the companies answer positively on this question (are the improving of the performances are part of your strategy?) This fact is very crucial, because investment in new technologies and investing in human capital are reason for company progress and provides following the world trends. There are several primary reasons that point to the need of investing in technologies which according to Butler and Turner are the following:

- Market presence in a form of a new product,
- Efficiency i.d decreasing production cost,
- Improving of the image of the company,
- Developing technological dynamic
- Standardization and e.c.t

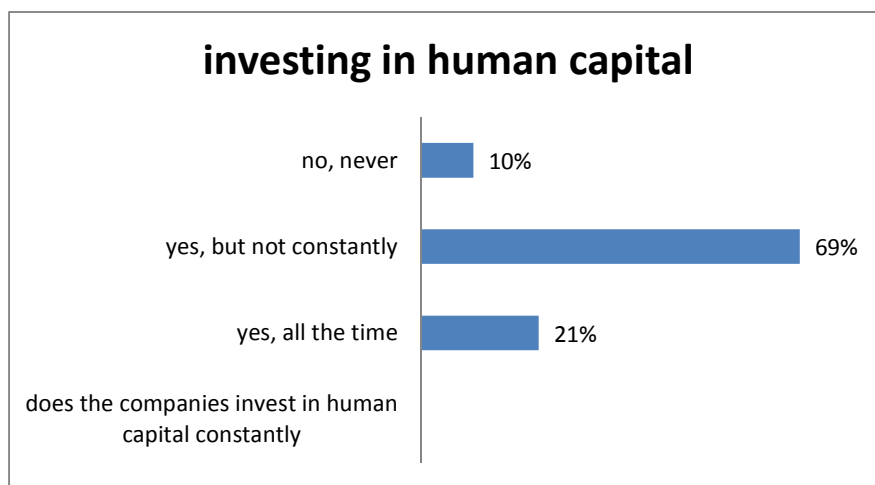
Large percent of the companies, 79% have established a systematic approach in the implementation of technological changes; hence they know exactly how to conduct the process of implementation and adaptation for new conditions, although 52% of the companies do not have a developed system of adaptation for technological changes. That is to say, this indicates the fact that although the companies do not have certain model or system with this process, still has some subtle method of adaption and implementation of technological changes which is functional for them. The system of implementation of technological changes is a an important precondition, because it incorporates several segments which need to be absolve , mainly due to adequate application of technological solutions. That is to say, regardless if a new technology is implemented or update is made, the success of implementation of technology depend on date quality which the management have foe financial power of the company,

staff potential, development objectives, market present and so on. All of this is necessary in order for the management to lead the program for implementation of technological changes, i.e to manage the changes with a process of adaptation. The success of overall process of implementation also depends on what range and timing the employees will overcome the acknowledgment for the new technology to functional. Companies, often, during the implantation of new technological changes do not hire new staff which already knew the new technology, but they organized training for already existing staff. Specifically, on the question whether the company hires the new staff or organizes, training regarding new technology, 83%of the examines answer that they organize trainings, and just 17%answerd that they hire new staff. On the question whether the companies in the case of implementation of new technology are reactive or proactive, 88% of the examinees answered that their employees are proactive when it comes to new technology or implementation and update of the old one, only 12% that their employees are reactive.

- Employees need to understand teamwork in the company
- Possibility of employees to be independent in decision making on sector level
- Employees to be active in realization of the vision of the company
- Focus on achieving best performances of the company
- The team to learn from their own mistakes and to overcome the problems which appear during work, etc.

However, it should be mentioned that although the companies organize trainings during implementation of some technological change, or they are in the process of upgrade of the old one technology, in both cases they invest insufficiently in human capital. This could be seen in chart number 1, as corresponds with the answers of the question *>does the company invest in human capital constantly*, so we can present next situation:

*Chart number 1. Display of the results by answers for the question does the companies invest in human capital constantly*

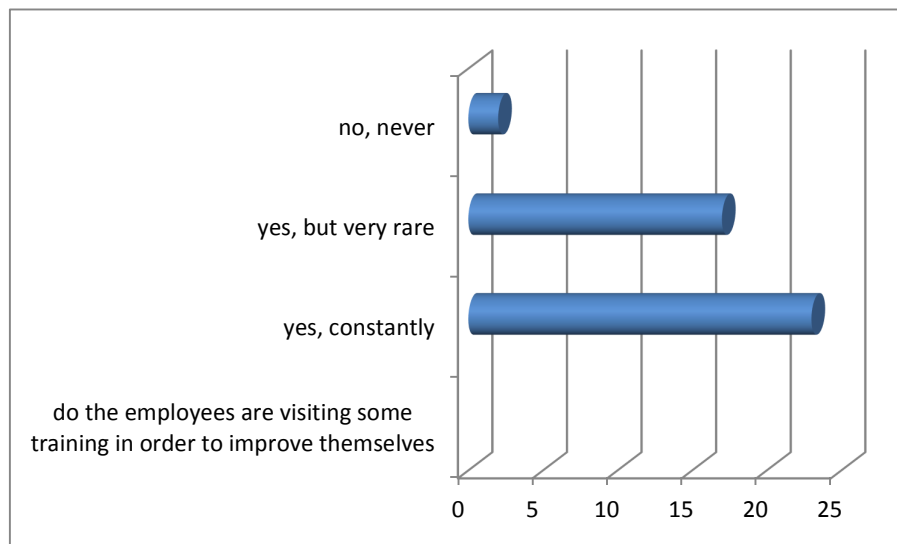


From the data given you can see a very small percentage (21%) of the companies constantly invest in human resources, 69 % of them invest in human resources, but not on a standard basis (the form and constancy is not known, i.e. the continuity of the investment), and 10% of them answered that they never point for that, it's not part of their business strategy. This means that the percentage of companies which

constantly invest in human resources is on a minimum number, despite the fact that human resources are the driving force in every company.

Also, the issue of *whether the managers send their employees on trainings which are important for their sector of improvement* has risen with its seriousness and the answers are systematized, processed and presented in **chart 2**. You can see from here that the number of companies which send their employees on trainings continuously is bigger, i.e. in 23 companies the employees continuously attended trainings, but on very few occasions, just in 2 companies the employees never attended any kind of trainings.

**Chart 2. Display of the results by answers for the question do the employees are visiting some training in order to improve themselves**



The most significant problem analyzed in this research project, according to the previously made analyses, was to determine whether the technological changes, i.e. the implementation of new technology or upgrade of the old one have any influence on the employees, whether it causes stress, how much stress it is- by the scale gradation/ and if the stress has any influence on the productivity of the company, any negative influence on the whole working process.

There have been given two hypotheses for this purpose thought to be relevant for this research project and they are completely focused on the target problem.

In that sense the zero hypothesis has been given, which is:

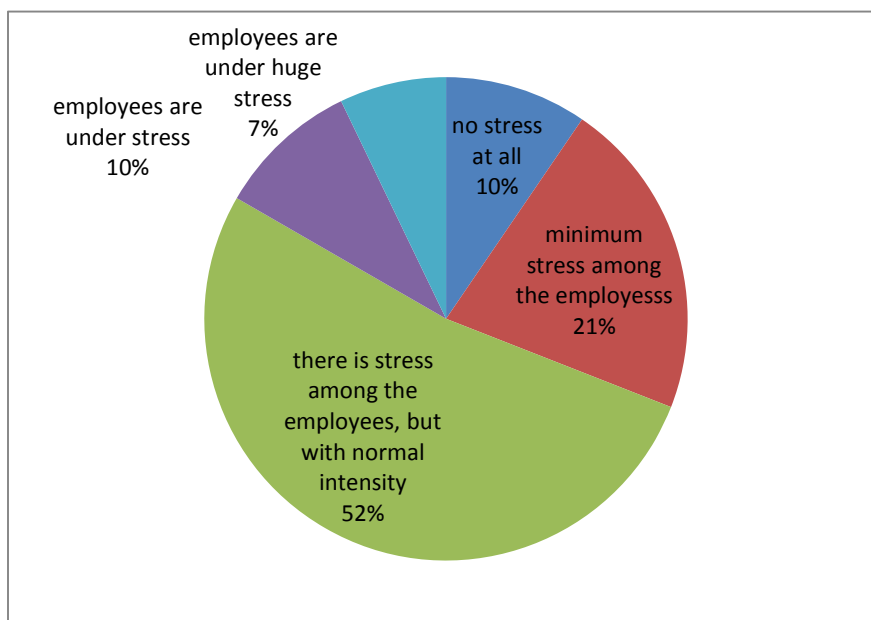
**H<sub>0</sub>**- The implementation of technological changes has no influence on the productivity of the company.

And the alternative hypothesis is:

**H<sub>a</sub>** – There is a correlation between the implementation of the technological changes (the stress caused among the employees) and the reduction of productivity in the company.

An analysis of the data which was gathered for the purpose of this research project was previously made in order to test these two hypotheses, for the already mentioned implications.

**Chart 3. Display of the results by answers** for the question *whether the technological changes cause stress among employees.*

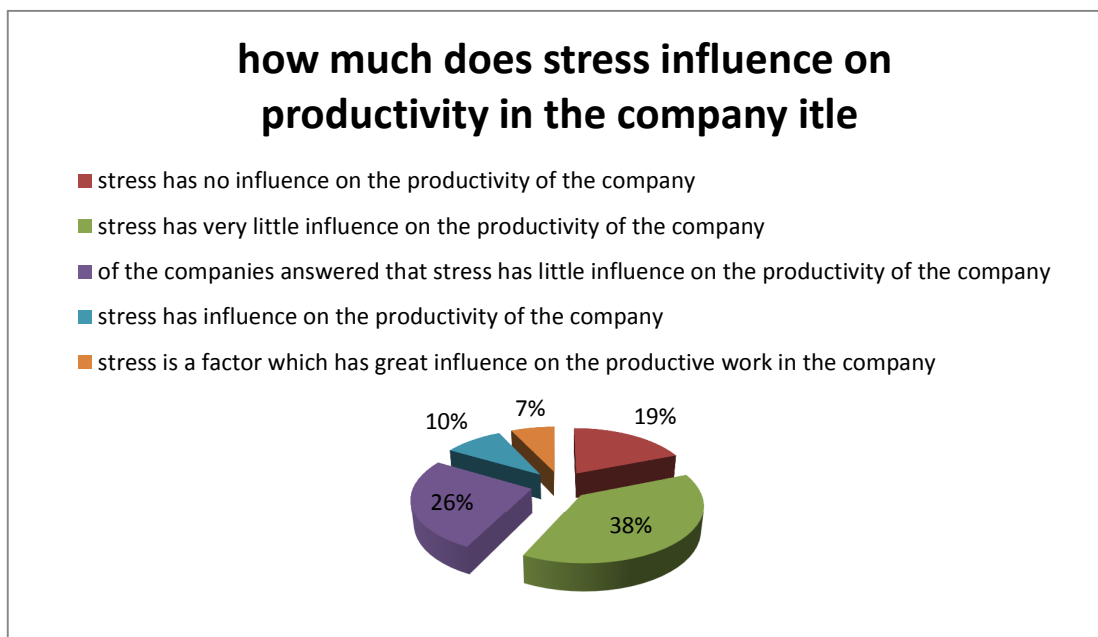


On **chart 3** interesting indicators are noticed about the situation in the examined companies concerning this problem. More precisely, about the question *whether there is any stress among employees during the implementation of the technological changes*, it can be noticed that half of the companies, 52%, answered negative, that there is stress among the employees, but with normal intensity, meaning that it has no significant influence on the implementation of the business in the company. Also, some 10% of the companies gave a positive answer, emphasized that the employees are under stress, having direct influence on their business activities in the company. Further, 7% of the managers in the companies stated that employees, during the implementation of certain technological change, are feeling huge stress and there are consequences on their working capabilities.

The answers on the question *whether stress has influence on the productivity of the company* are given in **chart 4**. The gathered data gave the conclusion that 38% of the companies confirmed that stress has very little influence on the productivity of the company, being almost insignificant; 19% of the companies answered that stress has little influence on the productivity of the company. Including here are

26% of companies' managers who stated that stress has influence on the productivity of the company, 10% said that employees under stress have huge influence on the productivity of the company, while only 7% think that stress is a factor which has great influence on the productive work in the company.

**Chart 4 . Display of the results by answers** for the question *how much does stress influence on productivity in the company*



The last two analyses are especially interesting for further processing, because they look on the problem which is the main topic in this research. As it can be seen, among the data derived from the scale about whether the implementation of the technological changes causes stress at the employees and if that stress has any implications on the productivity of the company (according to the indicators in **chart 3 and chart 4**), the answers deduced were similar, according to their trajectory of movement, i.e. there is a close correlation between them. If the implementation of the technological changes cause stress with certain intensity, then the productivity in the company changes with the same intensity.

Because these two aspects are a key segment in this research there is a further analysis made with two **opposite** hypotheses in order to get the final conclusions for the general problem set as basic to be analyzed.

There is a dilemma imposing: whether to accept the alternative hypothesis, the assumption that the implementation of the technological changes, i.e. the introduction of new technology and/or upgrade of the already existing causes stress on the employees, and the stress, itself, implicates reduced productivity on one side; or to accept the zero hypothesis, stating that claim that there is no influence on the productivity of the company when implementing new technology.

The analysis is made in Excel, according to the data received from the previous research. From the analysis of these two hypotheses, by applying the t- statistical test, two conclusions can be made:

- since  $p > \alpha$ , and in this case the p value (0.5) is bigger than the critical value (0.0005), it is justified to conclude that one should not dismiss the zero hypothesis and accept the alternative hypothesis. So, the zero hypothesis is accepted, since this researched showed that:

t-Test: Two-Sample Assuming Unequal Variances

	A	B
Mean	8.4	8.4
Variance	63.3	28.3
Observations	5	5
Hypothesized Mean Difference	0	
df	7	
t Stat	0	
P(T<=t) one-tail	0.5	0.05
t Critical one-tail	1.894578605	
P(T<=t) two-tail	1	0.05
t Critical two-tail	2.364624252	

**H0- The implementation of technological changes in companies has no influence on the productivity of the company.**

Yes, it is correct that the implementation of the technological changes causes stress on employee’s thus influencing productivity but that is insignificant compared to the effects the company gets from the technological progress. (profit, developing possibilities, resources utilization with reduced costs etc.)

**Conclusion and recommendations:**

From the conducted analysis of the data gathered from the research made on a specimen of 42 companies, located on the territory of R. Macedonia, with different size and activity, some important conclusions can be drawn.

1. First, the companies which were part of the research showed that they have precisely defined strategy, especially when it comes to performance enhancement and continuous investment in new technologies, i.e. accepting technological changes. To be more precise, the companies in the survey have established systematic approach about the implementation of technological changes and know how to carry out the process rationally, effectively and efficiently, although many of them don’t have some formal system or model for the realization of such solutions. Almost all companies during the technological adaptation organized appropriate trainings for the employees, but didn’t employ staff which has the knowledge of the new technology. This conclusion comes from the fact that many managers answered the presented questions that the employees are proactive when it comes to adapting to the new technology. However, it’s worth mentioning that, although the managers of the companies send their employees on trainings during the implementation of some technological change, still significant

percentage of the companies don't invest continuously in human resources.

2. The general problem, analyzed in this research paper, should have confirmed or dismiss the given hypothesis: whether technological changes have influence on the employees and cause stress, thus reducing the productivity of the company? According to the analysis of the data and the tests of the hypotheses we can conclude that technological changes cause stress on employees, but not with a bigger intensity which would influence on the productivity of the company. Here, it's worth mentioning that the answers which were given in the questionnaires are mostly from the managers of the companies, and not from the employees in the production plants and halls. So, whether this perception about if the employees are under stress and with what intensity during the introduction of certain technological change, if it causes reduced productivity, that's all their objective view.

3. So, the key recommendations which come out of this research paper can be systematized as: a) companies to give bigger importance to human resources and their development, as one of the most important segments for their efficient business; b) increase of the value of human resources should be important part of the strategy of every company, this meaning continuous investment through different forms of trainings, education, conferences, seminars etc. Only in this way the companies (employees) can easily adapt to the implementation\

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# **DO FLEXIBLE WORK ARRANGEMENTS AFFECT JOB SATISFACTION AND WORK-LIFE BALANCE IN JORDANIAN PRIVATE AIRLINES?**

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## **Abstract**

The purpose of the present study was to investigate the relationship between flexible work arrangements, employee job satisfaction and work-life balance in Jordanian private airlines. The design of this study has quantitative approach. Data was obtained by questionnaire instrument. Random sampling was used in this study. A sample of 95 employees was studied and SPSS 20 was used for the analysis of data based on descriptive statistics. The results have confirmed that flexible work arrangements have positive and significant impact both on employee job satisfaction and work-life balance.

## **Key Words:**

Flexible Work Arrangements, Work/life balance, Job satisfaction, Jordanian Private Airlines

## **Introduction**

Today's, flexibility is increasingly recognized as a strategic tools of providing a way to manage space, time, and employees more effectively within the uncertainty of environment and the down turning of global economy. It become as a key policy adopted to develop a stronger, more viable firms with committed, more productive employees. According to (Apgar, 1998) offering flexibility is productive mechanism that human resource management can help create effective association between employees and company goals. If firms can boost people objectives then the positive effect can lead to long term efficiency and effectiveness to the firm by achieving business goals (Greenhaus & Parasuraman 1997). Business organizations are continually developing strategies to reduce costs, improve competitiveness, maximize employees' productivity and offer a culture that helps employees in maintaining work life balance. However, employees strive to be productive at the workplace but not at the expense of sacrificing their personal life (Harris, 2004). Barber et al (2005) point out that firm must continuously develop new strategies and cost effective means to satisfy the needs of its employees. Schieman & Young (2010) suggest that formal workplace flexibility policies if line up with employees demands rather than being imposed from outside they may become as a valuable resource to help employees balance their work and family issues. To this end, the use of flexible work arrangements which include different types

like job sharing, flextime, compressed work week, and telecommuting has increased over the course of the last decades (Grantham et al, 2009). Rau (2003) defined flexible work arrangements as work outside of company hub or the schedule working hours and workweek hours, and without the spatial borders or physical confines of a traditional office location. Lambert et al (2008) stressed that flexible work arrangements is a work arrangement that allow employees have some control over when and where they work. Maxwell et al (2007) indicated that a flexible work arrangements is a formal or informal policies adopted by organizations that allow workers to flex schedule and workplace. Several scholars such as (Bird, 2006; Jacobs & Gerson, 2004; Cullbreath, 2010; Lewis et al., 2008 ,Kang et al., 2006, Palmeri, 2013) have showed that flexible work arrangements were successful as they can benefit both employees and employers. For the employers it enhanced firms' productivity and efficiency, attract well educated applicant, strengthen the organization recruitment strategy, and reduce the overhead cost while employees benefited from additional time to manage their family demands, increased job satisfaction, lower absenteeism and turnover, and higher productivity. Now, in 2009 flexible work arrangements became as a crucial issue in Jordan because of the high incidences of redundancies and a reduction in revenue associate with the effect of the global economic crises and recession. In response Jordanian private airlines had adopted various types of flexible work arrangements. And since then a significant question has been raised as do flexible work arrangements affect work life balance and job satisfaction? Thus, this study emerged as an attempt to answer this question.

### **Theoretical overview**

Workplace practices that can help employees manage their work-personal lives have raised the interest of many researchers and practitioners (Hammer et al, 2005). Among those practices flexible work arrangements in especial have been touted as key that can provide workers with freedom and autonomy to balance their work and non work responsibilities. And it's generally considered as work options that allow flexibility in terms of when and where work is completed (Rau & Hyland, 2002).According to (Kroll, 2009) flexibility in the work location is considered as an advantage when looking at job vacancies. As it allows people to stretch their capacity and manage their life issues. With this shift of mindset, organizations are making the shift to incorporate flex work with the purpose of attracting and retaining the talented employees and maintain competitive with other firms at the marketplace. Flexible work arrangements are very significant for employees as alternative to the traditional work schedule, and they can support their preference and unique job requirements. Also, work arrangements have proved to be successful in improving employees moral, meeting their needs and expectations while contributing to the firm, and attracting and retaining the talented employees (Cole, 2006). Crampton & Mishra (2005) stated that job suitable for flexible work practices typically have several characteristics which may include but not limited to, tasks that are obviously defined and goals can be set, tasks that can be achieved at uninterrupted time, and jobs that require completed at the main office on non telecommuting days. Scordato & Harris (1990) added that flexible work arrangements programs can be valuable in different positions and functional areas such as human resource generalist, day care director, international manager, line jobs, counselor, network engineer, graphic designer, information specialist, financial analyst, and

supervisory positions. Several scholars indicated that implementing flexible work arrangement programs may result in some advantages and disadvantages. Akyeampong (1993) confirmed that employees can benefit from flex work as they can improve their moral, increase in job satisfaction, reduced absenteeism, improve commitment and customer service, and increase in creativity and ability to handle stress. Houseman (2001) stated that using arrangements allowed employers to reduce the cost of employee benefits, screen for permanent positions, lessen absenteeism, meet the needs of workload fluctuations, and boost the investment climate. Maxwell (2007) stated some advantages of flex work such as lower absenteeism and turnover, reduced cost associated to real state, increased job satisfaction, strengthen the recruitment strategy of firms, firms can attract well educated applicants, stimulate employees productivity, and maximize the employees performance. And he added that disadvantages of arrangement programs may include minimizing staffing level, errors due of work fatigue communication problems, lean production lines, and isolation of work. Kush & Stroh (1994) have addressed other disadvantages of flex work such as reduction in resource requirements, not easy to track employee time, difficulty in monitoring or supervising employees, and the direct cost of adopting arrangement programs may not be offset by increased productivity. According to (Grantham et al (2009) Flexible work arrangements include different types such as, firstly, flextime that can be defined as a program that let people enjoy their start and end time, but work a standard number of hours per a day, and be at work for core hours of the day. The variation in flextime programs are provide by the firm and generally involved the extent of control that people have over their schedule. Flextime facts have been identified like core hours (the daily hours tat people must be at work) and schedule flexibility (it allows employees to change the starting an ending times from day to day and week to week (Rocereto et al, 2011). Secondly, compressed work week that can be considered as a schedule that composed of working a full time schedule in fewer, longer days, employee home or other place outside the firm hub (Lambert et al, 2008). For instance work four 10-hour days or three 12-hour days per week instead of the traditional five 8-hour days per week. This autonomy may provide employees with the opportunity of having longer period of uninterrupted personal time (Rocereto et al, 2011). Thirdly, Telecommuting that can be recognized as the ability of people to access work from remote location by using computers (Mamaghani, 2006). It envisioned as a way to minimize the firm cost. And it can potentially improve employee productivity while eliminating the time expenditures of physical commuting by allowing people to work from outside the company location (Siha & Monroe, 2006). And finally, Job sharing can be viewed as a strategy that allows two persons to perform one full time position each with responsibility for the success of the total job, and with sick leaves and holiday offs, and with prorated salary and vacation (Mamaghani, 2006). It may become as a solution to help people suit family-work obligations, reduce layoffs, improve employee commitment and loyalty, produce happy and productive workers, and finally support the organizational performance (Mamaghani, 2006). Many scholars such as (Allen, 2001; McNall et al, 2010; Maxwell, 2007; Siha & Monroe, 2006; Palmeri, 2013; Cullbreath, 2010; Lambert, 2008, Allen et al, 2013) reported positive association between those arrangements as independent variable and different dependent variables like, job satisfaction, organizational performance, work family, productivity, profitability, absenteeism, and work family balance.

Job satisfaction and work motivation have raised the interest of many researches. It has become one of the most studied work attitudes. Job satisfaction is significant in theory and practice. As the knowledge of work satisfaction can help firms understanding of how to encourage their personnel to improve productivity. Therefore, all organizations are invited to satisfy their workers as dissatisfied employees are prone to absenteeism and excessive turnover (Melamed et al, 1995). Job satisfaction has been defined and measured as global construct and as a concept with many indicators. Generally, job satisfaction can be recognized as a positive emotion state that come from work valuation and experience (Luthans, 2006). Siha & Monroe (2006) defined job satisfaction as the ones positive feeling or attitude about his or her occupation. And it may come from different sources such as taking care of family and personal obligations; flexible working hours, and work environment. Ivancevich et al (1997) suggested that job satisfaction is a pleasurable emotion that reflected from the employee interest in an organization. Furthermore, job satisfaction may include many dimensions such as supervisor, colleagues, salary, work, and promotion opportunity (Luthans, 2006). Whisenant et al (2004) proposed general satisfaction, supervision, co-workers, pay, job security, and personal growth as job satisfaction indicators. In the view of Price (1997) job satisfaction elements are supervision and rewards, communication, relationship with co-workers, opportunity for growth, job design, degree of influence, and evaluation. Hackman& Oldham (1974) as cited in (Palmeri, 2013) viewed job satisfaction indicators as general satisfaction, internal work motivation, growth satisfaction, job security, pay satisfaction, relationship with co-worker, and relationship with supervisor. Spector (1997) has developed a survey instrument to measure JS with FWA which has been adopted in this study on the basis of supervision, co-workers satisfaction, operating procedures, benefits, and rewards. The reason for this is most of the studies that have been carried in Middle East area have confirmed that those facets are the most important facets that have an influence on job satisfaction in the area (Shurbagi&Zahari,2012; Alesayoi,2003; Twati,2006). According to Palmeri (2013) work life balance is ability of an individual to manage conflict or harmony between work and non work issues. It's achieved when people are mutually satisfied with their work needs and their personal lives. And it may produce benefits for both sides which in turn positively enhance business performance. Frank & Lowe (2003) stated that most workers need flexibility in their work schedule to help manage their work and their family issues. Where, the idea of work life strategy that would associate social demands and competitive position by integrating the employees work life balance goals with the intersections of the firms (Bird, 2006). Clark (2000) described work life balance as a people perception that multiple domains of family care, personal time, and a reduction of role conflict at work. Guest (2002) suggested that work life balance is an assessment of employee working life in relation to his overall quality of life. Kossek, et al (2011) stated that work life indicator profile is compressed of behavior, identity, and control factors. Allen et al (2013) stressed that work family key words include work family conflict, work family balance, work family interference, negative spillover, work life conflict, work life balance, work non work conflict, and work non work balance. Greenhaus et al (2003) proposed that work life balance functions as time balance, involvement balance, and satisfaction balance. Netemeyer et al (1996) has developed a survey instrument to measure WLB with FWA which has been adopted in this study on the basis of job demand, family duties, family activities, family responsibilities, and interference

of work with family life. The reason for this is that the instrument has undergone rigorous scale development, reflecting fair internal consistency across different research samples such as high school teachers, small business owners, and real estate sales people and it has indicated a high reliability on short user friendly scales. Furthermore, the scale has demonstrated the conceptual distinction between WFC and FWC and reflects aspects of work for family interfering when doing the opposite domain duties rather than reflecting outcomes of the constructs themselves (Waumsley et al, 2010).

Based on the literature above, this quantitative study has developed the following hypotheses:

H<sub>01</sub>: There is no positive relationship between flexible work arrangements and job satisfaction

H<sub>02</sub>: There is no positive relationship between flexible work arrangements and work life balance

## Research method

**Table No. (1) Scale determine the agreement degree**

Agreement	Class
Agree to a very low extent	1
Agree to a low extent	2
Agree to a moderate extent	3
Agree to a high extent	4
Agree to a very high extent	5

Questionnaire survey was used to collect primary data from the study sample. Respondents were permanent employees in Jordanian private airlines. The information about the companies was obtained from Jordanian civil aviation regulatory commission. The population of this study consisted of 12 Jordanian aviation companies. As many as 160 questionnaires were submitted directly by researcher to aviation companies' sample. A total of 112 questionnaires were received until the end of survey, and after deep investigation a number of 17 questionnaires were found unfit for analyzation. Therefore, a total of 95 questionnaires were used in the analyzation which considered as the study sample. The stratified sampling was used in this study and the sample size has been chosen according to the population of company then the sample was selected randomly. The data was then analysed using statistical package for social science (SPSS 20). The questionnaire was in four segments. Segment A captured information about the respondents, such as information regarding, their organizational tenure, education, gender, and length of service in aviation industry. Segment B captured information on flexible work arrangements (flexitime, compressed work week, telecommuting, and job sharing).segment C tackled questions on job satisfaction facts (supervision, co-workers satisfaction, operating procedures, benefits, and rewards). Segment D tackled questions on work- life balance (job demand, family duties, family activities, family responsibilities, and interference of work with family life). In answering the questionnaire, the respondents were asked to indicate their response to the questions on a five point likert scale ranging from 1(strongly disagree) to 5 (strongly agree) as shown in table (1). The items used in the study were adapted from different studies (Spector, 1997; Cameron & Quinn, 1999; Alesayoi, 2003; Twati, 2006; Netemeyer et al ,1996; Waumsley et al, 2010; Maxwell, 2007; Palmeri, 2013; Cullbreath, 2010; Allen et al, 2013).

KMO test is used to test the adequacy of the sample size, and it's found  $0.672 > 0.30$  which means that the sample size is appropriate and the reliability of results are confirmed (Cooper & Emory, 2002). Reliability of constructs was tested with Cronbach's Alpha as suggested by Hair et al (1998), the value is  $0.80 > 0.60$  this indicates a high consistency between constructs in the questioner. Thus, it can be concluded that the instrument used in this study was valid and reliable.

## Results and discussion

**Table No. (2) Scale determine the relative importance of the mean**

The level of the effect	The mean
Low	2.33 and less
Medium	2.34 -3.67
High	3.68 - 5

These categories were derived according to the following equation:

Interval length = (highest weight -lowest weight)/ (three levels)

=  $(5-1)/3 = 1.33$

**Table (3): The mean and standard deviation for survey items**

		Mean	S.D	Level
<b>NO1</b>	flexitime	3.60638	1.22007	Medium
	Job sharing	2.18085	0.87943	Low
	telecommuting	2.44681	1.20587	Medium
	compressed work week	2.14894	1.04683	Low
	flexible work arrangements	2.59274	1.08805	Medium
<b>NO2</b>	Supervision	3.69894	1.09454	High
	Operating procedure	3.68511	1.06164	High
	Benefits	3.28723	1.21480	Medium
	Co workers satisfaction	3.27660	1.14914	Medium
	Job rewards	2.98936	1.25719	Medium
	Job satisfaction	3.38745	1.15546	Medium
<b>NO.3</b>	Job demand	2.27660	1.25642	Low
	Family activities	3.23404	1.22189	Medium
	Family duties	4.31915	1.26332	High
	Family responsibilities	3.29787	1.32657	Medium
	interference of work with family life	2.93617	1.11499	Medium

	Work life balance	3.21277	1.236638	Medium
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**Table (4): The correlation between survey items**

	Job satisfaction	Work life balance	flexible work arrangements
Job satisfaction	1	.46**	.51**
Work life balance		1	.82**
flexible work arrangements			1

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table (5): Full Regression Models between Dependent variable and independent variables.**

Model	B	Std. Error	t	Sig.
Constant	-.054	.208	-.259	.796
Work life balance	.680	.059	11.497	.000
Job satisfaction	.139	.060	2.322	.022
R Square	.692			
Adjusted R Square	.685			
F-test	102.252			
Sig.	.000			

Note: (1) \*\* significant at 1%, \*significant at 5%

Data was analyzed through descriptive statistical methods with mean, standard deviation, percentage, Pearson, correlation coefficient, T-test and regression. The results of descriptive statistics indicated general agreement of the respondents to flexible work arrangements. The mean values and standard deviation for variables as shown in table (3). Flexible work arrangements, flextime indicated highest conformity (mean= 3.60, SD 1.22); and compressed work week as lower indicator (mean= 2.14, SD 1.04); job satisfaction, supervision indicated highest conformity (mean=3.69, SD 1.09); and job rewards as lower indicator (mean= 2.98, SD 1.25); work- life balance, family duties indicated highest conformity (mean= 4.31, SD 1.26); and job demand as lower indicator (mean 2.27, SD 1.25). The mean score and standard deviation showed conformity of respondents' perception about those strategies. This result is in congruence with previous studies by (Allen, 2001; McNall et al, 2010; Maxwell, 2007; Siha & Monroe, 2006; Palmeri, 2013; Cullbreath, 2010; Lambert, 2008, Allen et al, 2013; Spector ,1997; Netemeyer et al ,1996; Waumsley et al, 2010) who argued that flexible work arrangements is limited to (flextime, compressed work week, telecommuting, and job sharing) and flextime showed the highest value as it's the oldest practice known by employees, the most suitable job satisfaction facets can affect middle east area are (supervision, co-workers satisfaction, operating procedures, benefits, and rewards), and the most consistent and reliable work life balance facets that can fit different studies objectives are job demand,

family duties, family activities, family responsibilities, and interference of work with family life.

The results of multiple linear regression analysis in table (5) are indicating support for all the alternative hypotheses. To test hypothesis 1, correlation coefficient in table 4 was (0.51) suggested a high positive association of flexible work arrangements with job satisfaction. The T value in table 5 was (2.32) indicated that there is a significant relationship of flexible work arrangements with job satisfaction as the value of the significance level (0.022) related to T value was less than 0.05 suggesting the presence of the relationship. So, the null hypothesis has been rejected (there is no positive relationship between flexible work arrangements and job satisfaction) at 5% level of significant and the alternative has been accepted that states a positive association between flexible work arrangements and job satisfaction. This means that the permanent workers in Jordanian private airlines are happy with the flexible work practices offered by their companies and motivated to spend more time at work as a pleasurable environment. This can prove that the effective implementation of flexible work practices may directly enhance the employee job commitment and loyalty to the company as well. Testing hypothesis 2, correlation coefficient in table 4 was (0.82) suggested a high positive association of flexible work arrangements with work life balance. The T value in table 5 was (11.49) indicated that there is a significant relationship of flexible work arrangements with work life balance as the value of the significance level (0.000) related to T value was less than 0.05 suggesting the presence of the relationship. So, the null hypothesis has been rejected (there is no positive relationship between flexible work arrangements and work life balance) at 1% level of significant and the alternative has been accepted that states a positive association between flexible work arrangements and job satisfaction. This means that the implementation of flexible work arrangements may attract talented employees as they need to manage their personal issues. Employees with verity of personal demands may be most likely to prefer work life balance programs that may help them to better enjoy their work and personal lives. Employers who offer those programs may have an advantage in attracting and retaining those high quality employees. Generally, Jordanian private airlines management have recognized flexible work arrangements as the most priority for the survival and competition of their companies in this uncertain environment as global economic crisis taking place all over the world. And they endorsed to engage their companies to flexible work practices implementation at all level of the company. The positive results provided concrete evidence regarding the success of flexible work arrangements and its influence on employee job satisfaction and work life balance. Flexible work arrangements is known as a process of managing to enhance firms' productivity and efficiency, attract well educated applicant, strengthen the organization recruitment strategy, and reduce the overhead cost. This requires firms at all levels to commit to the standard operation procedure in order to ensure that every aspect of its activity is aligned to make workplace an attractive environment. many firms have changed their work environment as they recognize that human resources is the most significant asset in the firm and need them to commit themselves positively to their job. Many employees motivated, satisfied with their job, more productive, effective and efficient and stay longer with the firms as they recognized and rewarded for the efforts that they have contributed to the performance of the firm. Further, supporting employees work and personal lives may produce positive effect that can prove long term efficiency and effectiveness to the firm by achieving its goals (Palmeri, 2013). Interestingly, organizations



have offered flexible work practices such as flextime, telecommuting, job sharing, and compressed work week as management become aware that those practices are significant to help increase overall job satisfaction and improve overall work life balance. Also, Management is taking a long term view of this significant issue, knowing that the effective implementation of those practices may lead to employee loyalty and positive firm performance. Job flexibility programs can be fit different lifestyles of today's employees (singles, parents, and others who want to work in flextime). Those arrangements have helped firms meet the changing needs of employees and improve their moral as well. Increase in information technology and the rapid pace of communication allow employees to meet their family obligations as they can spend fewer hours in the office, and other benefits such as stress reduction, decreased absenteeism, and job satisfaction (George & Jones, 2007). In a nutshell, the findings indicate that firms' management should consider offering job flexibility in their attempts to attract and retain talented employees, and to create committed loyal workforce as well. This is especially true for employees with high preference for flexibility as they want to maintain an active lifestyle with their family, friends, leisure, and other interests. The above mentioned findings are in concurrence with (Allen, 2001; McNall et al, 2010; Maxwell, 2007; Siha & Monroe, 2006; Palmeri, 2013; Cullbreath, 2010; Lambert, 2008, Allen et al, 2013; Spector ,1997; Netemeyer et al ,1996; Waumsley et al, 2010) results.

## Conclusion

During the past several years, interest in the topic of work-family conflict and programs that can alleviate it has flourished particularly across western countries. Among those programs, flexible work arrangements have been the target of tremendous interest. To our knowledge, so far only one study has examined the relationship between flexible work arrangements and work-family balance in Jordan. Previous studies asserted a positive and significant effect of flexible work arrangements on employee job satisfaction and work –life balance, and my study empirically confirmed the findings of those studies. Interestingly, during the implementation of flexible work arrangements firms' management shall ensure that there are significant tips need to be taken in to account. These include identifying the company objectives, determining how flexibility will support these objectives and identifying the possible influence on employees. And they can achieve this by developing standard operating procedure to guide the introduction and implementation, and minimize ambiguity. Also, they need to establish a system to track the problems and benefits. Employees should be actively involved in the planning and design phase in order to attract and retain talents and to motivate them to stay longer with the company. Finally, feedback is also important in order to evaluate the success of job flexibility as a strategy to prevent redundancies.

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# THE RELATIONSHIP BETWEEN THE SOURCES OF KNOWLEDGE MANAGEMENT, ORGANISATIONAL INNOVATION AND ORGANISATIONAL PERFORMANCE

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## **Abstract**

We discuss what knowledge and innovation are important in any economy. They are essential element of strategic resource for a business to maintain competitive advantage. This research examines the importance of the sources of knowledge management and its relationship with organizational innovation and organizational performance. We did this research on a sample of 200 Tunisian companies operating in different sectors. Our study was built mainly on the basis of quantitative method. The data collection method is the questionnaire as part of a hypothetical-deductive approach.. The empirical verification of the assumptions of this research has led us to confirm the relationship between internal sources of knowledge and organizational innovation and also to confirm the relationship between external sources and organizational performance. Finally, the rest of the assumptions are not verified.

## **Keywords:**

Sources of knowledge management, organizational innovation , organizational performance

## **1. Introduction**

Businesses today have become more interested in stimulating knowledge, which is considered the main asset. Consequently, the concept of Knowledge Management draws particular and considerable attention. The era of knowledge economy, the resources and skills should be crucial factors for organizations to

survive in the dynamic and competitive environment (Subramaniam & Youndt, 2005; Teece, Pisano & Shuen, 1997). After emphasizing that knowledge could replace the hardware, capital and labor to become the most important element in production. Many studies show that innovation in the business organization, knowledge management, employee involvement, usually lead a decisive comparative advantage (Gerard & Vendramin, 2006). The concept of the performance is still poorly defined; the vocabulary of specialists is not unanimous. Indeed, the researchers found many difficulties to agree on its meaning. Moreover, it is apparent with several related concepts such as efficiency and effectiveness. The fact remains that the performance remains a built support which is often defined by criteria illustrated by theorists and practitioners of performance and its measurement (Igalens & al, 2003; Wu, 2006).

In the following sections, we present the model and hypotheses for empirical investigation on firms in different sectors. We then present the results and a discussion of the results.

We found that internal sources of knowledge have a relationship with organizational innovation and organizational performance. However, external sources of knowledge have relationship with organizational innovation and do not with organizational performance. Finally, organizational innovations not have a relationship with organizational performance.

## **2. Litterature review**

### ***Internal sources of knowledge***

Internal knowledge is one of the sources of knowledge management that have been enjoyed in the literature (Ahuja and Lampert, 2001; Katila, 2002; Phene & al.2006; Rosenkopf & Nerkar, 2001; Nonaka & Martinet, 2003)).

Nonaka & Takeuchi (1997) challenge especially theorists of organizational learning, based on the work of Argyris & Schon (1978) show that companies can manage themselves a "single-loop learning" but that "the learning loop double" requires outside intervention. According to them, knowledge creating company is also able to change the basic rules of interaction between tacit and explicit knowledge.

Internal knowledge contains capacities and rules which cannot be expressed. It is generated by the learning process through practice and use and defined as "the body of knowledge that the company creates within its borders. This definition incorporates explicit and tacit knowledge as well as organizational learning stored in the routines of the organization, culture and strategy "(Crossan & al, 1999; Nonaka, 1994). In short, internal knowledge includes "the knowledge within the firm, codified by patents, trademarks and copyrights, as well as the tacit knowledge of the business such as the routines and culture."

### ***External sources of knowledge***

The external knowledge can be obtained outside the organization, for example in competitive markets or links to international organizations. Indeed, it can support collaboration between different participants, lead, record and review ideas from internal and external sources such as suppliers, distributors, customers, competitors and employees (Awazu & al .2009, cited by Tayaran & Schiffauerorva, 2012)).

External sources of knowledge are less expensive and less risky, but at the same time, external knowledge

cannot develop a competitive advantage (Garcia-Muina & al.2009, cited by Tayaran & Schiffauerorva, 2012)). Acquire knowledge through external collaborations allows individual companies to contribute to innovation. Therefore, external knowledge can influence organizational performance. The role of external sources of knowledge as a capital of innovation has been pressed several times in the literature within a range of theoretical approaches.

In recent years, companies have increasingly relied on external sources in their process research and development to develop innovations (Calantone &Stanko, 2007, Linder & al, 2003). External sources of knowledge are mechanisms to access external knowledge that can be crucial to innovation in society (Baum & Ingram, 1998; Duysters & Hagedoorn, 2002; McEvily & Zaheer, 1999; Powell Koput, & Smith-Doerr, 1996; Von Hippel, 1988, 2005).

Organizational innovation many researchers are interested in the study of organizational innovation (Dozi, 1988; Teece, 1989; Utterback and Abernathy, 1975; Dewar & Dutton, 1986; Ettlie, Bridges & O'Keffe, 1984; Freeman, 1992; Zaltman Duncan & Holbek, 1973; Oslo Manual of the OECD, 2005).

The organizational innovation is the introduction of new organizational business management methods in the workplace and / or the relationship between a company and external agents (Hamel, 2006, 2007, 2009). According to Gunday & al (2011), the organizational innovations are strongly linked with all administrative efforts to renew organizational routines, procedures, mechanisms, systems, etc.. and in order to renew teamwork, sharing of information, coordination, collaboration, learning and innovation. The organizational innovation is considered a source of sustainable competitive advantage (Mol & Birkinshaw (2009).Also, the organizational innovations are strongly associated with all administrative efforts to renew organizational routines, procedures, mechanisms, systems, etc. and in order to promote teamwork, sharing of information, coordination, collaboration, learning and innovation (Gunday , 2011). From OCDE (2005), the organizational innovation has been defined such as the implementation of a new organizational method in business of business practices, workplace organization or external relations. The feature that differentiates the organizational changes is the implementation of an organization which has not been used previously in firms and is the result of strategic management decisions.

### ***Organizational innovation***

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### ***Organizational performance***



“Performance is both multidimensional and contingent. It is multi-dimensional because we can find different action variables and many criteria to assess their relevance “(Jacquet, 2011, p.5).

The performance is far from being a simple phenomenon; it is a complex and multidimensional concept (Cameron, 1986; Chakravarthy, 1986; Venkatraman & Ramanujam, 1986). Cameron (1986) states that organizational performance is inherently paradoxical because, from a given perspective, it may indicate a good performance, whereas from another perspective, it might indicate otherwise. In addition, individuals may have preferences on the most relevant aspects to define and evaluate performance (Zammuto 1984) and, consequently, they may disagree on the measures to be used, the level of importance of assigned indicators, and how to interpret the results.

The presentation and improving of organizational performance remains a challenge for today's organizations. Therefore, in contrast to several studies that determine organizational performance by only a general indicator of productivity or average sales, our measure of organizational performance contains eight well maintained by the literature dimensions. These eight dimensions (sales, market share, profitability, efficiency, business growth, competitiveness, customer satisfaction and productivity.) Are important and appropriate considerations in different sectors. (Heppell, 2011).

### **3.Research model and hypothesis**

Our research aims to diagnose the relationship between the sources of knowledge management, organizational innovation and organizational performance. As illustrated in the research model, we assume that there is a relationship between the variables of research.

#### **The relationship between internal sources of knowledge and organizational innovation**

Knowledge and innovation are closely linked. To innovate, the company has to rely on its internal knowledge bases, to both benefit from them and incorporate the information and the external knowledge. Now, knowledge is no forget as a result of innovation, but as an essential element of the capacity of the firm to innovate.

According to Nonaka &Takeuchi (1997) "Understanding how organizations create new products, new methods and new organizational forms is important. However there is still a basic need to understand how organizations create new knowledge that makes these designs possible. "Internal knowledge seems important for "innovation-generating organizations" (Damanpour & al., 2006), and is considered as a basis for the learning process leading to innovation (Lichtenthaler, 2009).

H (1): There is a positive relationship between internal sources of knowledge and organizational innovation.

#### **The relationship between external sources of knowledge and organizational innovation**

In recent years, companies have increasingly relied on external sources in their process of research and development to develop innovations (Calantone and Stanko, 2007; Linder et al, 2003). In this context, recent studies highlight the importance of seeking external knowledge for innovation.

In addition, companies widely and deeply seek knowledge from outside sources tend to be more

innovative (Laursen & Salter, 2006).

Today is exactly admitted that "knowledge plays an essential role in the creation of value for contemporary organizations (Grant, 1996; Kogut & Zander, 2003; Shih-Wei, 2005; Landry, Amara & al, 2006, p.13) .This kind of knowledge is considered essential for organizations wishing to innovate and ensure a sustainable competitive advantage. This competitive advantage is reflected, among other things, the development of people skills to identify, assimilate and exploit external knowledge could provide promising innovations (Cohen and Levinthal, 1990; Daghfous, 2004; Shih-Wei, 2005, p.13 cited by Siam, 2010). Indeed, Lelarge (2011, p.274) shows the direct role of external sources of information and knowledge on innovation.

H (2): There is a positive relationship between external sources of knowledge and organizational innovation.

### **The relationship between internal sources of knowledge and organizational performance**

The internal sources of knowledge consist of production and knowledge sharing within the company (Lee & al 1999).

The debates focused on the importance of inter-organizational and network resources as a source of relationships, knowledge and sustained performance for the companies. However, the internal network is potentially an equal important source of knowledge that personal networks within the company are often the first point of contact for the employees. According to studies by Soo & al (2002), professional service organizations revealed that employees largely depend on their personal networks for information and knowledge. Indeed, the interaction between internal and external business and is important in the process of innovation.

H (3): There is a positive relationship between internal sources of knowledge and organizational performance.

### **The relationship between external sources of knowledge and organizational performance**

That previous research suggests companies create innovations using external knowledge, the goal to highlight the companies face difficulties in the acquisition and implementation of knowledge. When organizations adapt knowledge management in general, the competitive advantage will be enhanced (Kirsch, 1997). As a result, thanks to the year effective way to promote knowledge management, the company can benefit from the long-term competitiveness. All which several requirements exist with the use of external knowledge Will Strengthen or weaken either the performance of the company.

In Particular, we believe that a high use of external knowledge has a negative effect on performance. Many companies refer to acquire external sources of knowledge that essential for the improvement of new products and subsequently to market is performance. When companies enter new product, markets several Into-have a positive effect on performance. When firms use external knowledge they will have greater have a greater absorption capacity.

Also, each company has trading relationships with customers, suppliers and many others in their work environment and how structured thesis relationships will have a significant impact on the ease with all

which knowledge flows inside and outside the firm (Kogut & Zander, 1992; Winter, 1987). Also, firms use more external knowledge sources as significant to improve performance and to generate a competitive advantage (Liebeskind, 1996). The crucial role of external knowledge sources can be traced in the literature on the resources and capabilities of firms (Wernerfelt 1984, Barney 1991, Conner 1991, Peteraf, 1996) resulting and in a knowledge-based perspective (Grant 1996).

Bapuji & al (2011) show That Their Findings-have major implications for business managers to make decisions about Strategic Their product portfolios of companies and the extent to All which They use external knowledge.

On the other hand, research companies suggests that will greatly Benefit from the inside knowledge acquisition and Because The implementation of external knowledge is not easy task year, Especially Given the complex nature of various forms of knowledge and of organizational structures and systems That tends to complicate the transfer of knowledge (Cardinal & Hatfield, 2000; Darr et al, 1995; Irwin & Klenow, 1994; Lane & Lubatkin, 1998; Simonin, 1999; Szulanski, 1996).

The use of external knowledge Involves Many costs, Such as finding Appropriate knowledge bases, the selection of compete competing technologies, negotiation and monitoring and implementation of agreements (Kogut & Zander, 1996; Madhok, 2002). In addition, companies must assume the costs of formal care and informal networks to Identify and ao acquire knowledge (Soo & al., 2002). In addition, companies must to maintain knowledge enough to blind in identifying appropriate knowledge from outside the boundaries of the firm (Cohen & Levinthal, 1990). In addition, companies must devote resources to build structures and systems and maintain to acquire and assimilate external knowledge (Santoro & Gopalakrishnan, 2000).

Finally, external knowledge can reside in Areas of --other private companies, making it difficult to acquire (Matusik, 2002 Uzzi & Lancaster, 2003). As a result, the efforts of the acquisition and absorption of external knowledge are Sometimes Unsuccessful.

Although previous work has not explicitly examined the relationship between the use of external knowledge and performance, empirical evidence shows That That companies focus on internal and external Solely learning-have lower than Those That Maintain performance balance between the two (Bapuji & Crossan, 2004; Bierly & Chakrabarti, 1996). In short, "there is evidence to Suggest That Organizational units are more likely to Benefit from the inside knowledge of the external knowledge" (Argote & al, 2003).

The larger the company is open to external sources of knowledge, the more it has positive effect on organizational performance (Walcszuch & al., 2000).

Work has begun to verify that there is a positive relationship between external knowledge and organizational performance. Schroeder et al. (2002) showed that a positive relationship.

H (4): There is a positive relationship between external sources of knowledge and organizational performance.

### **The relationship between organizational innovation and organizational performance**

The literature between innovation and organizational performance is not announced in the literature. The

literature develops innovation as a process in a variety of ways (Damanpour & Gopalakrishnan, 1998; Damanpour et al, 1989; Knight, 1967; North, Rogers, 1995; Thompson, 1965; Wolfe, 1994). Since the early work of Schumpeter (1934), innovation has been known as a key element of dynamic competition and market efficiency.

Therefore, the innovative companies develop faster, more efficiently and more profitable than non-innovative ones. That is why profitability can be defined as "the degree to which some financial indicators of the organization by increasing or decreasing compared to previous experiences or against a target" (Morin et al.1994).

"Organizational innovation also influences the performance of the company's quality of work, information exchange, capacity of learning and the use of new knowledge and technologies. It involves the implementation of new methods of organization of the routines and the procedures of execution of the works (Dubé, 2012, p.7).Cainelli &al. (2006) examined the interaction between innovation and performance in more detail and concludes that there is a two-way relationship: innovative firms outperform non-innovators, but the most successful companies are also more likely to innovate and devote more resources to innovation. Therefore the evidence on innovation and performance suggests a positive effect on productivity and growth. There is evidence suggesting that external links, in particular with the customers, have a positive impact on innovation (Tether, 2005; Leiponen, 2005) and other evidence showing that innovation positively affects performance .At the organizational level, the authors argue that the increased pace of innovation reduces the cost of development (Meyer, 1993; Rosenthal, 1992) and improves the quality of the product (Nonaka and Takeuchi, 1989). At the industry level, it is argued that the increased rate of innovation may be associated with an increase in the market share (Robinson, 1988, 1990; Parry & Bass, 1989). Therefore, innovation improves competitiveness (Neely &Hii, 1998).Generally, organizational innovation leads to a higher competitiveness and profits (The Conollier, 2009).

In addition, some authors found that innovation has a positive effect on the sales growth but not on productivity (Mansury and Love, 2008). However, this finding is in contradiction with the result found by Mairesse and Mohnen (2003) who found that there is a positive relationship between the level of productivity and innovation.Organizational innovation significantly contributes to the performance, productivity and improvement of new goods and services and hence competitiveness and growth (Mayor, 2003).

Although it is generally accepted that innovation has contributed to the business performance, companies must adopt some types of innovation over time that enable them to achieve a competitive advantage and enhance their performance (Damanpour, 1991; Hénard & Szymnsk, 2001; Porter, 1990).The organizations that have greater innovation will achieve a better response from the environment, find it easier to improve organizational performance capabilities and consolidate a sustainable competitive advantage (Calantone et al, 2002; Hurley and Hult, 1998; Zaltman et al, 1973). Innovation has a direct impact on organizational performance (Hudges & Morgan, 2007; Zahra et al, 2000).Some empirical studies indicate that innovation has no influence on business performance [(Bierly & Westhead, 1990; Heunks, 1998), whereas others find negative implications on innovation performance (McGee et al, 1995

Vermeulen et al, 2005, p.442, cited by Rosenbusch et al. (2011)].

On the other hand, , the likely adverse effects from an orientation of innovation and some contradictory evidence, theory and most empirical studies suggest a positive relationship between organizational innovation and organizational performance [(Chen (2006); Damanpour & al, 2009, Eddlestone & al (2008,2009) Liao & Rice, 2010; Nranjo-Gil, 2009 Subrahmanya, 2005; Yam & al .2004, De Carolis &Deeds, 1999, Guo & al, 2005, Atuahene-Gima &Li, 2001, 2002, p.442, cited by Rosenbusch &al. (2011) ].

H (5): There is a positive relationship between organizational innovation and organizational performance.

#### **4. Research methodology and measurement of variables**

##### **4.1. The sample**

The sampling of empirical research phases is an essential step to ensure that the population has been correctly identified. This is the first step of the sampling process (Garrity & al, 2005). The parent population is the basis of deciding the sample to investigate. It can be defined as "all objects with the desired information to answer objectives of a study "(Giannelloni & vernette, 1995, p 153).Out of the 435 companies that were contacted; only 228 returned the questionnaires, 200 of which proved actually usable. Our final sample consists of 200 companies. 90% in Sfax, 2% in Tunis, 2% in Monastir, 3% in Sousse, 1% in Mahdia, 1% in Ben Arouss et 1% in Elkef. We contacted 158 companies face to face, and 42 companies by e-mail (Following the difficulty of obtaining a baseline survey of businesses located in the regions, we chose companies located in Sfax for reasons of proximity and a few businesses in Tunis were contacted by e-mail).

##### **4.2. Operationalization of variables**

To address this variable, we used different researches, such as those of Lee et al. (1999) and (Terziovski& Samson ,1999). The respondents were asked to indicate their level of perception on each item of the variables.

###### **Internal sources of knowledge**

The internal sources of knowledge are an independent variable. This variable is measured by six items. The respondents are asked to rate the importance of the potential of internal knowledge in the company using a Likert scale of 5 points from 1 = very poor to 5 = very high .

Based on the literature, this variable has been developed by several authors (Bierly &Chakrabarti ,1996), Grant (1996), Nevis et al (1995), Zack (1999) where the items by which this variable is measured are inspired (validated and used by from the work of Lee & al. (1999) .

###### **External sources of knowledge**

The variable external source of knowledge is assessed by five items. They are developed by (Bierly & Chakrabarti, 1996), Cohen &Levinthal (1990), Nevis & al (1995), Zack (1999) and validated and used by Lee & al. (1999).

The respondent expresses the degree of externalization of knowledge developed in the company. The

assessment is made by the Likert scale of 5 points (1 = very low, 5 = high) .

#### Organizational innovation

Organizational innovation is an independent variable measured by a Likert in five points going from 1 to 5. The codification on proposals is as follows: (1) not implemented, (2) imitated national markets, (3) imitated international markets, (4) The current organizational practices are improved, (5) organizational innovation is implemented.

The items by which this variable is measured were validated and used by the OECD Oslo Manual (2005). This involves the measurement of the elements of organizational innovations implemented in the organization.

#### Organizational performance

Organizational performance is a dependent variable measured by a Likert scale of seven points ranging from 1 = not at all important to 5 = very important. This variable is measured by eight items.

Thus, the studies is used several measures of organizational performance. The dilemma which is confronted by researchers is that one performance measure can fully explain all the aspects of organizational performance. In order to address this problem, the researchers resorted to the use of multiple measures of organizational performance.

The measurements of performance depend essentially on the objective and the context of the research. Some of the variables proposed to measure this concept include the sales, market share, profitability, operational efficiency, business growth, competitiveness, customers satisfaction and productivity.

Items 1, 2, 3,4, 5 and 6 are used by the work of [Premkumar & King ,1994)] and items 7, 8 and 9 are inspired by the work of (Samson &Terziovski ,1999) .

## **5. Data analysis and interpretation of resul**

### ***5.1. Measurement model***

The data were analyzed in several phases. First, the factor analysis (principal component analysis with oblimin rotation) was performed on all the multiple scale items to determine the item retention. The exploratory factor analysis revealed that two of the internal sources of knowledge items, two of the external sources of knowledge items, two of the organizational innovation items and two of the organizational performance items did not meet our criteria. These items were removed before the final scales were computed by averaging the remaining items. Table 1 reports the results and the summary statistics of all scales.

**Table 1 : EFA factor loading**

Indicators	Factor loading
Interne3	0,779
Interne4	0,793
Interne5	0,804
Interne6	0,707
Cronbach's Alpha	0,797
Cum. Variance explained (%)	64,307%
Externe 2	0,864
Externe 3	0,774
Externe4	0,756
Externe5	0,838
Cronbach's Alpha	0,823
Cum. Variance explained (%)	65,512%
Innovorg2	0,804
Innovorg3	0,839
Innovorg4	0,770
Innovorg5	0,795
Innovorg6	0,749
Innovorg8	0,813
Innovorg9	0,812
Cronbach's Alpha	0,848
Cum. Variance explained (%)	64,165%
Performance1	0,718
Performance2	0,747
Performance3	0,887
Performance4	0,826
Performance5	0,868
Performance6	0,835
Cronbach's Alpha	0,895
Cum. Variance explained (%)	66,556%

To test the model in this study, AMOS 19.0 was used as the statistical tool to test the full measurement model. A two-stage strategy was used: first, confirmatory factor analysis (CFA) was carried out to evaluate the measurement model, and second the full model was tested to generate the path coefficients. To examine the psychometric properties of the measurement model, Cronbach's alpha, convergent validity, and discriminant validity were assessed for the remaining 21 indicators. Cronbach's alpha reflects the internal consistent reliability among the indicators of a construct. As seen in Table 1 (Table 1:

EFA factor loading), all the Cronbach's exceed 0.6, showing a satisfactory reliability for all the three scales.

A convergent validity is suggested if the factor loadings are 0.60 or higher (Chin et al. 1996, Bagozzi & Yi, 1988). We found that the lowest loading was 0.511 which was very close to the ceiling. This finding provides strong support for the convergent validity of the scale. Next, to check the reliabilities of latent variables, Joreskog and AVE were calculated using the procedure outlined by (Fornell & Larcker, 1981).

As shown in Table 2 (Table 2 :Construct reliability), Joreskog and AVEs of our scale are above respectively 0.615, 0,623 and 0,623 except for the internal sources of knowledge latent variable at 0.459, but which was nevertheless very close to the ceiling. These results suggested the satisfactory the convergent validity of the measurement model.

**Table 2: Construct reliability**

Construct	Indicator	Loading	Reliability	Average variance extracted (AVE)
<b>Internal sources of knowledge</b>	Interne3	0,661	0,886	0,459
	Interne4	0,675		
	Interne5	0,654		
	Interne6	0,511		
<b>External sources of knowledge</b>	Externe 2	0,747	0,837	0,615
	Externe 3	0,599		
	Externe4	0,572		
	Externe5	0,702		
<b>Organizational innovation</b>	Innovorg2	0,647	0,906	0,623
	Innovorg3	0,706		
	Innovorg4	0,593		
	Innovorg5	0,635		
	Innovorg6	0,569		
	Innovorg8	0,670		
<b>Organizational performance</b>	Performance1	0,516	0,924	0,623
	Performance2	0,558		
	Performance3	0,787		
	Performance4	0,682		
	Performance5	0,754		
	Performance6	0,697		

For the discriminant validity, (Fornell & Larcker, 1981) suggested that the square root of the AVE from the construct should be larger than the correlation shared between the construct and other constructs in the



model. Based on (Fornell & Larcker's ,1981) principle, (Chiou & Lin ,2009) suggested that the average AVE values of any pair of constructs should be larger than the squared correlation between that pair of constructs. Following this suggestion, the results given in Table 3 (Table3: Discriminant validity of the theoretical construct measures) indicate that the three constructs have accept the discriminating validity.

**Table3:Discriminant validity of the theoretical construct measures**

	<b>Internal sources of knowledge</b>	<b>External sources of knowledge</b>	<b>Organizational innovation</b>	<b>Organizational performance</b>
<b>Internal sources of knowledge</b>	<b>0,459</b>			
<b>External sources of knowledge</b>	0,071	<b>0,615</b>		
<b>Organizational innovation</b>	0,041	0,071	<b>0,623</b>	
<b>Organizational performance</b>	0,158	0,085	0,023	<b>0,641</b>

**5.2. Structural model**

Fig. 1 presents the structural analysis results. As seen in Table 4 (Table4: Goodness-of-fit measures of the research model) the fit values of indexes such, as the RMSEA, TLI, CFI, and GFI, show that the full model fits the sample data. The path coefficients suggest that the internal source of knowledge has a significant impact on performance and on organizational innovation; however the latter has no significant effect on performance. Thus, hypotheses H1, H2 and H3 are accepted but H4 and H5 are rejected (Table 5 Summary of testing results hypothesis).

**Table4: Goodness-of-fit measures of the research model**

Goodness-of-fit measure	Recommended value	Fit index
X2/degree of freedom	<=5.00	2,317
Goodness-of-fit index (GFI)	>=0.90	0.886
Adjusted goodness-of-fit index (AGFI)	>=0.80	0.838
Tucker-Lewis index (TLI)	>=0.90	0.907
Comparative fit index (CFI)	>=0.90	0.925
Root mean square residual (RMSR)	<=0.10	0.062

**Table 5 Summary of testing results hypothesis**

	Estimate	S.E.	C.R.	P
<b>Organizational Innovation &lt;--&gt;Internal sources of knowledge</b>	,223	,082	2,712	,007
<b>Organizational Innovation</b>	,236	,104	2,275	,023

<b>&lt;--&gt;External sources of knowledge</b>				
<b>Organizational performance&lt;--&gt;Internal sources of knowledge</b>	,777	,116	6,702	***
<b>Organizational performance&lt;--&gt;Organizational innovation</b>	-,012	,076	-,160	,873
<b>Organizational performance&lt;--&gt;External sources of knowledge</b>	,010	,071	,140	,889

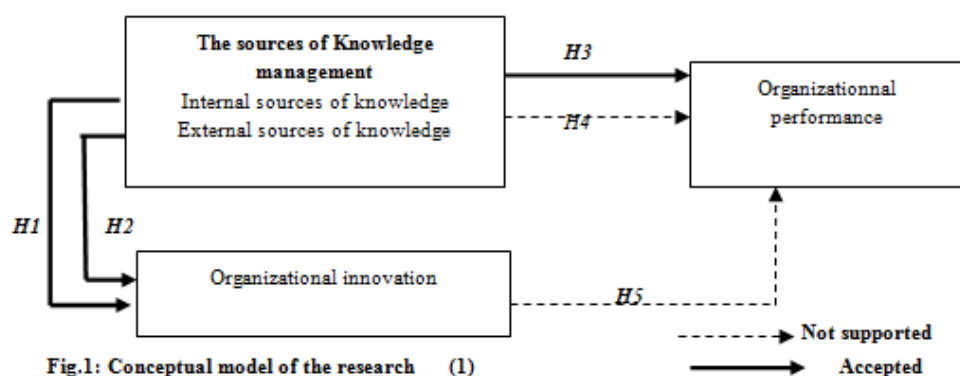


Fig.1: Conceptual model of the research (1)

## 6. Discussion

### 6.1. The relationship between internal sources of knowledge and organizational innovation

The importance of knowledge management for organizations has been widely discussed in recent years. Chronologically, organizational knowledge is generated internally (Paul, 2012). According to the OECD (2005), organizational innovation is nothing but the company's adoption of new ways to produce. Today, only a few companies can sustain their competitiveness and innovation by focusing solely on the internal sources of knowledge. Very specific customer knowledge management, technology, markets, etc are the key to innovation (Paul, 2012). The relationship between knowledge and innovation has long been recognized.

The results of the confirmatory analysis of our research enabled us to validate our first research hypothesis. It is a relationship between the internal sources of knowledge and organizational innovation, with a correlation coefficient  $CR = 2,712 > 1.96$  and  $p = 0,000 < 0,05$

Our results are consistent with those of (Cassiman & Vengeler, 2006) who showed that there is a relationship between the internal sources of knowledge and organizational innovation.

Thus, in the Tunisian context, to innovate, companies must rely on these internal knowledge bases and enjoy them. In addition, the ability to integrate external knowledge and process this information enables

the creation of new knowledge; that is the qualified internal competence of companies. Internal knowledge consists of qualifications, skills and experience of the staff and the knowledge placed in the process, in the organization, and in the databases. Certainly, the Tunisian companies promote and give much importance to internal knowledge lying within the organization for external knowledge of the various external actors. Therefore, internal knowledge is a basic source for the company.

### ***6.2. The relationship between external sources of knowledge and organizational innovation***

The results of the confirmatory analysis of our research enabled us to validate our research hypothesis .It is a relationship between the external sources of knowledge and organizational innovation, with a correlation coefficient  $CR = 2,275 > 1.96$  and  $p = 0,023 < 0, 05$ .

According to Nieves (2014), companies that develop and use external knowledge are likely to participate in inter-organizational collaborations with the goal of improving innovation. Therefore, to improve innovation and organizational performance, it must be based on knowledge and skills are not developed in the company. These findings are inconsistent with the work of (Huang & Rice ,2012) and (Laursen & Salter ,2006) who showed that there is no relationship between external sources of knowledge and organizational innovation.

The relationship between external sources of knowledge and organizational innovation is well studied in the Tunisian companies where access to external information sources and is considered central to the innovation process either technological or organizational as in our research. Indeed, based on information from the market including customers, suppliers, competitors, etc., Tunisian firms are more innovative and that is why there is a relationship between external sources of knowledge and innovation organizational.

Therefore, companies that have a greater dependence on external sources have a high degree of organizational performance.

Companies that have reached diminishing returns on what they know, which leads to greater dependence on external sources.

### ***6.3. The relationship between internal sources of knowledge and organizational performance***

The results of our research validate our hypothesis. There is a relationship between internal sources of knowledge and organizational performance, with a correlation coefficient ( $CR = 6.702 > 1.96$  and  $p = 0.000 < 0.05$ ).

Pa against, other work namely Slater and Narver (1995) give more importance to internal sources of knowledge. These authors propose that effective managers use several internal sources to gain new insights into their business and their environment. In fact, companies can develop knowledge by collecting pieces of information they get from other internal units.

### ***6.4. The relationship between external sources of knowledge and organizational performance***

The results of the confirmatory analysis of our research has allowed us to no validate our research hypothesis with a correlation coefficient  $CR = 0,140 < 1.96$  and  $p = 0,0889 > 0.05$ .

Our research differs with several works such as Pedersen et al. (2002) showed the existence of a negative

impact of external knowledge on organizational performance. This is shown that it is not only external knowledge that determines and influence organizational performance.

Overall, the work of Loree (2011) justified the use of external knowledge is not always a positive relationship on business performance. It seems that companies that benefit from the use of external knowledge are those who are not concerned with the implementation of market entry strategies for new products. So they increase the need for managers to be careful about the use of external knowledge that their company can not effectively absorb, especially when they pursue new entry on the market of strategies.

Therefore, the demonstration of the use of external knowledge is not always beneficial for businesses. Although it may challenge some thought patterns, managers can relate to that, even using internal knowledge for new applications is not easy and is fraught with the complexity of knowledge transfer.

### ***6.5. The relationship between organizational innovation and organizational performance***

It is a no relationship between organizational innovation and organizational performance, with a correlation coefficient  $CR = -,160 < 1.96$  and  $p = 0,873 > 0,05$

The results of our research have not validated our hypothesis. The results of our research are inconsistent with the results of other studies focus on the positive relationship between organizational innovation and organizational performance resulting in increased performance (Deshpande et al., 1993; Dos Santos and Peffers, 1995; McGrath et al, 1996 andFu Gao, 1996; Han et al., 1998; Schwab and Olson, 2000; Hult andKetchen, 2001; Du and Farley, 2001; Calantone et al., 2002; Garg et al., 2003; Wu et al., 2003).

Our research coincides with previous research that has shown that there is no relationship between organizational innovation and organizational performance (Capron (1999) & Heshmati (2002).

Therefore, in the Tunisian context, companies pay more attention to organizational innovation. This is explained by several things.

First, most of the Tunisian companies do not have specific departments to research and development. Thus, Tunisian companies apply organizational structures in accordance with the standards of the country. Second, given the lack of investment in innovation. Indeed, there is a difficulty to change and easily to innovate the methods of the company's management practices in the work organization or external relations expertise strategies cooperation or alliance, tools, processes, organizational and managerial techniques to improve organizational performance.

Usually, firms innovate at the organizational level depending on the priorities they define. They do so by applying a series of minor changes to their problem based emergencies. Certainly, renewals at the organizational structure facilitate teamwork and coordination between the different functions of the company.

## **7. Conclusion**

It is widely recognized that knowledge is an essential element of strategic resource for a company to sustain competitive advantage. Thus, since knowledge is created and disseminated throughout the company, so it has the potential to contribute to the value of the company by improving its ability to

respond to new and unusual situations (Choi, 2008).

We have to understand that organizational performance is an essential engine of the firms' activity of innovation (Damanpour, 1991; Vincent et al, 2005). Moreover, innovation can lead to the development of specific strategic resources for the company; provide a competitive advantage and high performance which could help to reinvestment in innovation to gain a competitive advantage (Bowen et al. (2010).

The empirical verification of these proposals is to confirm or refute the assumptions previously made by administering a questionnaire to Tunisian companies and analysing and processing the data using appropriate statistical tools. We found that there is a relationship between the sources of knowledge management, organizational innovation and organizational performance. The results obtained through the interrogation of 200 companies in our research test the causal structure of the overall research design and result in theoretical contributions, methodological and practices to be exposed.

The first contribution is theoretical order who is interested in the originality of our research justified by the lack of research that processed the enrichment explanation of the problems connected between the sources of knowledge management, innovation organizational and organizational performance.

The second methodological contribution is the development of a set of scales of valid and reliable measures. Indeed, on the basis of previous empirical work, we operationalized three variables (internal sources of knowledge, external sources of knowledge organizational performance and organizational performance).

We also note the limitations of our study. Finally, we assign a set of reflections that we have shown as extensions and paths for future research.

The first limitation focuses on the empirical study of different businesses and sectors. Moreover, conducting a study in different industries helps control certain specific circumstances, especially in the organizational performance of the company. However, this can limit the scope of the results, their extension to other contexts, and thereafter the external validity of the research.

On the other hand, we identified some methodological problems, such as data collection. The fact that this research is based largely on the perception of different managers of firms covered with subjectivity, leads to more generalized results. This approach could cause some bias since most of the data required to measure the variables are intangible in nature, therefore it would be difficult and even impossible, to collect the data objectively.

Highlighting the theoretical and methodological limitations to this research shows that the achievement of other researches reform the current system of research. In addition, to the different lines of research proposed to overcome the various inherent limitations of this research, other possible extensions can be considered. They should be varied and concern both theoretical insights and methodological improvements.

The line of research would examine the external validity of this work. Indeed, it would provide, as part of further work to re-check our model on a single industry, to check whether our results are generalizable or not. Thus, the use of research as a field operating on a homogeneity of private and public companies in a single industry with using the internal and external sources of knowledge management to improve innovation and organizational performance, and to undertake on the significance of our results.

Finally, it can be left room for other variables in our future research. For this, it exhibits several advantages, creates homogeneous groups and allows you to be more efficient to submit faster. Again, we will encourage to order objective measures with subjective measures to improve the validity of results.

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# **MOTHER TONGUE AN EFFECTIVE MEDIUM OF EDUCATION - (EDUCATION, WHICH IS A FACTOR OF HUMAN CAPITAL DEVELOPMENT)**

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Mother-tongue instruction should be the best way for children to learn as it bridges the gap between home language and language of instruction. Every language is sufficient enough to give high cognitive skills to its users and there are no major or minor languages. Therefore, mother-tongue instruction should be extended as long as possible. A Lingua Franca or a language of wider communication cannot be a substitute for the mother tongue, and it should be avoided until the child fully acquired their mother tongue (UNESCO, 1953, p. 11)

## **Abstract**

Education when imparted in foreign language or any language which is not spoken at the home of pupils or in their surrounding atmosphere causes difficulties in learning and understanding, leading to their failure or drop out from the schools, which is a big loss to a country or nation or even to humanity at large. When students are dropped out from schools and remain uneducated or less educated the economic growth of the country remains less as well as the human developed index of the country remains low declaring this country less developed or sometimes backward. All the international forums like UNESCO etc has stressed to educate children at least at primary level using mother tongue as medium of instruction. This paper is dedicated to study the benefits of teaching in mother tongue in the light of research studies.

## **Importance of Language**

Ross (2004) asserted (quoting Joan Oro 1998; Hanks 1996; Bakhtin 1986 and Garrett & Lopez 2002) that spoken language is the most intimate expression of the identity and personality of the people. Language is also the clearest expression of knowledge, wisdom, freedom and culture of the peoples and of their creative spirit. Language helps in building the peoples' collective consciousness and to reflect on it. The linguistic environment broadly expressed:

Socialization is the process through which people acquire the knowledge, orientations and practices enabling them to participate effectively and appropriately in the society. Language is fundamental to this process being, "the primary symbolic medium through which cultural knowledge is communicated and instantiated, negotiated and contested, reproduced and transformed". This knowledge and practice allows

one to function and to be regarded by others as a competent member of a community. However, language is not an autonomous system but responsive and receptive to changes in society and penetrated by outside influences historically and politically.

Kadel (2010) quoted interesting remarks of Prof. Ekkehard Wolff, (2006) as:  
"Language is not everything in education, but without language, everything is nothing in education."  
These remarks highlight the importance of language for education, and everyone knows the importance of education very well.

Orekan (2011) asserted (referring some studies) that one learns and continues to perform the functions of "thinking, counting and dreaming" only in one's primary language. Language is very closely related to the mind because one thinks and conceptualizes, by means of language and without language normally no one can think. It emphasizes the psychological importance of language to humans particularly the mother tongue, the language, which the child first learns. Mother tongue also makes the orientation in the cultural environment. Considering language culture close relation is an expression of the common cultural experience of this language, speaking members of the community, which highlights the socio-cultural value of language to mankind.

Sathiaseelan (2013) stated that everyone accepts that individuals convey their thoughts and ideas through vehicle of language to others so language is always integrated with thoughts. People think in their mother tongue, acquire through mother tongue and express in the mother tongue.

## **The Importance of language in literacy and education**

Küper (2003) expressed that at societal level languages have important role in cultural changes and introduction of new knowledge, which becomes quite obvious in industrialized societies where in order to guarantee wider diffusion of research findings and new concepts often a more popular language level is used. In the societies where the everyday language and the language of instruction and mass media differ the situation is very complicated. Scientific concepts are neither developed nor explained in African languages, which are mostly not used for science and formal schooling. These concepts in foreign languages and then only by a very small minority of the population are superficially and badly learned, consequently do not penetrate in people's daily life.

Obanya (2003) revealed that language has a central position in all the situations involving human learning. Education fully develops human potentials, especially the cognitive power and in any program taking the cognitive abilities of the human being into consideration language is a necessary instrument of thought. The essential parts of the education process are seeking, using and giving information, and usually are carried out through language. Language is also the main tool of interaction in social settings, which is also a part of education. Human beings develop social and working relationships and

communicate information by speaking and writing, though language and other things as well, such as the symbols and graphs of sciences. In fact in some modern-day definitions this form of language is taken into literacy consideration; and some writers have used terms like ‘literate numeracy’ and ‘graphicacy’ in domains to be covered by reading and literacy programs. For communication there is a wide range of paralinguistic possibilities such as ‘body language’, ‘sign language’, ‘frowns’, ‘smiles’, etc. However it is verbal language that has enabled mankind to: create, think, record events, project itself into the future and seek to reinforce the capacity of individual for performing these functions. It is the major object and subject of language in education.

Rathore & Pancholi (2013) asserted that language and education are well connected, and inseparable components of each other. The latter is not possible without the former. It is the medium of instruction that makes the learning pattern simple or complex.

## **Mother Tongue and its Importance**

Pattanayak (2003) is of the opinion that mother tongue is the integral component of any culture and the basic ingredient of multicultural or intercultural education but even in educated circles understanding of the clear concept is yet very little. In India the word *matrubhasha* for mother tongue is relatively new which is a literal translation of the English words ‘mother tongue’ since eighteenth century whereas even in English language the term is also not very old. When Europe was first taking shape, the language of the priests and scholars was called *lingua vulgaris*, for differentiating it from Latin. At the Romans’ time the first language of a person was called *patrius sermo*, or the language of the male head of the household.

Pattanayak (2003) stated that many people today, interpret mother tongue as the language of mother. Another meaning of mother tongue is the government and the school designated language. André Martinet the French linguist once said that mother tongue is the language through which one comes to know the world. Mother tongue and the motherland are abstract notions so mother tongue is the language to which the emotional attachment is strongest, the language ensuring all the cultural riches whose destruction results in the destruction of innovativeness and creativity. All the children, irrespective of sex, class and caste, have to move towards the school language from the home language. The mother tongue is the expression of identity of an individual as well as of individual’s primary group identity. Among the members of primary group knowledge and experience are shared through mother tongue.

Ross (2004) extracting idea from several reports and researches (SIL- Summer Institute of Linguistics 2004; Terralingua 2004; Beardsmore, 1986;) defined ‘Mother Tongue’ –in a variety of ways: i.e. the language learnt from the family; the language used at home; the first language a child speaks; ; the language used in the community; the language most competent in; and the ‘preferred’ language. It forms a person’s identity, their defining quality.

Orekan (2011) quoted definition as:

Mother tongue is “the language one thinks, dreams and counts in”.

Bloch (n.d.) quoted a definition of mother tongue as:

“A mother tongue is the language the child can speak fluently before going to school. It is the language in which the child can operate confidently in all domains relevant to the child’s life. It may or may not be the language spoken by both parents. In this sense the bilingual child has two mother tongues”.

Mother tongue also provides helps in learning and understanding the second language. According to Mackenzie & Walker (n.d.) it is convincingly evident from research that a second language is learned best when a first language is learned well.

Daniel (2003) asserted that language and identity are linked – as the term ‘mother tongue’ implies. A healthy identity balances different aspects of our personalities. A community expresses part of its identity in its languages of instruction and a healthy society makes choices that promote harmonious communities and confident individuals. Fortunately these goals are usually congruent. Daniel (2003) argued that is more and more a right to speak one’s own language. International ‘Mother Language Day’ proclaimed in 1999 by UNESCO and marked on 21 February each year, is one example. Alongside bilingual or multilingual education, encouraging education in the mother tongue is one of the principles set out by UNESCO. On top of this, languages are now regarded as an integral part of a people’s identity, as shown in the UNESCO Universal Declaration on Cultural Diversity, which recognizes the importance of languages in promoting cultural diversity. Language and identity are linked – as the term ‘mother tongue’ implies. A healthy identity balances different aspects of our personalities. A community expresses part of its identity in its languages of instruction and a healthy society makes choices that promote harmonious communities and confident individuals. Fortunately these goals are usually congruent.

Ross (2004) stated that language movements and the politics of language are inherently and necessarily associated with the modern state and modern politics. Ross (2004) also aware that neglecting the indigenous language and its concomitant culture by the dominant formal schooling system, results in a lack of linguistic competence in the mother tongue and any subsequent positive identification with the culture. Institutional and cultural linguisticism and discrimination exists where people in powerless positions are unable to negotiate the validity of their mother tongue. The challenge for educators and policy-makers is to shape the evolution of national identity in such a way that the rights of *all* citizens are respected, and the economic cultural, and linguistic, resources of the nation are maximized, because Baart (2003) has communicated the warning that large-scale loss of languages, is a symptom of economic stress experienced by local and indigenous communities around the globe.

*Pflepsen (2011) concluded that mastering a first language and core learning concepts promotes general cognitive development that is needed to more easily and rapidly learn a second language. Because language and reading are closely related, learning to read in one's first language facilitates reading in a second, since many key skills related to reading are transferable from one language to another.*

Hassanzadeh et al. (2011) revealed (referring and making an addition on Butzkamm, 2003) that first language which is home language is particularly important for the development of a positive self-concept and well-being of a child's. Children having the chance of maintaining their first language can extend their cognitive development, while learning other languages as a second language. In the second language their level of competence is related to the level of competence they have achieved in their first language. Children having sound knowledge of their first language can transfer skills from one language to another. The mother tongue opens the door, including its own grammar, to all grammars, in which it awakens the potential for universal grammar that lies within all of us. It is the valuable asset people bring to the task of language learning. Because of this, the mother tongue is the master key to foreign languages, the tool which gives us the fastest, surest, most precise, and most complete means of accessing a foreign language. Successful learners capitalize on the vast amount of linguistic skills and world knowledge they have accumulated via the mother tongue. For the beginner, becoming aware of meanings automatically involves connecting them with the mother tongue – until the first language has established an ever-more complex network for itself. The relationship between languages should be clearly established and not ignored or suppressed. The non-use of the mother tongue, however, seriously constrains what can be said and read. Mother Tongue will save learners from a feeling of frustration, which will eventually lead them to avoid all topics of personal interest. The measured and well-calculated contribution of the mother tongue can allow pupils to tackle more difficult texts sooner, Hassanzadeh et al. (2011) extended the claim of Butzkamm (2003) that — “You can banish the mother tongue from the classroom, but you cannot banish it from the pupils' heads”.

Tariq Rahman (n.d) expressed that movements for the preservation of minor or weaker languages in Europe tell that, if someone is told that his language is inferior, the message being conveyed is that he is inferior. In short, one is giving a negative image to someone by telling him that the ‘cultural capital’ he possesses is not capital at all but a stigma and a handicap. This makes him an aspect, and an essential one at that, of his legacy, history, culture and identity. What is created is ‘culture shame’ ---being ashamed of one's own true identity.

According to Fakeye (2011) several studies (Amao 2010; Gladstone 1969; UNESCO 1953; Patton & Gay 1993) have shown a close relationship between the child's mother tongue and his culture. Amao (2010) emphasized the significance of the language as the carrier and embodiment of the features of cultural environment. While Gladstone (1969) claims that language and culture are interwoven, hence, according to UNESCO (1953), the culture and the personality of the individual are reflected in his language. It is therefore claimed that the use of the Mother tongue for instruction will foster the cultural



values of the child. Further, to Patton and Gay (1993), language, having developed in the context of a certain culture of necessity, reflects that in particular culture, language, not only differentiates and integrates human interaction, but also, guides to behavior and motives to conform. A number of other writers have advocated the use of the mother tongue as a medium of instruction and as a pre-requisite for effective learning of a second or foreign language. In the Report on African languages and English in Education, it is said that:

*It is quicker and more efficient for the illiterate, first to acquire literacy in the mother tongue and then to proceed to English... literacy in the mother tongue should normally be a condition of being taught English.*

Keysar et al (2012) is of the opinion that, there are good reasons to believe that the use of a foreign language would reduce people's ability to rely on more systematic processes, because it is harder to use a foreign language, which increases cognitive load and leads to greater reliance on intuitive and affective processes.

### **Mother Tongue as Medium of Instructions - (Education)**

Pattanayak (2003) highlighted that language acquaints the children with the environment into which they have been born. Language accumulated knowledge skills and myths are transmitted through mother tongue from one generation to another. Because of receiving social acceptance the standardized version of the spoken language is used as the medium of communication, education and administration.

Küper (2003) as a result of research determined following prominent points (pros and cones) of the education in mother tongue.

#### **Pros**

- (1) It is necessary pedagogically to commence in school from where the children are. Learning starting point, that how to read and write is the language, children speak (and understand).
- (2) In most of the cases, especially when resources are scarce, it is not possible to teach the majority of children in a language they do not understand.
- (3) Many international and national declarations have acknowledged the children's (and of adults' too) rights of education in their own languages.
- (4) The results of many research studies support overwhelmingly bilingualism or multilingualism. The evidence from researches show that children having not yet mastered a wider communication language, can do so more easily on the strength of a good proficiency in their own language because both languages in academic and cognitive aspects mutually support each other. For children bilingualism or multilingualism instead of being an impediment is an important resource for their development.
- (5) Children receiving education in a foreign language not only lose their identity but also are deprived of the possibility of expressing in proper vocabulary and in their own morpho-syntactical structures.
- (6) At the political level education in local languages also contributes much to improve relations of the political leaders and the basis of the population.

### Cons

(1) It is against the national unity of the countries to use several national languages' in the communication systems generally or medium of instructions in education.

(2) In the age of globalization the use of national languages isolates countries striving for competitiveness in trade and international affairs and hampers their international communication.

(3) National languages cannot sufficiently develop or modernize general communication system and higher education of their countries.

(4) Use of minorities' languages in education and wider communications gives them a protection, which is militating against modernization and prolonging only linguistic systems condemned to extinction and also hampers the introduction of languages of wider communication.

(5) It is very costly to use of many local languages in education because of preparation of teachers, learning and teaching materials development costs and the heavy linguistic development work and also often very few students in those languages.

(6) Pupils not mastering a European language (French and English in Africa or Spanish in Latin America) do not get a job, because of requirement of knowledge of those languages in industry and business.

Kadel (2010) asserted that instruction in mother tongue is highly important at the beginning of education, for development of a strong educational foundation, as well as to strengthen the learners' cognitive development. There is a big gap between the school and the home of the student unless the mother tongue is used in education.

Bender et al (2005) disclosed that the world's fifty percent out-of-school children live in communities where the schooling language is rarely, if ever, used at home, a situation that underscores the biggest challenge to achieving Education for All (EFA). This is a non-productive practice that leads to low levels of learning and high levels of dropout and repetition. In these circumstances an increase in resources, although necessary, would not be sufficient to produce universal completion of a good-quality primary school program. Bender et al (2005) further stated that first language instruction results in (i) increased access and equity, (ii) improved learning outcomes, (iii) reduced repetition and dropout rates, (iv) socio-cultural benefits and (v) lower overall costs.

Gacheche (2010) revealed referring the '2010 Education for All' (EFA) report on reaching the marginalized sombrely notes that, "children who are members of an linguistic or ethnic minority or an indigenous group, enter school with poorer prospects of success and emerge within fewer years of education with lower levels of achievement". The report advices that to effectively teach around 221 million children worldwide speaking a different language at home from the one used as medium of instruction in schools, there is a need to teach them first in their home language (L1) while gradually introducing the national or official language (L2). However, researches have shown that mother

tongue-based schooling significantly improves learning. The use of a familiar language to teach children literacy is more effective than a submersion system as learners “can employ psycholinguistic guessing strategies” to learn how to read and write. This means that since children can already speak the language, they can learn to associate sounds with the symbols they see, thus facilitating understanding. When literacy skills, such as reading, are taught in a foreign language, the children first have to gain familiarity with the sound before they can master the symbol. Such cognitive development takes time, which is a luxury submersion. This forces learners and teachers to resort to rote teaching and learning, where the children merely memorize what the teacher says without necessarily understanding the meaning.

According to Ball (2010) through out the world, young children learn at home languages (mother tongues) and arrive at early learning programs such as preschool and primary school with this precious resource of their mother tongues different from the dominant language used in their broader social world. UNESCO since 1953 is supporting right of children to learn their mother tongue, and is advocating the maintenance of cultural and linguistic diversity through language-in-education policies. A research and program review reports discusses of mother tongue-based bilingual or multilingual education for children in early childhood and is intended to: informing policy-makers about existing research and practices in mother-tongue instruction in early childhood and early primary school years; and raising awareness about the value of maintaining the cultures and the languages of the world by promoting and re-sourcing mother tongue-based education for children.

Studies of Ball (2010) showed that children learn best in their mother tongue as a foundation for and bilingual and multilingual education. Children’s ability to learn a second or additional language does not suffer when their mother tongue is the primary language of instruction throughout primary school. Research has confirmed that six to eight years of education in a language are necessary to develop the level of literacy and verbal proficiency required for academic achievement in secondary school. Fluency and literacy in the mother tongue lay a cognitive and linguistic foundation for learning additional languages. When children receive formal instruction in their first language throughout primary school and then gradually transition to academic learning in the second language, they learn the second language quickly. If they continue to have opportunities to develop their first language skills in secondary school, they emerge as fully bilingual (or multilingual) learners. If, however, children are forced to switch abruptly or transition too soon from learning in their mother tongue to schooling in a second language, their first language acquisition may be attenuated or even lost. Even more importantly, their self-confidence as learners and their interest in what they are learning may decline, leading to lack of motivation, school failure, and early school leaving.

Coleman and Capstick (2012) expressed in a report referring Pakistan that it was widely believed that there are major injustices in the education system in Pakistan. ‘There is a “cultural capital” divide in Pakistan between home and school. Those whose cultural capital matches that of school flourish.’

Pflepsen (2011) revealed referring some studies the benefits of Mother Tongue Based (MTB) education that those children understanding the instruction language are more likely to enter the school at proper age, appropriate times and attend school regularly, less likely to drop out as compared to those who receive instruction in a foreign language. Experiments proved that a lack of education in a first language was a reason for children dropping out, while children having access to instruction in their mother tongue were more likely to be enrolled and attending school. Classrooms using first languages of children as instruction language were more than three times less likely to drop out and five times less likely to repeat the year. Therefore if children can understand and learn productively in the language in the classroom then, chances of keeping them in school, are significantly improved. Pflepsen (2011) reported (referring Ball, 2010) that a recent review of research reports on language and literacy concludes that becoming literate and fluent in one's first language is important for overall language and cognitive development, as well as academic achievement

Hassanzadeh et al. (2011) quoted the words of Butzkamm, (2003) that —You can banish the mother tongue from the classroom, but you cannot banish it from the heads of pupils. The relationship between languages should be clearly established and not suppressed or ignored. The non-use of the mother tongue, however, seriously constrains what can be said and read. Mother tongue will save learners from a feeling of frustration, which will eventually lead them to avoid all topics of personal interest. The measured and well-calculated contribution of the mother tongue can allow pupils to tackle more difficult texts sooner. Hassanzadeh et al. (2011) also expressed that first or home language is particularly important for the child's development of a positive self-concept and well-being. Children who have the chance to maintain their first language can extend their cognitive development, while learning other languages as a second language. Their level of competence in the second language has relationship to the level of competence they have achieved in their first language. Children with a sound knowledge of their first language will be able to transfer skills from one language to another. The mother tongue opens the door, including its own grammar, to all grammars, in which it awakens the potential for universal grammar that lies within all of us. It is the valuable asset people bring to the task of language learning. For this reason, the mother tongue is the master key to foreign languages, the tool which gives us the fastest, surest, most precise, and most complete means of accessing a foreign language.

Agbedo et al (2012) expressed that Mother tongue education is a schooling system, encouraging in the school teaching learning process in First Language (L1) of children. The indispensability and primacy of mother tongue in early childhood education inspired a number of conventions, declarations, resolutions, national and international legislations, aiming at promotion of education in mother tongue as one practical step to protect and uphold the linguistic rights of children. These include the Nigerian Child's Rights Act (2003), Dakar Framework for Action (2000), World Declaration on Education For All (1990), the Convention on the Child's Rights adopted in Resolution 44/25 by the United Nations General Assembly on 20 November 1989, the Declaration of Human Linguistic Rights of Children" initiated by Tove Skutnabb-Kangas in 2009 a socio-linguist from Finland as part of an ongoing "linguistic human rights"

campaign directed at the United Nations and UNESCO. Agbedo et al (2012)

Coleman and Capstick (2012) reported conclusion of a language conference about Pakistan in the points that:

- Use of the mother tongue strengthens links between home and school and parents can become involved in education of their children without ‘feeling afraid’
- Children’s sense of identity is strengthened and validated if home language and school language are the same
- Children find learning enjoyable if it takes place through a language with which they are already familiar
- Basic conceptual development of children is more effective if it takes place through a language which they understand therefore children can play a much more active role in their own learning, by questioning and by exploring ideas
- Use of the mother tongue contributes to the maintenance of languages whose survival might otherwise be threatened. ‘If languages are lost, we lose our identity’ and ‘if language death occurs, the speakers’ self - respect is tarnished.’

The supporters of a mother tongue policy recognized that a number of problems would be encountered and several provisos needed to be made:

- in order for a mother tongue policy to be just and equitable, it would have to apply to every child in, regardless of the type of school they were studying in. If this were not the case, then there was a danger that schools using the mother tongue as medium of instruction would simply become ghetto schools for the poor.

- Most proponents of the mother tongue policy also believe that a shift to the use of Urdu (National Language of Pakistan) as the medium of instruction will need to take place after a number of years. Many also proposed that a further shift to English as the medium of instruction would also be needed at some later point in the child’s educational experience.

1- Many participants recognized the benefits that accrue when children are taught through their home language. Responses include ‘Easy to understand for them everything & when they are shifted from mother tongue they get confused’ and ‘better communication between teachers, students and parents.’

2- Parents would respond positively to a mother tongue policy because:

- ‘They want their children to understand the things.’
- ‘Parents will be able to cope with their children’s progress in school and provide active support.’
- ‘It will bring confidence as Pakistani students’
- In other words, policies of going ‘straight to English’ are likely to be counterproductive. Children need to be skilled and confident speakers of their first language and able to read and write in their first language before starting to learn a second language in a school context; omitting the stages of achieving oracy and literacy in the first language actually handicaps children in the learning of the second language.

Moreover, children find learning a second language in a school context easier if they have positive feelings about both their home language and the language, which they are learning. But their learning of the target language is likely to be less productive if they have a negative attitude towards their own language or if they feel that their home language is of low status compared to the language, which they are hoping to learn.

According to Coleman and Capstick (2012) it has been estimated that even in high exposure contexts (such as North America), it takes children about two years to acquire social English but seven years to acquire 'educational English'. In the low exposure contexts in which the majority of children in Pakistan find themselves, the process will take much longer. With this in mind, it seems that attempts to teach science and mathematics through English to children who are not literate in their first language are doomed to failure.

Mackenzie & Walker (n.d.) stated that a significant proportion of children in many developing countries, enter school not speaking the language of the classroom. Many education systems use 'global' languages or national language instead of mother-tongue teaching or education is often carried out in an international language, such as English or the old colonial languages. This is based on the belief that certain internationally 'important' languages give children a competitive advantage in later life. In other countries, education is taught in the dominant language of a main linguistic group, sometimes at the expense of more marginalized ethnic or linguistic groups. In far too many countries, the educational basics - textbooks, learning materials and the teacher's language of instruction - are primarily or entirely available only in non-mother-tongue languages. Sometimes, in multilingual countries with many local languages, teachers themselves do not speak the local language which children learn at home, and speak the dominant language. In other cases, the teachers themselves may not be fully proficient in the language of instruction.

Mackenzie & Walker (n.d.) are of the view that a curriculum, rooted in the child's known language, culture and environment, with appropriate and locally-developed reading and curriculum materials, is crucial for early learning success.

Phiri (2013) expressed that, children in remote rural areas, who speak one language at home and have no contact with the school language outside of the classroom, often have the biggest problems in gaining any understanding of the language taught at school. This is a significant factor contributing to poor quality education and continuing low literacy. Whereas when children are highly proficient in the medium of instruction then they learn best. Phiri (2013) quoted experiment of a reading literacy test done in 32 countries, where students having home language that of a school had an easier transition into reading instead of those who had to learn a new language while learning to read. In reading literacy tests no group of native language speaking scored lower levels, which were presented in the official language. Phiri (2013)

Phiri (2013) advised with reference to some studies that the mother tongue should be used as a medium of instruction; it is the most appropriate means for effective teaching because it has the learner's

experiences. It is a language that he knows well and can use to form sentences and expresses himself.

Burton (2013) stated that around the world there is a growing trend of supporting instruction in mother tongue in the child's early years of education. Educational programs utilizing this approach are rising in number in Southeast Asia.

Sathiaseelan (2013) asserted that children learn the most in their own mother tongue, which is the easiest way of learning. Years of school in the life of children are the most important because during this period aptitude and attitude of children are developed. Therefore, during that time the emotional as well as physical needs of the children need effective care. During this period their mother tongue becomes the ideal medium of instruction for them, because it is as natural to them as the milk of mother, and in their own native tongue they can better explore their own natural environment. Besides this, if children's foundations for the future development are laid in their own mother tongue, the children even in the later years can build up on them in another language. On pedagogical grounds it is also generally accepted that in Education as the medium of instruction the mother tongue is best suited. For the children it is the natural language of thought and highly suited for concept formation. The only language best suited to achieve originality in thought and expression is with which one lives and grows. According to experts of United Nations the best medium for teaching children is their mother tongue. Therefore stress on education in mother tongue is not for educational achievements and growth only, but for national development and reconstruction as well which is evident from the UNESCO's report of 1997 on mother tongue education considering Mother tongue as the best first entry into education, as the key to success in education, the best instrument of maintaining the individual groups' culture, and the participation in national development and reconstruction. In the fight against ignorance and, illiteracy, poverty and discrimination, mother tongue is also a powerful instrument. To make education available in the most natural way for all the best way, rather the only way is mother tongue. Mother tongue learning and learning through the mother tongue are the learning process to mean, which is learning a multi-state semiotic and multifunctional system, which means to develop an ability of playing a variety of roles in the socio – cultural complex. Mother tongue is not only one occasion for the knowledge inculcation but a part of the intimation of children into the life of man.

Sathiaseelan (2013) highlighted that the children think and dream in the mother tongue so training in mother tongue use– is the first instrument of human culture and the first essential of schooling. Hence it is of great importance for children to have a firm foundation in their mother tongue. By paying sufficient attention to the foundation of intellectual and emotional life, all the virtues necessary for a good citizen, clear expression, clear thinking, sincerity thoughts, and action and feeling fullness of creative and emotional life can be cultivated and developed only by mother tongue. Children's learning in their mother tongue is easy, but learning in a foreign language takes more time, which naturally hampers their personality. Teaching in the schools in language other than children's language, is violation of good pedagogy principles and guilt of cultural imposition. Education of this type results in drop out of native children from the school and psychological trauma, causing the failure of children to learn to read and write. Hence it is important to teach the mother tongue and teach through the mother tongue because the

people's growth depends on it.

When medium of instruction is a tool and a vehicle of growth in skills, knowledge, interests, abilities, and attitudes – albeit a tool of learning, the suitability of medium of instruction is to be decided on the consideration of its effectiveness as a learning tool rather than on the basis of political, cultural, or economic consideration. It is a significant fact that learning through the students' mother tongue has maximum effectiveness therefore the necessity mother tongue for instruction is being realized today so, most of the physiologists, linguists, educationists, and sociologists are inspired and convinced by the universally accepted principle “the mother tongue of a child is the most appropriate medium for a child to learn effectively”. Scientific researches also stress the mother tongues' significance as the medium of instruction. Sathiaseelan (2013)

Magga et al (n.d.) quoted that article 29 of the Convention on the Rights of the Child (CRC) stated that the child's education should be directed to “ The development of the child's talents, personality, and physical and mental abilities to their fullest potential” and “The child's preparation for responsible life in a free society, in the spirit of peace,

understanding, tolerance, equality of sexes, and friendship among all peoples, national ethnic, and religious groups and persons of indigenous origin” . According to Article 29, of ILO Convention No. 169, “The imparting of general skills and knowledge that will help children belonging to the peoples concerned to participate fully and on an equal footing in the national community and in their own community shall be the aim of education for these peoples” . One of the implications is that indigenous children's right to education is not respected unless they become bilingual and bicultural through schooling.

A good educational program leads to the following goals from a language(s), identity, labor market and life chances point of view:

1. High levels of multilingualism;
2. Strong, positive multilingual and multicultural identity and positive attitudes towards self and others;
3. A fair chance of achieving academically at school; and
4. A fair chance of awareness and competence building as prerequisites for working for a more equitable world, for oneself and one's own group as well as others, locally and globally (Skutnabb-Kangas 2004).

Indigenous children's education has to fulfill further demands as well made on any good education. First, mainly concentrate on the language of instruction.

How indigenous children are being educated, and with what results in various parts of the world is given here with examples. Educational models used in the education of indigenous and minority children mainly using dominant languages as languages of instruction also have negative consequences for the achievement of the four goals and the right to education. Education has a range of harmful consequences, violating various aspects of right to education. Education in state schools, without binding educational linguistic human rights, especially mother tongue-medium (MTM) right with dominant language teaching as a second language, taught by competent bilingual teachers, most minorities and indigenous peoples have



to accept subtractive education through the medium of instruction of a dominant or majority language. Magga et al (n.d.)

According to Vulli (2014) the right to education in a language that the children understand is not only a basic human right but also a necessary ingredient of equality in education". According to observation of researchers it is a positive suppression of human talent to control and dictate the language of access to knowledge. There is a popular perspective advocating mother tongue use as media of instruction in early education and to encourage linguistic diversity in schools, by arguing that mother tongues besides being speech varieties are also languages providing emotional and social identity to individuals, expressing their essence of cultures, and giving them a sense of rooted-ness. Schooling in the children's mother tongue reflects respect for them and their cultural appreciation, hence mother tongue exclusion from the schools is looked as 'harmful to children's self esteem', as children thereby are "reduced to minorities in their own homes". It is imposing limits on freedom curbing creativity and innovativeness, depriving society and individual of free choices, and restricting participation or potential participation in multiple spheres of human interaction.

### Mother Tongue Based Multi Lingual Education (MTBMLE)

Daniel (2003) expressed that bilingual and multilingual education means using two or more languages as mediums of instruction. UNESCO adopted the term "multilingual education" at its General Conference in 1999, to mean use of at least three languages in education – the mother tongue, a regional or national language and an international one. This is noted in a just-published UNESCO position paper called Education in a Multilingual World. Several declarations and conventions adopted by UNESCO Member States set out guidelines for this and for education. For example, the 1976 Recommendation on the Development of Adult Education, calls openly for education in the mother tongue.

Kadel (2010) revealed that in education, Multilingual Education refers to "first-language-first" that is, a schooling of children begins in mother tongue and later transitions to additional languages. MTBMLE (Mother Tongue- Based Multilingual Education) programs typically are conducted in developing countries where in mainstream education, minority languages speaking population tends to be disadvantaged and "Multilingual education allows linguistically marginalized communities to acquire the national language without losing their own identity and also helping them to bridge to the broader society."

### MTB-MLE: An International Advocacy

According to Remilyn (2013) role that language plays for success of children in early education is indicated by the declaration of the Millennium Development Goals (MDGs), of United Nations, findings from published research studies of UNESCO, the World Bank, (The Southeast Asian Ministers of Education Organization) SEAMEO, etc. Remilyn (2013) concluded that when in early education national,

majority languages are used as the medium of instruction; many children stop schooling, either due being fail in their courses, or subjects or losing academic interest altogether. Remilyn (2013)

## Conclusion

From the above literature it can be concluded that:

- 1- Developing people is the essence of any HRD effort and it is an important goal of all other development activities because the role of HRD is crucial, in promoting and sustaining growth of a community or country.
- 2- the concept of HRD has many facets of development of individuals (including their physical, intellectual, Economic, Psychological/emotional, political, and spiritual aspects). Therefore the scope of HRD is very broad, encompassing activities related to the possibility of developing human resources, physically, intellectually, Economic /financially emotionally, spiritually, and politically along with improving their technical and productive skills. Intellectual development comes through the process of education and socialization.
- 3- Language is very important for human beings and is a very sensitive matter of life of individuals, communities, nations or countries. Because language is related very closely to the mind, by means of language human beings think and conceptualize which emphasizes the psychological importance of language to humans particularly the mother tongue, the language first learned by the child. Spoken language is the most intimate expression of the personality and identity of the people. Language is also the clearest expression of freedom, culture, wisdom and knowledge of the peoples and of their creative spirit. Language helps to build the collective consciousness of a people and to reflect on it.
- 4- Mother tongue is the first language a child speaks; the language used at home; the language learnt from the family; the language most competent in; the language used in the community or the 'preferred' language. It forms a person's identity, their defining quality.
- 5- Languages are now regarded as an integral part of a people's identity, as shown in the UNESCO Universal Declaration on Cultural Diversity, which recognizes the importance of languages in promoting cultural diversity. Orientation in the cultural environment is also made by means of mother of tongue. Language and identity are linked – as the term 'mother tongue' implies. A healthy identity balances different aspects of our personalities. A community expresses part of its identity in its languages of instruction and a healthy society makes choices that promote harmonious communities and confident individuals.
- 6- speaking one's own language is more and more a right. International Mother Language Day

proclaimed in 1999 by UNESCO and marked on 21 February each year, is one example. Encouraging education in the mother tongue, alongside bilingual or multilingual education, is one of the principles set out by UNESCO.

The effects of imparting education in mother tongue and consequently it causes on intellectual development of human resource are shown in following diagram.

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# POSITIVE CONTRIBUTIONS OF GLOBALIZATION ON DEVELOPING COUNTRIES. A FOCUS ON GHANAIAN EMPLOYEES

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## ABSTRACT

Many scholars from developing countries have argued that globalization is a weapon of imperialism, normally employed to perpetuate the income and welfare gap between developing and developed countries. The study joins an emerging stream of studies calling for a holistic re-examination of the impact of globalization on developing countries to understand both the positive and negative contributions instead of having a lope-sided view of globalization. Employing a quantitative research design with a survey strategy, data for this study was collected from 130 human resources managers across six Multinational firms spanning: mining, banking, and manufacturing sectors of the Ghanaian economy. Analysis of collected data found significant positive contributions of globalization towards personnel training and development. In particular, findings show that globalization has increased the frequency and methods of trainings, increased use of e-trainings and certifications, and uniform design of training programmes across the subsidiaries of MNCs globally. All these were found to reduce the physical incidence of personnel going abroad to study reducing both brain-drain and expenses to domestic companies and governments.

**Keywords:** Human Resources, Multinationals, Globalization, Development and Training.

## 1. INTRODUCTION

Quite a number of studies on globalization, especially its impact on the socioeconomic welfare of developing countries, have inadvertently centered on the downsides of globalization (Rodney, 1972; Khor, 2003; Aimiuwu, 2004; Soludo, 2008). The extent of this lopsidedness is supported by the sheer fact that the book on “Globalization and Its Discontents” became an instant bestseller (Stiglitz, 2003). Understandably, the widening gap in terms of socioeconomic development between developed countries and those that are yet to develop is justify by the advent of globalization. Chaykowski (2002), in his study on the impact of globalization on the Canadian Labour Policy, observes rightly that much of the literature on labour and employment relationships in the “new economy”

focused on the shift towards higher skills. This quest for higher skills is fuelled by competition and technological changes. This prevailing notion notwithstanding, certain recent developments have made it imperative to widen the dimensions of the debate to explore all the sides of the coin. One factor that is pushing for this shift is the apparent consensus among scholars that globalization and the technological changes has brought about, and will continue to impact on the economic and social fabrics of the various nations (Ohamae, 1990; Thurow, 1992; Lipsey, 1993; Chaykowski, 2002), and for the most part, is irreversible (Wolfensohn, 2002; Adei, 2004). The implication is that if there is nothing that can be done to reverse this phenomenon, then it makes sense to find ways to make the most from it.

A paradigm shift in globalization studies has been catalyzed by remittances to developing countries, an unintended outcome that is fast-tracking the development of most developing countries including Ghana. Available data show that albeit, African remittances remain relatively small in proportion to global remittances flow; it has however, exhibited strong growth in the last 20 years, from only US \$1.9 billion in 1990 to \$4.6 billion in 2000 and \$10.045 billion as at 2010 (Lindely, 2008; World Bank, 2011). The Ghanaian statistics are even more interesting and significant. According to the World Bank (2008), Ghana is among the highest remittance recipient nation in Africa, providing home for nearly 50% of the inflow. Data on remittance inflows in Ghana reveal that it exceeds Foreign Direct Investment (FDI), portfolio inflows, and non-oil exports. Non-monetary remittances are gains of globalization that have not been given adequate attention (Bartram, 2011; Rivera and Reyes, 2011; Robles and Oropesa, 2011; Boateng and Oppon Boakye, 2013).

Emigrants have transferred non-monetary remittances like new skills, new knowledge, new technologies, entrepreneurship, new political systems, and so on. Globalization has offered developing nations both monetary and non-monetary remittances. Given the above gains, it is pertinent that scholars and leaders of developing countries shift from having a lopsided view of as a tool of imperialism so as to make empirical assessment this phenomenon which could lead to retaining and utilizing its positive contributions. This will increase chances of formulating and implementing relevant policies that will either maximize the opportunities it presents or minimize the challenges and threats that flow from it.

This study is undertaken to specifically investigate the extent to which globalization has impacted training and knowledge acquisitions among employees in Ghanaian firms. Specifically it seeks to assess the extent to which globalization has impacted on the following aspects of human development: 1) the frequency of human resource development; 2) the incidence of oversea training; 3) increased methods used in training and developments including on-the-job e-trainings; 4) acceptance of e-learning certification and 5) uniformity in design and training content among organizations in the different parts of the globe.



This study utilized a quantitative design with a survey strategy. Quantitative data were collected from 130 human resources managers across six multinational firms spanning mining, banking and manufacturing sectors of the Ghanaian economy using close-ended questionnaires.

### 1.1. Brief Review of Related Literature

There is little doubt that one of the challenges of globalization is the heightened competition among global firms that defy the physical boundaries that hitherto hinder market reach during pre-globalized era. Consequently, firms do all within their reach to shore up their competitiveness. Among all the available options for increasing firm's capacity and competitiveness, continuously developing and exploiting employee knowledge assets seems to have an edge over others

(Appelbaum and Batt, 1994; Locke and Kochan, 1995; Bae and Rowley, 2002; Herstad and Brekke, 2011). This is because strategies that focus on natural and technological resources will certainly be unsustainable.

Study by Kale and Little (2010) on the development of Indian pharmaceutical industry, in their struggle to increase their global competitiveness, revealed that, as a last resort, they (pharmaceutical firms) had to employ Indian scientists that studied or worked abroad to tap from their repertoire of gained knowledge. The underlying assumption, which seems to be at the core of the technology transfer strategy of most Asian nations is that human mobility within or across firms play a very important role in transferring knowledge, skills and competencies. New communication technologies, particularly the internet, have provided electronic access to education through distance learning internationally (Stilwell *et al.*, 2004). Essentially the global competition for skilled labor and considerably high return for highly skilled individuals have tended to provide individual motivation for skill acquisition (Dasgupta, 2009).

Another compelling reason behind massive quest for knowledge diffusion is the fact that a major feature of globalization is to extend production activities to areas where labour is cheap so as to produce and sell at competitive prices. This trend has inextricably heightened the need to train host country nationals to acquire the requisite skills to be productive (Farazmand, 1999). This is especially the case as it is practically difficult and extremely costly and counter-productive to extensively engage expatriates to do the work. All these have made acquisition of modern skills and production competencies imperative. It is this stage of globalization that steers and Nardon (2006), call "achieving complete globalization". During this phase, "managers do not think themselves as American or Japanese or German. Rather they think themselves and their company as a truly global enterprise that transcends borders and competes everywhere. Such companies source people, raw materials and technology where they are best and cheapest."

Bernardine (2003) identifies four possible models/ strategic approaches in international human

development activities, they are: a) Ethnocentric model: Under this model recruitment, training and deployment of personnel are done from the headquarters. The belief is that if it is decentralized it may compromise the quality of service delivery and competitiveness (Bird *et al.*, 1998) Polycentric Model: This model is the flip side of the ethnocentric model. It permits recruitments and deployments of staff to be done competitively from the local labour market. This approach is cheaper and more adaptable to local conditions. The only challenge is that it limits the chances of technology transfer. c) Geocentric Model: This model tries to remove the boundaries and separating lines between the parent company and the subsidiaries scattered all over the globe. It strives to integrate its businesses with the relationships based on collaboration and mutual reciprocity. Under this model, the organization begin to see itself as having a global workforce that can be deployed and utilized in a variety of ways throughout the world. Key positions tend to be filled by the most qualified individuals regardless of nationality. Regiocentric Model: This is a modified version of geocentric model. The main difference is in scope; while the latter is global in scope; the former is regional. In other words, Africans will manage African subsidiaries, just as Europeans will manage European subsidiaries. To function properly, there is usually a strong regional headquarters that is vested with the power and authority to manage its operations in the particular region. These regional headquarters integrate and collaboratively manage the subsidiaries within its region. The only challenge is that there is usually limited flow between the regions and the global headquarters. In some cases some use this model as a prelude and preparation to full-scale geocentric model

It is important to note that within the contextual needs of developing countries any model chosen must strike a balance between maximizing its huge labour potential and providing opportunities for technology transfer. A critical look at the models presented above shows a clear trade-off between the twin goals of maximizing labour potentials of the host countries and technology transfer. For instance, ethnocentric and geocentric models increase the chances of technology transfer while minimizing the chances of utilizing local labour. While the regiocentric and polycentric models maximize the use of labour and reduce chances of technology transfer. The best strategy is for developing countries to initiate policies that will achieve a proper mix between the two goals.

It is pertinent to note that there are factors that affect the extent to which various regions endowed with surplus cheap labour benefit from this trend of outsourcing production activities to nations and regions where labour and raw materials are cheap. Across the various regions considered among developing nations, countries within the Asian Pacific rim seems to be enjoying more FDIs than countries in South American and African continents. There are also intra-regional

country variations in investment climate suitability. For instance in Sub-Saharan Africa, countries like South Africa, Kenya and Ghana were ranked better in terms of ease of doing business (World Bank Doing Business in Ghana, 2008). Some of the factors that determine

preferences for choosing areas of investment are political stability, safety of property, ease in land acquisition, the effectiveness of the legal system, etc.

## 2. METHODOLOGY

This study made use of quantitative design with a survey strategy. Data were sourced from both primary and secondary sources. Personnel (especially those from the human resources department) from the sampled firms were the major sources of primary data while reports of previous studies and literature were the source of secondary data. A sample size of 130 human resource managers was derived from six selected multinational firms from mining, banking and manufacturing sectors of the Ghanaian economy. Data were collected using close-ended questionnaire. The interview was mainly carried out on the human resources managers of these organizations, while the questionnaires were randomly administered to personnel from the human resources department. The analysis of data was done with SPSS software.

## 3. HYPOTHESIS FORMULATION

This is guided by the following hypothesis:

H<sub>1</sub>: Globalization have strong influence on methods of human resources skill development.

The null hypothesis can be stated thus:

H<sub>0</sub>: Globalization do not have strong influences on methods of human resources skill development.

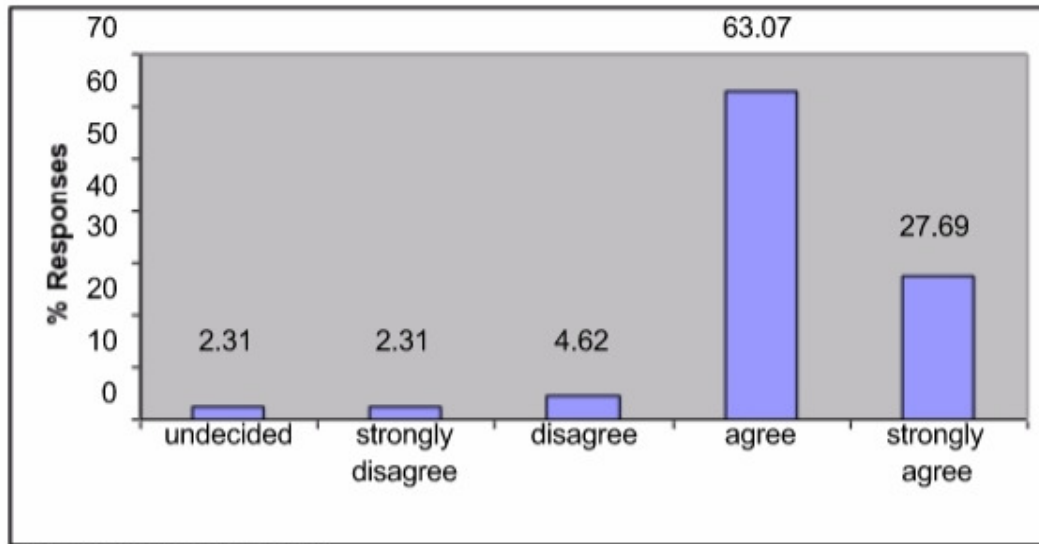
## 4. RESULTS

Data analyses focused on the key aspects of job based-knowledge acquisition, which constituted the specific objectives of this study. They are:

- a. Globalization and the frequency of staff training.
- b. The influence of globalization on training of staff abroad;
- c. Globalization and variety of methods including on-the-job-e-trainings;
- d. The extent to which globalization has led to the acceptance of e-learning training and certification;
- e. Globalization and uniform training programmes among the branches of multinational organizations investigated;

The resulting data on these areas are presented below:

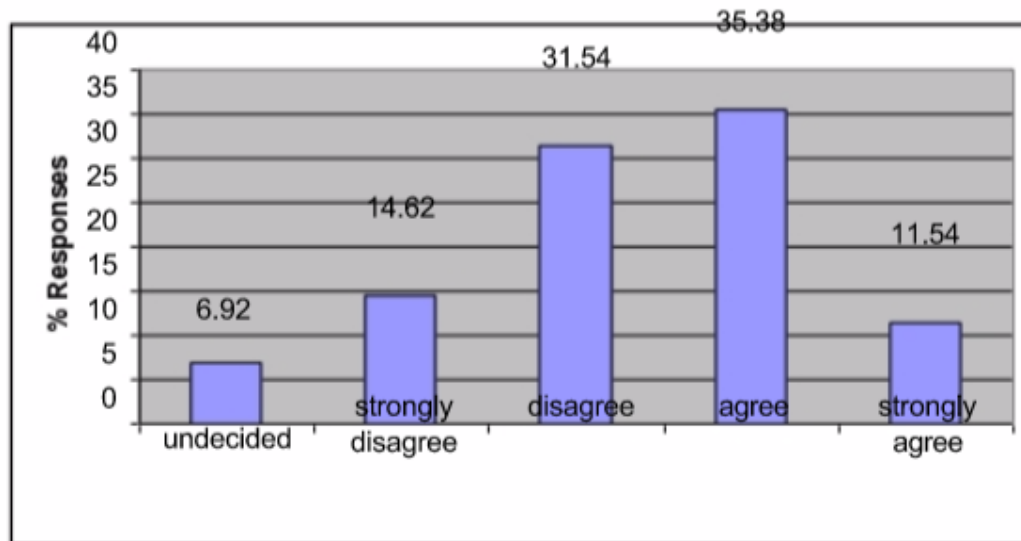
Fig-1.1.Impact of Globalization on the Frequency of Training and Development



Source: Field Survey 2014

The data in Figure 1.1 above show that globalization has led to increase in the frequency of training and development in Ghanaian organizations. This is supported by about 91% of the respondents who either agreed or strongly agreed. The rest 9% either disagreed or were undecided.

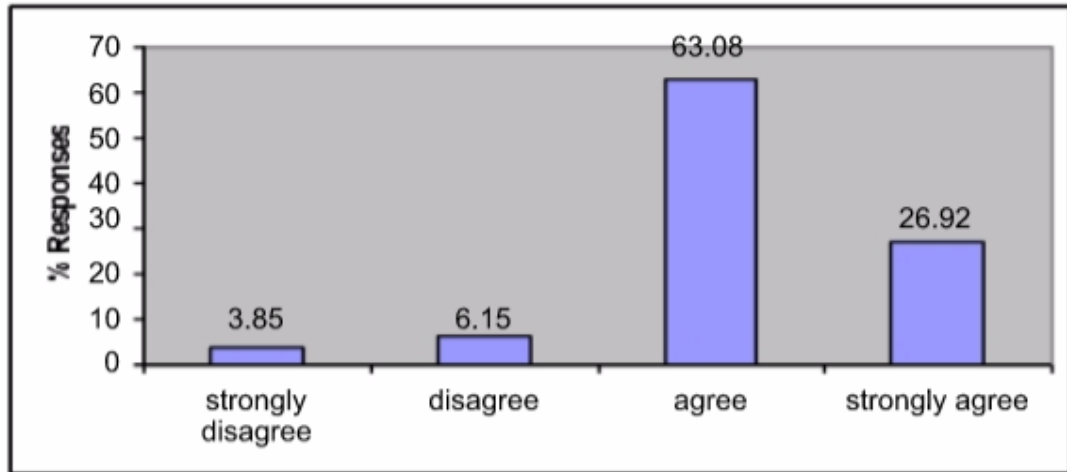
Fig-1.2.Globalization and Increase in Oversea Training



The data in Figure 1:2 above do not give a clear direction as to whether globalization has increased overseas training or not. A total of about 47% agreed or strongly agreed, while approximate 46%

disagreed or strongly disagreed. The rest 7% were undecided. Except for sector variations, the study cannot conclude that globalization has led to more oversea training.

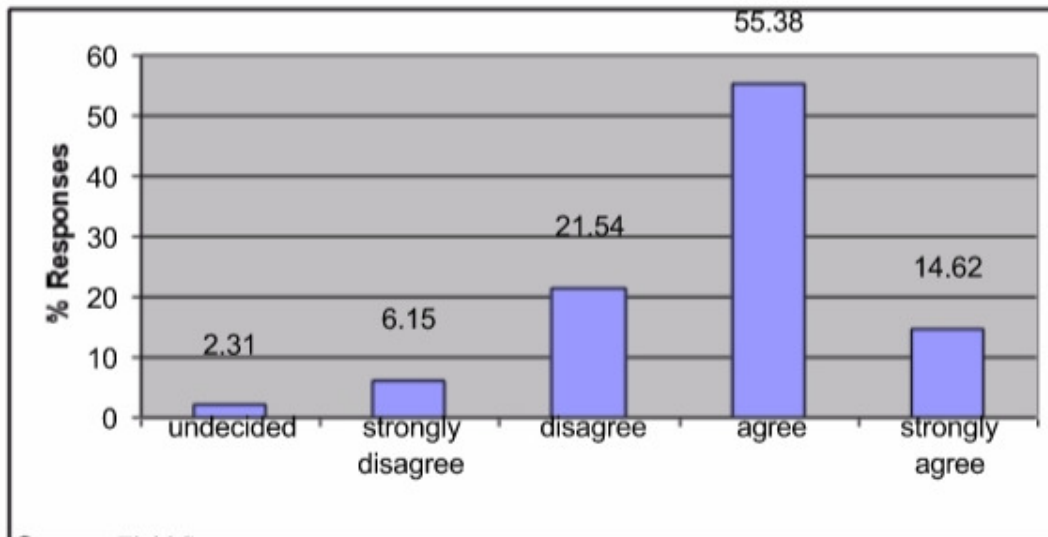
Fig-1.3. Globalization and Increase in Variety of Training Methods Including E-trainings



Source: Field Survey

The data in Figure 1.3 above clearly show that globalization has generally increased the variety of training methods including the use of e-trainings. Approximate 90% of the respondents either agreed or strongly agreed, while the rest 10% disagreed or strongly disagreed.

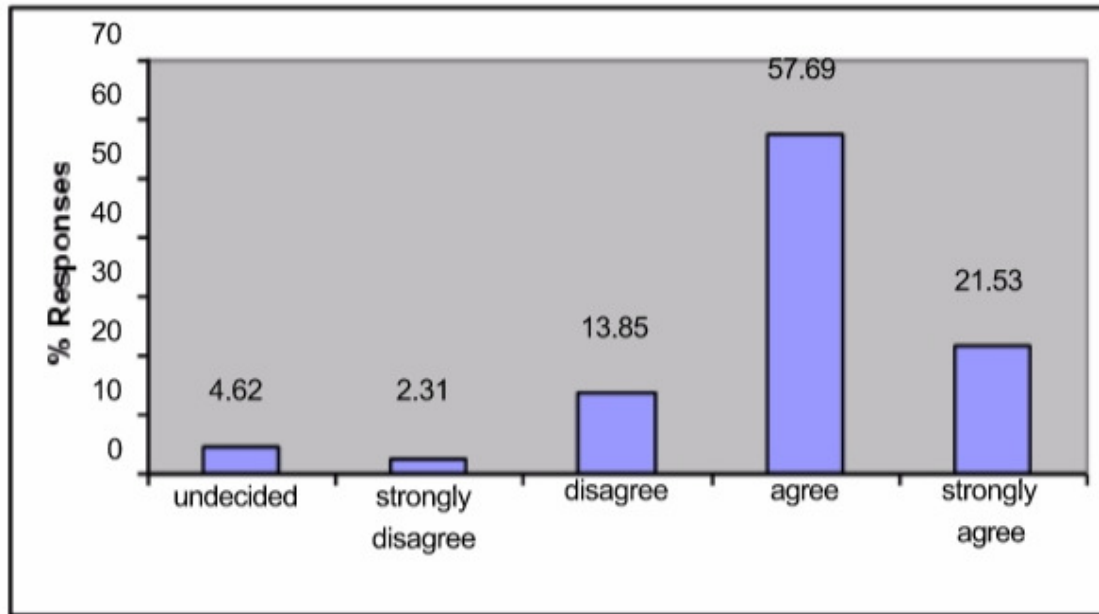
Fig-1.4. Globalization and Increase in Acceptance of E-Learning Training and Certification



Source: Field Survey

The data in Table Figure 1.4 above show that globalization has led to increased acceptance of e-learning trainings and certifications. This is supported by approximate 70% of the respondents who agreed or strongly agreed. About 28% disagreed while the rest 2% were undecided.

Fig-1.5. Globalization and Uniform Design of Training Programmes



Source: Field Survey

The data displayed in Figure 1:5 above show that globalization has led to uniform training programmed across the branches of most multinational organizations. Approximately 79% of the respondents agreed or strongly agreed, about 16% disagreed and approximately 5% were Undecided.

### Test of Hypothesis

H1: Globalization factors have strong influence on methods of human resources skill development.

The null hypothesis can be stated thus:

H0: Globalization forces do not have strong influences on methods of human resources skill development.

Data for the test of this hypothesis was got from responses displayed in figures 1.1 to 1.5 of the preceding section. In order to test the above hypothesis, t-test was employed. The obtained responses on factors of globalization were compared with a value of 3, which represents the mean of responses on a five-point scale (5, 4, 3, 2, and 1). The obtained factor-by-factor values as well as the aggregate are shown in table 4.1 below. The obtained t- values reveal that all the globalization factors, as given by the study, have strong influence on methods of human

resources skill

development at  $P < 0.05$ . Given this result, the study reject the null hypothesis and accept the alternate hypothesis meaning that globalization have strong influence on methods of human resources skill development.

**Table-1.T-Values for Test of Hypothesis**

Question item	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Globalization has increased the frequency and techniques for staff training	4.13	0.78	12.45036	117	0.00
Increased training of staff abroad	3.31	1.09	2.427605	113	0.01
Increased variety of methods including on-the-job-e-trainings	4.13	0.70	13.69632	119	0.00
Increase acceptance of e-learning training and certification	3.74	0.87	7.318015	118	0.00
Design of uniform training programmes among the branches	3.89	0.91	8.368775	118	0.00
Total	3.78	0.70	6.048597	96	0.00

## 5. DISCUSSION OF FINDINGS

Data presented in figures 1.1 and 1.5 with the result of testing of hypothesis 3 in Table 1 reveal that globalization has impacted on human resource training and development in several ways. In particular, results show that globalization has impacted on HR training and development in the following ways:

1. It has increased the frequency of training and development in most Ghanaian organizations;
2. It has reduced the urge to go for staff training abroad;
3. Increased variety of methods including on-the-job-e-trainings;
4. Increase acceptance of e-learning training and certification;
5. It has led to the design of uniform training programmes among the branches of multinational organizations investigated;

This result agrees substantially with the findings of Chaykowski (2002) and Stilwell *et al.* (2004).

Both studies agree that competition and advancements in information technology have fuelled the quest for higher skills. In particular, Stillwell et al (opcit and Ibid), found out that new

communication technologies particularly internet has provided electronic access to education

through distance learning. This result is quite interesting and has a lot of positive implications for the development of Ghanaian organizations and economy. First, this development will reduce the tendencies where employees are caught in the dilemma of either giving up the idea of furthering

their education because of their job or temporarily leaving their jobs for study leaves. For most employees, who do not have people to help them through school, they have had to stay at their jobs with limited education and thus income. With this new trend of increased on-the-job e-learning and acceptance of e-learning certifications, it is expected that this limitation to manpower development has been removed.

Second, this development will kick-start a change in the general belief that most African households do not invest in education because its private returns to that investment are not high enough to justify it (World Bank, 2000). With employees experiencing instant benefit of training either through promotion or change of job status, the perception that the benefits of education are limited will begin to change very drastically.

Third, the design of uniform training programmes among multinational corporations for their staff world-wide may start opening up the possibility of the much expected and of course, desired technology transfer. These trainings and cross-country postings all hold the possibility by Ghanaian nationals who work in these organizations to acquire the much needed technology transfer. The other side of this result is that it also holds the possibility of exacerbating the phenomenon of 'brain drain'. Uniform training and cross-country postings all expose hitherto local staff to the opportunities in the global community and hence, increase the chances of his permanent move overseas.

Fourth, this finding means that the costs of manpower development for the Ghanaian organizations and by extension the entire economy is generally lower. This is because it has reduced the incidence of movement of staff overseas to acquire some specialized trainings, which are costlier in both nominal and opportunity cost terms.

## **6. CONCLUSION**

This research effort sought to investigate the impact of globalization on human resources training and development among employees in Ghanaian firms. The underlying theoretical assumptions for this study are: that globalization as a world-wide phenomenon has come to stay and has far reaching implications in almost all spheres of life; that the competitive cutting edge of Ghana in a globalized world are the knowledge profile of its human resources; it therefore makes academic sense to examine the relationship between the two.

This study findings show that globalization has impacted positively on human resources training and development. In particular, findings show that globalization has increased the frequency and methods of trainings, increased use and acceptance of e-trainings and certification and uniform design of training programmes across the subsidiaries of MNCs globally. All these were found to reduce the physical incidence of personnel going abroad to study.

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# THE CONTRIBUTIONS OF GOVERNMENT CAPITAL EXPENDITURE ON EDUCATION TOWARDS HUMAN DEVELOPMENT IN NIGERIA (1980-2012)

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**ABSTRACT:** *This paper examined the contributions of government capital expenditure on education towards human development in Nigeria between the years of 1980 to 2012. In explaining human development, the researchers selected three key variables to proxy each of the human development dimensions. The data was analyzed using the general linear model of regression with the help of 16.0 version of the statistical package for social sciences (SPSS). The major finding of the study showed that government capital expenditure contributes significantly to human development in Nigeria. However, a test of the individual parameters revealed that the contribution of government capital expenditure on education towards literacy rate as proxied by school enrollment and poverty rate as proxied by per capita income is not significant. But to the third parameter which measured health dimension (mortality rate), the contribution of government capital expenditure was found to be significant. Sequel to the findings, the researchers drew conclusions and also made recommendations.*

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**Keywords:** *government capital expenditure, education, human development index, economic development, school enrollment, per capita income, mortality rate.*

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## 1. Introduction

In today's knowledge driven economy, nations of the world are taken strategic initiatives in order to improve the quality and quantity of education available to her citizens. This may not be unconnected with the global believe that education is the sure way to human capital formation which is the pillar of every

sustainable economic development. In Nigeria, the believe is the same, hence government emphasis on policy initiatives that improves the literacy index of the nation. However, over the years, there seems to be a fluctuation in the government budgetary allocation to the education sector. This fluctuation most education experts believe has affected the development of critical infrastructures in Nigerian schools ranging from primary to tertiary institutions. To salvage this situation, the Nigerian government has incrementally increased the budgetary allocation to the education sector; especially as it affect capital expenditures. This increase in government financial commitment is in pursuant of one of the cardinal millennium development goals which is to provide education for all. To achieve this requires the provision of conducive teaching and learning environment and support for relevant policies and processes that reduces illiteracy rate.

Studies undertaken in the last decade suggest that there is an increasing importance for countries to foster strong educational polices in order to spur development. According to Hanushek and Wößmann (2007), “educational quality – particularly related to developing countries – is the key issue” for development. Cognitive skills gained in primary and secondary education historically bring about more economic returns. Hence, there are two chief ways in which education can be enhanced: through increasing quantity and quality. By increasing the amount of schooling, students have more time to develop basic skills in disciplines such as reading, mathematics, and science. Hence, bolstering the quantity of education should foster human capital, hopefully bolstering productivity in the long-term. Secondly, a more educated workforce has a higher capacity for innovation, helping to bring about structural changes to the economy. According to Hanushek and Wößmann (2007), “several recent studies suggest that education is important both as an investment in human capital and in facilitating research and development and the diffusion of technologies.” Hence, increasing the quantity of education helps students gain more familiarity with technology, which encourages future innovation and productivity. Zaman (2008) posits that education plays a vital role in human capital formation. It raises the productivity and efficiency of individuals and thus produces skilled manpower that is capable of leading the economy towards the path of sustainable economic development. Moreover education is expected to act positively towards world economic development and poverty alleviation, both of which are the priorities of the world community. An investment in human capital, especially in education allows each person to contribute to their society in a productive way. It becomes an important factor of an economy’s capability to achieve high level of growth with low unemployment, high wages and strong social unity. Therefore, along with elements such as low unemployment and balance of payments equilibrium, education is an important issue that each country’s government deals with and strives to improve.

In Nigeria today, government prides itself with attaining improved macro-economic stability and growth, however, how this growth has improved the life of Nigerians remains to be seen especially as it affects certain basic human development indices such as; literacy rate, poverty rate reduction, improved mortality rate and the question of unemployment which today is snowballing into one of the biggest challenges facing the Nigerian nation. Government expenditure on education is therefore expected not to only help grow the economy but empower and mobilize the citizens towards becoming self-sufficient.

Contribution of education to economic development works in two ways: firstly, through the economy's

organization, that is, its division of tasks and secondly through the economy's performance, that is, how much it produces. The organization of an economy is getting specialized in its division of tasks. These tasks include “schools” that train students for efficient and effective performance. Productivity of the labor force determines the performance of economy. Because the educational level of the labor force is a determinant of its productivity, schools and other educational facilities make important contribution to economic development. All this could be made possible by a reasonable financing of education sector both by government and education sector itself.

The Human Development Index (HDI) was created by united nations development programme (UNDP) to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not economic growth alone. The HDI can also be used to question national policy choices, asking how two countries with the same level of GNI per capita can end up with different human development outcomes. These contrasts can stimulate debate about government policy priorities. The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions. The three dimensions of human development index for the purpose of this study are proxied by school enrollment (SCHENR), per capita income (PCI) and mortality rate (MR)

### **Statement of the Problem**

In Nigeria, the rate of illiteracy is very high. Most of the workers are unskilled and they make use of outmoded equipment and methods of production. By implication, their marginal productivity is extremely low and this leads to low real income, low savings, low investment and consequently low rate of capital formation. Overtime, the following issues relating to the concept have remained unresolved: Uneven distribution of skilled manpower, Poor reward system retarding the acquisition and development of human capital all has impacted negatively on the gross domestic product which is a critical measure of economic development.

Moreover, the educational sector in Nigeria is plagued by many problems. This can be attributed to the attention given to education by the Nigerian governments (both past and present) as relatively low. The minimum amount to be spent by a country on education as stated by the United Nations (UN) is 26% of the country's annual budget. Ironically, it is clear that expenditure on education sector in Nigeria is still far below UN benchmark of 26%. Another pertinent issue in the Nigerian educational sector is that of teacher education. The basic problems reported by surveys carried out in various research in Nigeria have shown the discrepancy between the demand for teachers and the supply for teachers, and that teachers fail to meet the minimum requirement as stated by the National Policy For Education. This is due to lack of incentives, brain-drain and lack of motivation (Ibidapo-Obe, 2007). According to Dike (2002), he noted that the Federal Government reported that the falling standard of education in Nigeria is caused by “acute shortage of qualified teachers in the primary school level.”

The governments of Nigeria however, has over the years increased their capital expenditure on education significantly. The problem of this paper therefore is to examine the relationship between government

capital expenditure on education and human development in Nigeria.

### **Objectives of the Study**

The broad objective of this research is to evaluate the contributions of government capital expenditure on education towards Human Development in Nigeria. The specific objectives are as follow:

- I. Examine the contributions of government capital expenditure on education towards literacy rate in Nigeria.
- II. Examine the contributions of government capital expenditure on education towards the poverty rate in Nigeria.
- III. Examine the contributions of government capital expenditure on education towards mortality rate in Nigeria.

### **Research Questions**

- I. Does government capital expenditure on education contribute to improved literacy rate in Nigeria?
- II. Does government capital expenditure on education contribute to poverty rate reduction in Nigeria?
- III. Does government capital expenditure on education contributes to reduced mortality rate in Nigeria?

### **Statement of Hypotheses**

The hypotheses in this study were stated in their null form as follows;

H<sub>01</sub>: government capital expenditure on education does not contribute significantly towards the literacy rate in Nigeria.

H<sub>02</sub>: government capital expenditure on education does not contribute significantly towards the per capita income in Nigeria.

H<sub>03</sub>: government capital expenditure on education does not contribute significantly towards mortality rate reduction in Nigeria

## **2. Literature Review**

Education, as a key component of human development index is recognized as being vital in increasing the productive capacity of people. Education, especially at the higher level, contributes directly to economic growth by making individual workers more productive and leading to the creation of knowledge, ideas, and technological innovation. The effect of education on technological innovation is direct following the Romer/Solow growth theory framework. An investment in education is beneficial to the society, both at micro and macro levels and affects the system both directly and indirectly effect. According to Todaro, (2007), education is basic to development and is also regarded as an instrument through which the society can be transformed. As a salient factor in transition programme, education equips human resources with the needed knowledge, skills and competencies, which would make them functional, and contribute to the all-round development of the nation. It does not only help to supply the essential human capital which is a necessary condition for sustainable economic growth but it is also a key to poverty reduction and a major vehicle for promoting equity, fairness and social justice.

Poverty, which has no geographical boundary, is seen in all part of the country, rural and urban areas inclusive. Although the incidence of poverty is much higher in the rural areas than in the urban centers, the urban slum-dwellers form one of the more deprived groups in Nigeria. Amaghionyeodiwe and Osinubi, (2004) has defined the poor as those who are unable to obtain an adequate income, find a stable job, own property or maintain healthy living conditions. They also lack an adequate level of education and cannot satisfy their basic health needs. As such the poor are often illiterate, in poor health and have a short life span. The attempt by Nigeria to shift the focus of the economy from the oil industry to other economic activities has been unsuccessful, largely due to corruption, low investment, and a largely unskilled labor force. A good way of generating economic growth is through educational development. The basic importance of education is to enable individuals with knowledge and the ability to apply that knowledge. Education is therefore commonly regarded as the most direct avenue to rescue a substantial number of people out of poverty since there is likely to be more employment opportunities and higher wages for skilled workers. Furthermore, education can enable children attitudes and assists them to grow up with social values that are more beneficial to the nation and themselves.

Enyi (1999) noted that investment in education rests on the logic that the educated earns more than the uneducated in most countries, and that the earning power of individual reflects their productivity level, which in turns is promoted by education. Also, economic development is related to individual's productivity level which means that more education leads to more economic development. Within a given occupation, a better educated person is likely to do a job better than a less educated one because additional education is expected to make an individual more aware of better ways of doing things (Ogbonnaya, 2006). According to Dauda (2009), the crucial role education plays in the overall development of a nation cannot be overemphasized because education is not only seen as a key to poverty reduction and vehicle for promoting equity, fairness and social justice but also helps to supply the essential human capital which is a necessary condition for sustained economic growth. Therefore, enhancing effective investment on education has been a tenet of growth and development strategies of most countries. Government expenditures are the expenses which government incurs for the maintenance of the government and the society in general (Oriakhi, 2004). Government expenditures are the expenses the government incurs in carrying out its programmes (Okoh, 2008). According to Anyanwu (1997), government expenditure involves all the expenses which the public sector incurs for its maintenance for the benefit of the economy. Generally, government expenditure in Nigeria can be categorized into two components parts namely capital expenditure and recurrent expenditure. Capital expenditure is incurred on the creation or acquisition of fixed assets (new or second-hand) while recurrent expenditure is incurred on the purchase of goods and services, payment of wages and salaries and settlement of depreciation on fixed assets. Increase in government expenditure on socioeconomic activities and infrastructural development is an impetus for economic growth in any country. Specifically, some of the reasons adduced for the increase in government expenditure overtime are: inflation; public debt; tax revenue and the population. In Nigeria, evidences show that the total government expenditure in terms of capital and recurrent expenditures have continued to rise



in the last three decades. Expenditures on defense, internal security, education, health, agriculture, construction, transport and communication are rising overtime.

The World Bank (2010) specifies that Nigeria has found it difficult to grow her economy in her quest to become a knowledge-based economy because of the challenges faced in the national educational system. According to the report, some major challenges limiting the advancement of Nigeria's education system are low tertiary enrollment level, teaching with obsolete methods, strikes and administrative hiccups, corrupt teachers asking bribes to pass students, frequent absence of teachers during teaching periods, lack of ICT infrastructure and other teaching methods, and poor funding. The organization categorized these problems into poor access to education, poor quality of education and poor funding of education. Prior to the study undertaken by the World Bank's (2010), Odiya and Omofonmwan's (2007) had reported that the Nigerian education system was constrained by several challenges, which included poor funding, poor educational infrastructure, inadequate classrooms, lack of teaching aids (such as projectors, computers, laboratories and libraries), dearth of quality teachers and un-conducive learning environment. Moreover, they pointed that many social vices, such as examination malpractice, cultism, hooliganism, and corruption, have emerged from the school system. These in addition, compound the problems that impede the nation's ability to cultivate the kinds of people that can serve as tools to facilitate economic improvements.

As at 1980 the federal government spent 10.4 percent of total expenditure on education, it fluctuated significantly between 1985 and 2007, as at 2007 only 8.7 percent of total expenditure was spent on education. This fell below the minimum standard of 26.0 percent of annual budget prescribed by the United Nations Educational Scientific and Cultural Organization (UNESCO). The Nigerians educational system was also accompanied by structural defects, in efficiency and ineffectiveness which has today place the country at its lowest ebb in human capital development and utilization.

### **Theories of Education and Economic Development**

Contemporary discussions on education and economic development have been dominated by three theories as discussed below:

1) **Human Capital Theory:** This theory shows how education leads to increase in productivity and efficiency of workers by increasing the level of their cognitive skills. Theodore, Schultz, Gory Bucker and Jacob Mincer introduced the notion that people invest in education or as to increase their stock of human capabilities which can be formed by combining innate abilities with investment in human beings (Babalola, 2000). Examples of such investments include expenditure on education, on- the- job training, health, and nutrition. However, the stock of human capital increases in a period only when gross investment exceeds depreciation with the passage of time, with intense use or lack of use. The provision of education is seen as a productive investment in human capital, an investment which the proponents of human capital theory considers to be equally or even more equally worthwhile than that in physical capital. Human capital theorists have established that basic literacy enhances the productivity of workers. They further stated that instruction that demands logical and analytical reasoning that provides technical and specialized knowledge

increases the marginal productivity of workers in high skill or profession and positions. Moreover, the greater the provision of schooling in the society, the greater the increase in national productivity and economic development.

2) **The Modernization Theory:** This theory focuses on how education transforms an individual's value, belief and behavior. Exposure to modernization institutions such as schools, factories, and mass media inculcate modern values and attitudes. The attitude include openness to new idea, Independence from traditional authorities, willingness to plan and calculate further exigencies and growing sense of personal and social efficacy. According to the modernization theorists, these normative and attitudinal changes continue throughout the life cycle, permanently altering the individual's relationship with the social structure. The greater the number of people exposed to modernization institutions, the greater the level of individual modernity attained by the society. Once a critical segment of a population changes in this way, the pace of society's modernization and economic development quickens. Thus, educational expansion through its effects on individual values and benefits sets in motion the necessary building blocks for a more productive workforce and a more sustained economic development.

3) **The dependence theory:** this theory arose from Marxist conceptualizations based on the dynamic world system that structures conditions for economic transformation in both the core and periphery of the world economy. Certain features of the world polity such as state fiscal strength, degrees and regime centralization and external political integration may contribute to economic development in the developing world.

### 3. Materials and Methods

The data used in this study was collected from different secondary sources which include;

- i. Central bank of Nigeria statistical bulletin volume 23, 2012
- ii. IMF World Economic Outlook data, October 2014
- iii. World bank WDI data base 2010.

The method employed is the multiple linear regressions, which in matrix form is known as the general linear model. The multiple regression model is of the form below;

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k \quad \dots \quad (3.1)$$

Due to the nature of numerous explanatory variables, we used the general linear model that is working in matrix form. Suppose we postulate that there is a linear relationship between the dependent variable, Y and k – 1 explanatory variables  $x_2, x_3, x_4, \dots, x_k$  for a population of size N observations on Y and the X's, we may write:

$$Y_i = b_1 + b_2X_{2i} + b_3X_{3i} + \dots + b_kX_{ki} + u_i, i = 1, 2, \dots, N \quad \dots \quad (3.2)$$

where  $b_1$  = the intercept on the Y-axis,  $b_2, b_3, \dots, b_k$  are the unknown population parameters.

$u$  = error (or stochastic disturbance) term.

Re-writing equation (3.2) as a set of N simultaneous equation, we obtain:

$$\left. \begin{aligned} Y_1 &= b_1 + b_2 X_{21} + b_3 X_{31} + \dots + b_k X_{k1} + U_1 \\ Y_2 &= b_1 + b_2 X_{22} + b_3 X_{32} + \dots + b_k X_{k2} + U_2 \\ Y_3 &= b_1 + b_2 X_{23} + b_3 X_{33} + \dots + b_k X_{k3} + U_3 \\ &\vdots \\ Y_N &= b_1 + b_2 X_{2N} + b_3 X_{3N} + \dots + b_k X_{kN} + U_N \end{aligned} \right\} \dots \quad (3.3)$$

Equation (3.3) can be re-written more compactly in matrix form as:

$$Y = Xb + U \quad \dots \quad (3.4)$$

where

$$Y = \begin{pmatrix} Y_1 \\ Y_2 \\ Y_3 \\ \vdots \\ Y_N \\ \text{N} \times 1 \end{pmatrix}, \quad X = \begin{pmatrix} 1 & X_{21} & X_{31} & \dots & X_{k1} \\ 1 & X_{22} & X_{32} & \dots & X_{k2} \\ 1 & X_{23} & X_{33} & \dots & X_{k3} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 1 & X_{2N} & X_{3N} & \dots & X_{kN} \\ \text{N} \times k \end{pmatrix}$$

$$\beta = \begin{pmatrix} b_1 \\ b_2 \\ b_3 \\ \vdots \\ b_k \\ k \times 1 \end{pmatrix}, \quad U = \begin{pmatrix} U_1 \\ U_2 \\ U_3 \\ \vdots \\ U_N \\ \text{N} \times 1 \end{pmatrix}$$

### Estimation of The Unknown Parameters

We estimated the unknown population parameter,  $b$ , using the Ordinary Least Square (OLS) method. To do this, we take a random sample of  $n$  observation on  $Y$  and the explanatory variables,  $x$ , and fit a straight line through the  $n$  observations. Let this estimated line be given by

$$\hat{Y} = X\hat{\beta} \quad \dots \quad (3.5)$$

where  $\hat{\beta}$  is a year of estimates of  $b$ .

Let  $e$  be the difference between the true regression line  $Y$  and the estimated regression line  $\hat{Y}$ . Then

$$\begin{aligned} e &= Y - \hat{Y} \\ &= Y - X\hat{\beta} \end{aligned}$$

The OLS estimates are obtained by minimizing the error sum of squares,

$$\Sigma e_i^2 = e'e$$

$$e'e = (Y - X\hat{\beta})'(Y - X\hat{\beta})$$

$$\begin{aligned}
 &= (\mathbf{Y}' - \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{X}) (\mathbf{Y} - \mathbf{X} \hat{\boldsymbol{\beta}}) \\
 &= \mathbf{Y}' \mathbf{Y} - \mathbf{Y}' \mathbf{X} \hat{\boldsymbol{\beta}} - \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{Y} + \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{X} \hat{\boldsymbol{\beta}} \\
 \mathbf{e}' \mathbf{e} &= \mathbf{Y}' \mathbf{Y} - 2 \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{Y} + \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{X} \hat{\boldsymbol{\beta}} \quad \dots (3.6)
 \end{aligned}$$

Let  $\mathbf{e}' \mathbf{e} = Q$ , so that equation (3.6) becomes

$$\begin{aligned}
 Q &= \mathbf{Y}' \mathbf{Y} - 2 \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{Y} + \hat{\boldsymbol{\beta}}' \mathbf{X}' \mathbf{X} \hat{\boldsymbol{\beta}} \\
 \frac{\partial Q}{\partial \hat{\boldsymbol{\beta}}} &= -2 \mathbf{X}' \mathbf{Y} + 2 \mathbf{X}' \mathbf{X} \hat{\boldsymbol{\beta}} = \mathbf{0} \\
 2 \mathbf{X}' \mathbf{X} \hat{\boldsymbol{\beta}} &= 2 \mathbf{X}' \mathbf{Y} \\
 \hat{\boldsymbol{\beta}} &= (\mathbf{X}' \mathbf{X})^{-1} \mathbf{X}' \mathbf{Y} \quad \dots (3.7)
 \end{aligned}$$

Equation (3.7) provides us with a method for estimating the  $\hat{\boldsymbol{\beta}}$  vector. The OLS estimates,  $\hat{\boldsymbol{\beta}}$ , of the population parameter  $\boldsymbol{\beta}$  is

- (a) a linear function of  $\mathbf{Y}$
- (b) an unbiased estimator of  $\boldsymbol{\beta}$
- (c) the best amongst all unbiased linear estimators of  $\boldsymbol{\beta}$ .

### Estimation of The Variance of The OLS Estimators

The variance of the OLS estimators can be stated without proof as;

$$\mathbf{Var}(\hat{\boldsymbol{\beta}}) = \mathbf{E} \left[ (\hat{\boldsymbol{\beta}} - \boldsymbol{\beta})(\hat{\boldsymbol{\beta}} - \boldsymbol{\beta})' \right] \quad \dots (3.8)$$

$$= \sigma^2 (\mathbf{X}' \mathbf{X})^{-1} \quad \dots (3.9)$$

### Estimation of The Error Mean Square

The sample disturbance term,  $\mathbf{e}$  can be written as

$$\begin{aligned}
 \mathbf{e} &= \mathbf{Y} - \mathbf{X} \hat{\boldsymbol{\beta}} \\
 &= \mathbf{Y} - \mathbf{X} (\mathbf{X}' \mathbf{X})^{-1} \mathbf{X}' \mathbf{Y} \\
 &= (\mathbf{I}_n - \mathbf{X} (\mathbf{X}' \mathbf{X})^{-1} \mathbf{X}') \mathbf{Y} \\
 &= \mathbf{w} \mathbf{Y} \quad \dots (3.10)
 \end{aligned}$$

where

w is a matrix of fixed numbers, and  
 W is a symmetric idempotent matrix  
 Thus e is a linear function of Y

Thus, an unbiased estimator of  $s^2$  is given by

$$\hat{\sigma}_e^2 = S^2 = \frac{e^T e}{n - k} \quad \dots \quad (3.11)$$

**Table 3.2 ANOVA TABLE**

Source of variation	Df	SS	MS
Regression	K - 1	$\Sigma \hat{y}_t^2$	$\frac{\Sigma \hat{y}_t^2}{k - 1}$
Error	n - k	$\Sigma y_t^2 - \Sigma \hat{y}_t^2$	$\Sigma y_t^2 - \frac{\Sigma \hat{y}_t^2}{n - k}$
Total	n - 1	$\Sigma y_t^2$	

$$F_{\text{calculated}} = \frac{\frac{\Sigma \hat{y}_t^2}{k - 1}}{\frac{\Sigma y_t^2 - \Sigma \hat{y}_t^2}{n - k}} = \frac{\text{RMS}}{\text{EMS}}$$

The decision rule is to reject  $H_0$  if  $F_{\text{cal}} > F_{k-1, n-k; \alpha}$  otherwise accept  $H_0$ .

**Coefficient of Determination**

The (multiple) coefficient of determination is given by

$$R^2 = \frac{\Sigma \hat{y}_t^2}{\Sigma y_t^2} \quad \dots \quad (3.12)$$

where  $x_1, x_2, y$  are in deviation form. The adjusted  $R^2$  written as  $\bar{R}^2$  is defined by

$$\bar{R}^2 = 1 - (1 - R^2) \frac{n - 1}{n - k} \quad \dots \quad (3.13)$$

**Test of Hypotheses**

Our model  $Y = \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 + U$  involves two explanatory variables. Hence we can conducted two types of tests about the parameters of the model, namely; individual tests and joint tests.

**Individual Test**

The null and alternative hypotheses may be stated as follows:

$H_0 : b_i = 0, i = 1, 2, \dots, 19$  (i.e. there is no linear relationship between  $x_i$  and  $y$ , the other  $x$  held constant).

$H_1 : b_i \neq 0$  (i.e. a relationship exists between  $x_i$  and  $y$ ).

Under the assumption that each  $U_i$  is  $N(0, d^2)$ , the test statistic will be given by

$$t_{cal} = \frac{\hat{\beta}_i}{SE(\hat{\beta}_i)} \quad \dots \quad (3.14)$$

The decision rule is to reject  $H_0$  at the  $\alpha$  level of significance if  $t_{cal} > t_{tab}$  (and hence conclude that a relationship exists between  $y$  and  $x_i$ ) and to accept  $H_0$  otherwise.

### Joint Test

This involves testing whether  $X_i, i=1, 2, \dots, 19$  are jointly related to  $Y$ . This is equivalent to testing whether  $b_1 = b_2 = \dots = b_k = 0$

Thus, the null and alternative hypotheses are:

$H_0 : b_1 = b_2 = \dots = b_k = 0$  (i.e.  $x_1, x_2, \dots, x_k$  are not jointly related to  $y$ )

$H_1 : b_i \neq 0$  for at least one  $i$  i.e.  $x_1, x_2, \dots, x_{18}$  and  $x_{19}$  are jointly related to  $y$ .

Thus, a joint test can be conducted using the Analysis of variance techniques as follows:

$$TSS = \sum y_i^2$$

$$RSS = \sum \hat{y}_i^2 = \hat{\beta}_1 \sum x_{1i} y + \hat{\beta}_2 \sum x_{2i} y$$

$$ESS = TSS - RSS = \sum y_i^2 - \sum \hat{y}_i^2$$

### Tests For Multicollinearity Using Condition Index

This is perhaps the best available multicollinearity diagnostic. It involves calculating the eigenvalues of the matrix of observations on the independent variables  $X_i$ . The eigenvalues can also be derived from computer estimation of the regression model as we shall experience in this research work. Using the eigenvalues, we derive the condition number and the condition index  $CI$  defined respectively as:

$$K = \frac{\text{maximum eigenvalue}}{\text{minimum eigenvalue}}, \quad \dots \quad (3.15)$$

and

$$CI = \sqrt{K} \quad \dots \quad (3.16)$$

If  $10 \leq CI \leq 30$ , there is moderate to strong multicollinearity.

If  $CI > 30$ , there is severe multicollinearity.

If  $CI < 10$ , there is no significant multicollinearity.

### Test For Autocorrelation

In the regression context, the classical linear regression model assumes that such autocorrelation does not exist in the disturbances  $U_i$ . Symbolically,

$$COV(U_i, U_j / x_i, x_j) = E(U_i U_j) = 0 \quad i \neq j$$

The Durbin-Watson test was used to test for the presence of autocorrelation which is given by

$$D = \frac{\sum_{i=2}^n (e_i - e_{i-1})^2}{\sum_{i=1}^n e_i^2} \quad \dots \quad (3.17)$$

where  $e_i$  is the OLS residual

### Hypotheses

$H_0 : r = 0$  (no autocorrelation)

$H_1 : r \neq 0$  (autocorrelation exist)

The decision rule is to

Reject  $H_0$  if  $D > 4 - D_L$

Accept  $H_0$  if  $D < 4 - D_u$ , and it is inconclusive if  $D$  falls between  $4 - D_u$  and  $4 - D_L$

### Test For Heteroscedasticity Using The White Test

We checked for the presence of heteroscedasticity in the data as follows:

- Obtain the estimated error term  $e_i$  from the regression.
- Regress the error term squared on the original explanatory variables (X), their squared values and their cross products.

- Then reject  $H_0$  that there is no heteroscedasticity of  $\chi_{cal}^2 = nR^2 > \chi_{tab}^2 \quad \dots \quad (3.18)$

and accept  $H_0$  otherwise, where the degree of freedom is equal to the number of regressors (White; 1980).

- It is not advisable to apply the test to a model with several independent variables as this will consume degrees of freedom.

### 4. Analysis and Interpretation of Results

This is the summary of computer regression results. We recall that our regression model is specified by the equation

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + U$$

However, from the SPSS print out in the appendix, we have

$$Y = 147911.95 + 0.000X_1 - (-) 5.456X_2 + (-) 1131.94X_3$$

#### 4.1 Joint Test

##### Hypothesis

$H_0$  : There is no significant relationship between Government capital expenditure on education, school enrollment, per capita income and mortality rate.

$H_1$  : significant relationship exists.

$F_{cal} = 74.678$  (See SPSS output)

The decision rule is to reject  $H_0$  if  $F_{cal} > F_{tab}$

where  $F_{tab} = F_{3, 29, 0.05} = 2.93$

Since  $F_{cal} = 74.678 > F_{tab} = 2.93$ , we reject  $H_0$  and accept  $H_1$ . Because we have rejected the null hypothesis, it becomes imperative to carry out an individual test.

ANOVA (b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5249295114.851	3	1749765038.284	74.678	.000(a)
	Residual	679495909.988	29	23430893.448		
	Total	5928791024.839	32			

a Predictors: (Constant), MR, SCHENR, PCI

b Dependent Variable: GCEE

#### 4.2 Individual Test

From the output of the SPSS software,

T-calculated for  $b_1 = 0.483$ ,  $b_2 = -1.116$ , and it is  $-2.176$  for  $b_3$ .

$SE(b_1) = 0.00$ ,  $SE(b_2) = 4.887$ , and  $SE(b_3) = 520.302$ .

The necessary hypotheses are as follows:

$H_0^1 : \hat{\beta}_1 = 0$  (There is no relationship between Government capital expenditure on education and school enrollment in Nigeria).

$H_1^1 : \hat{\beta}_1 \neq 0$  (Relationship exists)

$H_0^2 : \hat{\beta}_2 = 0$  (There is no relationship between Government capital expenditure on education and per capita income increase in Nigeria).

$H_1^2 : \hat{\beta}_2 \neq 0$  (Relationship exists).

and



$H_0^3: \hat{\beta}_3 = 0$  (There is no relationship between Government capital expenditure on education and mortality rate reduction in Nigeria).

$H_1^3: \hat{\beta}_3 \neq 0$  (Relationship exists).

The decision rule is to reject  $H_0$  if  $t_{cal} > t_{tab}$  where

$$t_{tab} = t_{\frac{\alpha}{2}, P} = t_{0.025, 29} = 2.045$$

Since absolute values of the t-calculated for  $b_1, b_2$  are lesser than the tabulated value, we accept  $H_0$  but in  $b_3$  the absolute value is greater than its tabulated value; we reject  $H_0$  and accept  $H_1$  for the third parameter.

**Coefficients (a)**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta	Tolerance	VIF	B	Std. Error
1	(Constant)	147911.952	74977.636		1.973	.058		
	SCHENR	.000	.000	.102	.483	.633	.089	11.260
	PCI	-5.456	4.887	-.580	-1.116	.273	.015	68.312
	MR	-1131.934	520.302	-1.413	-2.176	.038	.009	106.791

#### 4.3 Test For Multicollinearity Using Condition Index (CI)

$$CI = \sqrt{K}$$

$$K = \frac{\text{maximum eigen value}}{\text{minimum eigen value}}$$

where

$$= \frac{7.61}{0.18} = 42.28$$

$$CI = \sqrt{42.28} \approx 6.50$$

Since  $CI < 10$ , there is no significant multicollinearity.

**Collinearity Diagnostics (a)**

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
		(Constant)	SCHENR	PCI	MR	(Constant)	SCHENR
1	1	3.685	1.000	.00	.00	.00	.00
	2	.298	3.517	.00	.00	.01	.00
	3	.018	14.504	.00	.41	.07	.00

4	7.61E-005	220.001	1.00	.59	.92	1.00
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a Dependent Variable: GCEE

#### 4.4 Test For Autocorrelation

##### Hypotheses

$H_0 : r = 0$  (no autocorrelation)

$H_1 : r \neq 0$  (autocorrelation exists)

From the SPSS output, Durbin Watson Statistic (D) = 1.131.

From the Durbin Watson table,  $D_L = 1.006$ ,  $D_U = 1.421$ . Then  $4 - 1.006 = 2.994$ , and  $4 - 1.421 = 2.579$ .

Since  $D = 1.073 < 4 - D_u = 2.579$ , we do not reject  $H_0$ , and conclude that autocorrelation does not exist in the data.

#### Model Summary (b)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
	R Square Change	F Change	df1	df2	Sig. F Change	R Square Change	F Change	df1	df2	Sig.F Change
1	.941(a)	.885	.874	4840.54681	.885	74.678	3	29	.000	1.131

a Predictors: (Constant), MR, SCHENR, PCI

b Dependent Variable: GCEE

#### 4.5 Test For Heteroscedasticity

##### Hypotheses

$H_0$  : There is no presence of heteroscedasticity.

$H_1$  : There is presence of heteroscedasticity.

$$\chi_{cal}^2 = nR^2 \quad \text{where } R^2 = 0.998$$

$$\chi_{cal}^2 = 32(0.998) = 31.936$$

The decision rule is to reject  $H_0$  if

$$\chi_{cal}^2 > \chi_{tab}^2 \quad \text{where}$$

$$\chi_{tab}^2 = \chi_{3,0.05}^2 = 7.815$$

Since  $\chi_{cal}^2 = 31.936 > \chi_{tab}^2 = 7.815$ , we reject  $H_0$ .

#### **4.6 Interpretation of Results**

Since the calculated value is greater than the tabulated value in the joint test, we accept the alternative hypothesis, which means that government capital expenditure has significant contribution on human development in Nigeria. Rejection of  $H_0$  in the joint test leads to testing the parameters individually which we found out that only the third parameter is significant. There is no multicollinearity in the data since CI is less than ten. There is no presence of autocorrelation since the Durbin Watson since the null hypothesis was not rejected. Heteroscedasticity exists in the data, which means constant variance. The coefficient of determination ( $R^2$ ), which indicates the proportion in Y that is explained by X's turned out with a high percentage of 88.5% showing that there is a strong relationship between the response variable and the explanatory variables. This result entails that 88.5% (percent) variation in the value of Human Development in Nigeria is explained by a change in our explanatory variables.

#### **5. Conclusions and Recommendations**

From the result above, the researchers conclude as follows;

1. That government capital expenditure on education has significant relationship with human development in Nigeria
2. That government capital expenditure on education has not contributed significantly to literacy rate in Nigeria in the years under study
3. That government capital expenditure on education does not contribute significantly on poverty rate reduction in Nigeria.
4. That government capital expenditure on education contributes significantly to mortality rate reduction in Nigeria.

In line with the above conclusions, the researchers recommend as follows;

- I. Government should increase its spending on education in order to foster improved human development.
- II. Government should improve education system and invest in programmes that inculcates economic skills in the citizens, this will help enhance the citizens' per capita income hence reduce poverty rate.

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**APPENDIX I**

*Table Showing the Data on the Parameters Under Study*

*Key: GCEE = government capital expenditure on education , SCENR = school enrollment , PCI = per capita income, MR = mortality rate*

YEAR	GCEE	SCENR	PCI	MR
1980	952.60	14141090	889.1	132
1981	440.90	16575099	1142.3	129
1982	488.40	17931489	1168.4	127
1983	346.60	18747711	1122.8	126
1984	144.90	17902974	1108.9	125
1985	180.70	16147150	1205.9	125
1986	442.00	16145002	1091.1	125
1987	139.10	14625140	970.3	126
1988	281.80	15907381	1049.3	126
1989	221.90	15752580	1127.4	126
1990	331.70	16835799	1281	126
1991	289.10	17268978	1309.7	126
1992	384.10	18782679	1341.1	126
1993	1563.00	20446293	1397.2	125
1994	2405.70	21386094	1435.3	125
1995	3307.40	23470201	1456	124
1996	3215.80	25873320	1551.6	122
1997	3808.00	27602130	1617.2	120
1998	12793.00	29211022	1673.8	118
1999	8516.60	30750256	1702	115
2000	23342.60	32287768	1827.4	113
2001	19860.00	35516545	2015.1	110
2002	9215.00	38310638	2471.4	106
2003	14680.20	34658518	2772.3	103
2004	21550.00	41981529	3139.3	100
2005	27440.00	36366190	3404.8	97
2006	35791.00	37384336	3715.4	94
2007	37622.60	38402481	4067.2	91
2008	38451.30	39420627	4381.1	88
2009	27946.41	40438773	4706.6	85
2010	29192.94	41456919	5127.7	82
2011	30439.46	42475064	5342.4	79
2012	31686	43493210	55193	77

*Source: Central Bank of Nigeria statistical bulletin volume 23, 2012, IMF World Economic Outlook data, October 2014, World bank WDI data base 2010.*

# EXPLORATORY STUDY ON E-BANKING IN BANGLADESH: STATUS AND NEEDS

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**Abstract-** E-banking is now a global phenomenon. It is an invaluable and powerful tool driving development, supporting growth, promoting innovation and enhancing competitiveness. Technological innovations have been identified to contribute to the distribution channels of banks and these electronic delivery channels are collectively referred to as electronic banking. To a country banking services for modernized technology should be emphasized. But unfortunately a very few studies has been made for Banking services for electronic banking sector compare with other sectors although the contribution of Bank to e-banking service is increasing in our economy day by day. In this article we have studied the present status of E-banking services, problems in this sector and the needs to overcome these problems which will provide more benefit to all banks in comparison with foreign banks, local banks and nationalized banks of Bangladesh.

**Key Words:** Tele banking, PC banking, Terms used in E-banking, Advantage of E-Banking

## 1. Introduction

Now-a -days Information technology is an important factor financial services industry, especially the banking industry. The Information and Communication technology is crucial for information analysis and enables the banking sector to differentiate its offer from competitors and thereby make it a market leader. In this context, banking sector are obliged to continuously innovate and update their marketing strategies in order to closely meet the demands and the requirements of the individual customers. It also provides safe and confidential services which best suit customers' needs. Therefore, when media (e.g. computers, EDI, ATM, Internet, TV etc) and transmission mediums (e.g. telecommunications, cable, electronics etc) complement and overlap one another, the banking agency is no longer considered to be an expected right for the customers. The customer wants more flexibility without paying more, and his demands are clear: Make transactions wherever and however he wants. Hence, the development of the concept of electronic financial services, more commonly known as "E-banking". Many banks have adopted the "E-banking" concept for their day-to-day transactions which meets the expectations of its internal users (employees) and external users (customers, suppliers, or institutional partners). A business can simplify or improve its human resources by introducing various internet technologies [1].

## 1.1 Objective of the Study

The objective of this article is to investigate the present status of E-banking in Bangladesh and tries to find out the problems in this sector so that after overcoming these problems it will be the easier and effective transaction system to the clients of the banking sector. As a result the operations of the banking sector will be easier to execute, fast, user friendly and sustainable.

## 1.2 Methodology of the study

In order to make this article more meaningful and presentable, two sources of data and information have been used widely. The Primary Sources are Face-to-face conversation with the respective officials & clients, Informal conversation as well as a direct interview with officials of Banks and relevant file study as provided by the officers concerned. The Secondary Sources are annual reports, periodical publications and articles of journals.

## 2. Literature Review

Electronic banking (e-banking) is the newest delivery channel for banking services. The definition of e-banking varies among the researches partially because electronic banking refers to several types of services through which bank customers can request for information and carry out most retail banking services via computer, television or mobile phone (Daniel, 1999; Mols, 1998; Sathye, 1999). Burr (1996) describes E-banking is an electronic connection between bank and customer in order to prepare, manage and control financial transactions [2].

E-banking is considered to be a segment of e-business to the extent that banks are involved in the conduct of business transactions via electronic media; other non-banking financial products and services (e.g. insurance), not to mention products and services from other sectors of business may be sold electronically as well. E-banking includes the systems that enable financial institution, customers, individuals or businesses, to access accounts, transact business or obtain information on financial products and services through a public or private network, including the Internet. Customers access E-banking services by using an intelligent electronic device, such as a personal computer (PC), personal digital assistant (PDA), automated teller machine (ATM), kiosk, or Touch Tone telephone (Federal Financial Institutions Examination Council, n.d). E-banking are analogous and defined as the conduct of banking services by using electronic delivery channels such as ATM, Tele banking and PC banking. Under this banking process, the branches of a bank are connected electronically in such a way so that a client or a customer of a particular bank can draw the money or make deposits anytime anywhere of the country or the world [3].

### 2.1 E-Banking Procedure

The terms 'PC banking', 'Internet banking', 'Telephone banking' or 'mobile banking' refer to a number of ways in which customers can access their banks account without having to be physically present at the branch of a bank. E-banking may be understood as the term that covers all the ways of banking business electronically [3].

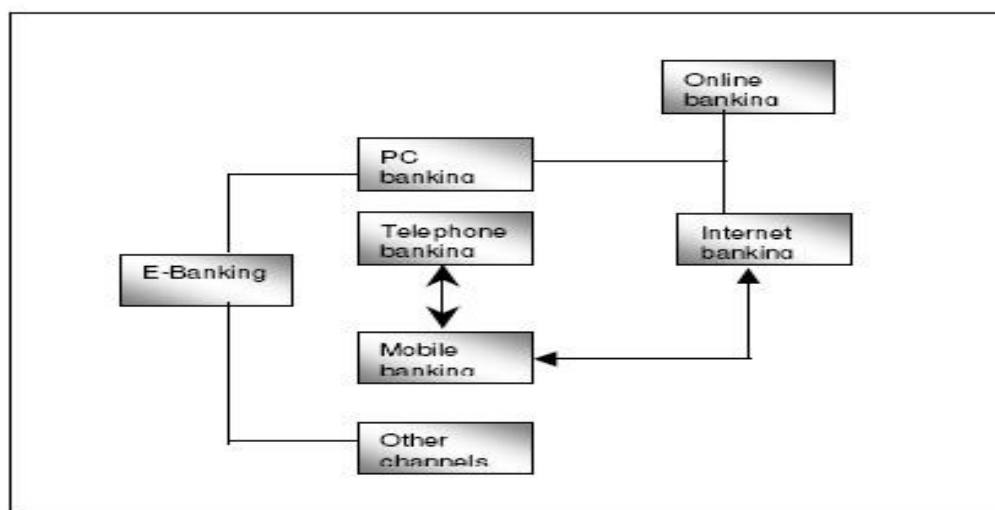
#### 2.1.1 PC Banking

The increasing awareness of the importance of literacy of computer has resulted in increasing use of

personal computers through the entire world. Furthermore, incredible plummet of cost of microprocessor has accelerated the use of computer. The term ‘PC banking’ is used for banking business transacted from a customer’s PC. Using the PC banking or home banking now customers can use their personal computers at home or at their office to access their accounts for transactions. For subscribing to and dialing into the banks’ Intranet proprietary software system is used for password. Basically, there are two types of PC banking [5].

The first type is online banking, in which bank transactions are conducted within closed networks. The customer needs specialized software provided by his bank.

The second type is Internet banking, which German banks have been offering since the mid-nineties, although the only product they were offering at the time of information. Unlike closed networks, Internet banking permits the customer to conduct transactions from any terminal with access to the Internet [5].



**Figure 1: Types of E-banking [5]**

### 2.1.2 Internet Banking

Internet banking would free both bankers and customers of the need for proprietary software to carry on with their online banking transactions. Customer behavior is changing rapidly. Now the financial service is characterized by individuality, independence of time, place and flexibility. These facts represent huge challenges for the financial service providers. So the Internet is now considered to be a ‘strategic weapon’ to satisfy the ever-changing customers’ demand and innovative business needs. Adequate legal framework and maximum security are the two essential factors for Internet banking. The comprehensive security infrastructure includes layers of security from the network to the browser, including sophisticated encryption that protects customers’ from intrusion when they access the bank over the public network [6].

### 2.1.3 Tele-banking

Tele-banking service is provided by phone. To access an account it is required to dial a particular telephone number and there are several options of services. Options are: funds transfer between current,

savings and credit card accounts, Stock exchange transaction, receive statement via fax, loan payment information [4].

#### **2.1.4 Mobile Banking**

Actually mobile banking is a variation of Internet banking. Mobile banking is a good example of how the lines between the various forms of e-banking are becoming gradually blurred. Due to the new transmission technologies such as WAP (Wireless Application Protocol), portable terminal like mobile phones, personal digital assistant (PDA) or small hand-held PCs are providing bank customers with access to the Internet and thus paving the way to Internet banking. It assures immense flexibility and makes the financial services independent of time and place. However, the use of mobile banking is still in a nascent state. The slower transmission speed of the WAP standard and the limited amount of information available are just two of the factors inhibiting the use of those terminals [6].

#### **2.2 E-Banking in Bangladesh**

In recent years the banking industry has undergone massive changes in providing service to their customers by using information technology. Developments in information technology and telecommunications have set in a motion of electronic revolution in the Bangladeshi banking sector. Foreign Commercial Banks (FCBs) in Bangladesh are playing a pioneer role in introducing modern financial products and services. Private Commercial Banks (PCBs) have started to follow the same pattern. On the other hand Nationalized Commercial Banks (NCBs) and the Specialized Banks (SBs) could not yet show notable performance regarding the issues. But due to the demands of the time, they are now taking initiatives to launch modern and innovative products and services. Currently most of the banks in Bangladesh are providing electronic products and services to their Customers'. We cannot say they are completely following electronic way. Because they offer some of the functionalities of the complete electronic banking like intra-bank transactions, Letter of Credit (LC) and foreign exchange etc. Banks products and services are categorized into two broad groups (i) Traditional Products and Services; and (ii) Modern and Innovative Products and Services which is called E-banking [12].

#### **2.3 Terms Used in E-Banking**

**E-Banking:** Electronic banking is an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution [1].

**E-Money:** E-money includes electronic debit and credit system.

**Smart Cards:** "Portable data Storage device with intelligence (Chip Memory) and provisions for identity and security" [9].

**Automated Teller Machine (ATM):** An ATM is simply a data terminal with two input and four output devices. ATM has two input devices- card reader and keypad. An ATM has four output devices- Speaker, Display screen, Receipt printer, cash dispenser [9].

**SMS Banking:** SMS- Banking is developed to provide transactions related to client's card account via SMS [1].

**Tele-banking:** Tele-banking is a form of remote banking which is essentially the delivery of branch financial services via telecommunication devices [1].

**Internet banking:** Internet banking is a term used for performing transactions, payments etc. over the



internet through a bank's secure website [11].

Call Center: Call center is a streamlined customer interface and offers a range of banking services through its call center agents [10].

#### **2.4 Basic Features of E- Banking**

E-banking changes the value of banking brand. It has some features which creates an encouraging banking environment .Through e-banking people can make a transaction easily and safely. In the other side banks feel secured about their all transactions smoothly, swiftly, timely and accurately [4].

Some of features which execute in present time: Banks provided booths for online transaction in all over the country, Non-stop cash withdrawal facility from the booths for 24 hours banking, without any queue quick cash withdrawal facility, account checking facilities from any ATM booth in any time, account statement collection from ATM, Money transfer facility from one account to another account at same bank through e-banking, present balance inquiry, checking account balance through SMS service, personal Identity Number (PIN) can be changed through e-banking, every transactions slips of bills, utilities bill paying facility, withdrawal money using Visa Card, Master Card, Maestro and other banks debit card, withdrawal money from dollar account which gives taka by converting foreign currency and remittances collection [4].

### **3. Advantages of E-Banking system**

Now-a-day's E banking becomes a blessing in banking sector. E-banking can play a significant role in uplifting the entire banking services and thus effect positively in country's economy. It has various types of advantages in banking sector .The short term advantages are reduce extra time, increase productivity and efficiency, cut down maintenance, and shortage cost and curtail security cost. The Long-term advantages are creation of new opportunities of jobs for jobless people, participation in the country's economic growth, proper planning and monitoring, proper use of resources [5].

Advantage in case of job creation: According to Bangladesh Bureau of Statistics, the number of unemployed people in Bangladesh in 1990 - 2012 was 1.07 million. Among them 0.3 million are male and more than 0.7 million female, at the rate of unemployment was 1.1 which was extended 1.9. The issue of computers eliminating jobs of people was quite emotional and painfully real. But it has two sides that automation will eliminate certain types of job like record keeper and also created jobs like administrator, system analyst, programmer, operator etc. and helped to reduce unemployment problem [6].

Advantage in contribution to GDP: Banks with a national economy, work towards building national capital, increasing national savings and mobilizing investments in trade and industry [6].

The benefits from the banks' point of view: From the banks' view point, the first benefit for the banks offering e- banking services was better branding and better responsiveness to the market. The other benefits were possible to measure in monetary terms. The main goal of every company was to maximize profits for its owners and banks were not any exception. Automated e-banking services offered a perfect opportunity for maximizing profits.

The benefits from the customers' point of view: The main benefit from the bank customers' point of view

was significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money [5]. The main benefits of e-banking were as follows:

Increased comfort and timesaving-transactions made 24 hrs a day, without requiring the physical interaction with the bank, quick and continuous access to information, corporations had easier access to information as they checked on multiple accounts at the click of a button. E-banking facilities speed up cash cycle and increases efficiency of business processes as large variety of cash management instruments is available on internet sites of banks. Private customers looked for slightly different kind of benefits from e-banking. All the banking transactions performed from the comfortable place of the home or office or from the place where a customer wants to get the benefit. The response of the medium was very fast; therefore customers actually waited till the last minute before concluding a fund transfer [6, 7].

Fund's management: Customers can download their history of different accounts and do a "what-if" analysis on their own PC before affecting any transaction on the web [7].

The Benefits from the economical' point of view: E-banking served so many benefits not only to the bank itself, but also to the society as a whole. E-banking made finance economically possible by lowering operational costs of banks, automating process, accelerating credit decisions [7].

#### **4. Scenario regarding the E-Banking in Bangladesh**

##### **4.1 BRAC Bank Limited**

With 151 outlets, over 250 ATMs in the market, BRAC Bank has offered a wide range of financial solutions to meet everyday needs. BRAC Bank introduced a layer of security system for its Internet Banking. These measures extend from data encryption to firewalls. BRAC Bank uses the most advanced commercially available Secure Socket Layer (SSL) encryption technology to ensure that the information exchange between the customer's Computer and BRACBank.com over the internet is secure and cannot be accessed by any third party[6].

##### **4.2 Arab Bangladesh Bank Limited**

AB bank Limited is the first private bank of Bangladesh with a long standing experience in domestic and international banking. Its 153 branches in all the major commercial centers of the country and 152 correspondents worldwide provide proficient e-banking services to its customers [6].

##### **4.3 Standard Chartered Bank Limited**

Standard Chartered offers the client a comprehensive range of Cash Management services. Electronic banking provides various types of support through a wide range of operating systems, sweeping transaction accessories with the provision of reporting features or other special functions [6].

##### **4.4 Dutch Bangla Bank Limited**

Dutch Bangla Bank has proudly introduced the ground-breaking "**Two Factor Authentication (2FA) Security Solution**" that protects a customer's identity and account information from access by an unauthorized person. This security solution is designed for Internet Banking third party fund transfer transactions within the Dutch Bangla Bank account holders [8].

#### **4.5 Bank Asia Limited**

Bank Asia symbolizes modern banking with innovative services in Bangladesh. It has centralized Database with online ATM, SMS and Internet query service. Bank Asia has 21 ATMs as a member of ETN along with eleven other banks. Bank Asia is maintaining its Online Banking Software and modern IT infrastructure [6].

There are some other commercial banks which are introduced E-banking transactions in Bangladesh recently.

#### **5. Problem of E-Banking**

On the basis of the study of the overall e-banking activities, we can say that for the following reasons the overall online services of the bank cannot be expanded rapidly-

The infrastructure of e-banking in Bangladesh is inefficient.

In my experience I found that someday in pick hour the software was very slow and that always creating problem in times of transaction and any other work for the bank.

Though Bank is trying to give the online service of their customers but there is also some lack of adequate knowledge about the e- banking.

In Bangladesh there is a lack of international standard communication channel that is hampering e-banking.

Improper inter –district telecommunication systems and country wide data communication system, that is why the bank is not able to provide its online services to the country wide.

Branch offices cannot be linked efficiently with the head office through single networking based on online real time basis.

There are lacking of integrated plan between any Bank and Bangladesh bank authority.

Only ATM and POS services of the DBBL are better than the other online banks of Bangladesh but home-banking services wire transfer services are not yet swift in comparison of standard chartered bank and the HSBC.

#### **6. Needs for the development of E-Banking**

The environment of Information technology changes rapidly. It is expected that the number of Internet users in Bangladesh will increase in a recent years. The number of physical branches will be decreased and most of the transactions will be concluded via main e-banking channels: online Internet bank and m-banking services. Rapid growth of e-banking in Bangladesh is predictable.

For ensuring a successful practice of e-banking in Bangladesh, the following steps to be needed:

The systems of E-banking should be simple to use, fast and user friendly.

The services of E-banking should be standardized so that wherever the solution is used the customer is familiar with the procedure followed.

Government should compel the banking sectors to automate their operations and going online by a specific period.

The banks should provide adequate training and technological support to develop the manpower.

Appropriate legal framework should be introduced.

Proper infrastructure development is necessary.

Government should establish proper educational institution to create efficient IT professionals to support e-banking in Bangladesh.

Developing of integrated e-banking software is needed.

The clearing house operation in Bangladesh should be fully automated system.

Adequate research and technological background should be needed in this regard.

## 7. Conclusion

Electronic banking is relatively a new concept for Bangladesh. It is not long ago when people wait in queue for long time with token in hand and collects money. But today the scenario is a little different at least in the urban areas. With the blessings of modern banking facility, people can enjoy 24 hours banking facility without going to the bank physically even from client's residence through Internet banking or through ATM, POS terminals. Proper implementation of online banking will create a positive impact on economy. It has employed almost all types of modern day banking facilities to provide convenience to its customers. I think all banks of Bangladesh will play an important role for the economic growth of the country by providing its banking services through over the counter and the on-line services. With resolving the security and privacy issues, the future of E-banking can be very prosperous. The future of electronic banking will be a system where users are able to interact with their banks "worry-free" and banks are operated under one common standard.

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# RANKING AUTOMOTIVE CUSTOMER REQUIREMENTS USING CLUSTERING AND THREE PARAMETER GREY NUMBERS

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## Abstract

Today organizations try to gain more customers and make them loyal. This aim is ideal especially for automotive companies. Aim of this study is clustering and identification customer requirements of an automotive company in Tehran and developing strategies to satisfy them. For this purpose, first we extract customer satisfaction factors and [engineering](#) characteristics according to expert opinions. Then we design questionnaire based on Kano model and customer satisfaction factors and we distribute them among 170 car owners in Tehran. Then we cluster customers based on their requirements using Self Organization Map. To ranking customer requirements and engineering characteristics based on Quality Function Deployment (QFD), a hybrid method using TOPSIS model in terms of uncertainty is used that three parameters grey numbers are used in it so that an accurate method is created. Finally we analyze clusters and suggest appropriate strategies for customers in each cluster.

**Keywords:** Customer Satisfaction, Data Mining, Grey System, Quality Function Deployment, Self Organization Map

## 1. Introduction

Classic marketing theory tried to attract new customers and create more communications among them, but today there is a big competition among companies to obtain more customers so companies should not only be looking for attract new customers but also they should retain previous customers and create strong communications by them. The communication marketing is sought to create communications with the target customers who buy again in the future and encourage others to do so.

Customer satisfaction is a major factor in the success of many organizations and in several studies, the relationship between customer satisfaction and word of mouth communications, loyalty, purchases repetition, and increased profitability of the organizations is referred (Fernandez and Prado, 2007). Service delivery requires communications and interactions by customer, so customers' overall satisfaction is based on how they deal with and their experience from the organization. To improve customer satisfaction and their loyalty, economic companies must investigate about the factors affect the customer

satisfaction (Law et al, 2004). Organizations have recognized that customers are their most important asset, so they consider relations with customers as beneficial interactions, which require proper management (Plakoyiannaki, 2005). Customer relationship management (CRM) is a continuous process and includes the creation and application of market knowledge and intelligence to develop and maintain a portfolio of customer relationships that have the highest returns (Zablah et al., 2004).

Organizations collect and save many data about their customers but their inability to discover hidden knowledge from data causes this data do not convert into knowledge. One of the useful tools in this field is data mining and one of the most used data mining techniques to predict customer behavior is clustering. Clustering is dividing or segmenting customers in groups of customers that are more similar to each other (Ngai et al., 2009).

In recent years, automotive companies competed in order to attract new customers, maintain existing customers and making them loyal so it is necessary to know their customers well and design a good communication system. But in any field of science, there is uncertainty that includes its ambiguity and describes the defects of human knowledge about the system and its progress. In this study, we propose a hybrid method based on TOPSIS and three parameter grey numbers to reduce the effects of uncertainty to ranking of customer requirements. This method using the neural network algorithm, create a strong model to clustering and identifying customers. The results will help automotive companies to enhance customer satisfaction in terms of uncertainty. The automotive companies can consider important factors to satisfy customers in terms of uncertainty to improve their products and services.

## 2. Research questions

In this study we want answer these three questions:

First question: How many kinds of automotive customers (based on their requirements) are there?

Second question: Which requirements and engineering characteristics are most important in each cluster in terms of uncertainty?

Third question: How are the customer requirements based on Kano Model in each cluster?

## 3. Basic Concepts

### 3.1. Clustering

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases. One of the applications of data mining, is clustering (Fecikova, 2004) that segments a set of objects in such a way that objects in the same group (called a cluster) are more similar (in some sense or another) to each other than to those in other segments (clusters). It is a main task of exploratory [data mining](#), and a common technique for [statistical data analysis](#), used in many fields, including [machine learning](#), [pattern recognition](#), [image analysis](#), [information retrieval](#), and [bioinformatics](#). Using clustering we can identify data well and it is possible to recognize, control and management data easily (Kantardzic, 2011).

### 3.2. Self Organization Map (SOM)

The Artificial Neural Network (ANN) is an information-processing paradigm inspired by the way biological nervous systems such as the brain process information. An ANN is just an attempt to imitate how the brain's networks of nerves learn (Aliahmadi et al., 2013). It can learn from experience and generalize based on the previous knowledge. Lately, ANNs have been used in many fields for example time series forecasting in various fields (Zhang et al., 1998).

Self Organization Map (SOM) is one of the most powerful networks for data mining and analysis of complex spaces that the basis of its performance is conversion an input space to a lower dimensional space so less information is lost and hidden information in relation to the data can be detected and displayed (Leung et al., 2004; Kiang et al., 2006). SOMs are a data visualization technique invented by Professor Teuvo Kohonen to reduce the dimensions of data. Humans simply cannot visualize high dimensional data as is so techniques are created to help us understand this high dimensional data. The SOMs try to reduce dimensions by producing a map of usually 1 or 2 dimensions which plot the similarities of the data by grouping similar data items. So SOMs accomplish two things, they reduce dimensions and display similarities.

The weights of the neurons are initialized either to small random values or sampled evenly from the subspace spanned by the two largest [principal component eigenvectors](#). With the latter alternative, learning is much faster because the initial weights already give a good approximation of SOM weights (Kohonen, 2007). When a training example is fed to the network, its [Euclidean distance](#) to all weight vectors is computed. During mapping, there will be one single winning neuron: the neuron whose weight vector lies closest to the input vector. This can be simply determined by calculating the Euclidean distance between input vector and weight vector.

### 3.3. Quality Function Deployment (QFD)

Quality Function Deployment (QFD) is a method to transform qualitative user demands into quantitative parameters, to deploy the functions forming quality, and to deploy methods for achieving the design quality into subsystems and component parts, and ultimately to specific elements of the manufacturing process (Akao, 1994) as described by [Dr. Yoji Akao](#), who originally developed QFD in Japan in 1966. QFD is designed to help planners focus on characteristics of a new or existing product or service from the viewpoints of [market segments](#), company, or technology-development needs. The technique yields [charts](#) and [matrices](#).

QFD helps transform [customer needs](#) (the [voice of the customer](#) [VOC]) into [engineering](#) characteristics (and appropriate [test methods](#)) for a product or service, prioritizing each product or service characteristic while simultaneously setting development targets for product or service.

Using this method, production personnel can understand the specific need of the customers so productions will be in accordance with customer requirements. QFD uses a series of matrices to document information collected and developed and represent the team's plan for a product. The QFD methodology is based on a systems engineering approach consisting of the following general steps:

1. Derive top-level product requirements or technical characteristics from customer needs (Product Planning Matrix).



2. Develop product concepts to satisfy these requirements.
3. Evaluate product concepts to select most optimum (Concept Selection Matrix).
4. Partition system concept or architecture into subsystems or assemblies and flow-down higher-level requirements or technical characteristics to these subsystems or assemblies.
5. Derive lower-level product requirements (assembly or part characteristics) and specifications from subsystem/assembly requirements (Assembly/Part Deployment Matrix).
6. For critical assemblies or parts, flow-down lower-level product requirements (assembly or part characteristics) to process planning.
7. Determine manufacturing process steps to meet these assembly or part characteristics.
8. Based in these process steps, determine set-up requirements, process controls and quality controls to assure achievement of these critical assembly or part characteristics (Cohen and Cohen, 1995).

### 3.4. Kano Model

Kano model offers some insight into the product attributes which are [perceived](#) to be important to customers. The purpose of the tool is to support product specification and discussion through better development of team understanding. Kano's model focuses on differentiating product features, as opposed to focusing initially on customer needs. The Kano model is a theory of product development and [customer satisfaction](#) developed in the 1980s by Professor [Noriaki Kano](#), which classifies customer preferences into five categories.

These categories have been translated into English using various names (delighters/excitors, satisfiers, dissatisfiers, etc.), but all refer to the original articles written by Kano.

**Must-be Quality:** These attributes are taken for granted when fulfilled but result in dissatisfaction when not fulfilled.

**One-dimensional Quality:** These attributes result in satisfaction when fulfilled and dissatisfaction when not fulfilled. These are attributes that are spoken of and ones which companies compete for.

**Attractive Quality:** These attributes provide satisfaction when achieved fully, but do not cause dissatisfaction when not fulfilled. These are attributes that are not normally expected.

**Indifferent Quality:** These attributes refer to aspects that are neither good nor bad, and they do not result in either customer satisfaction or customer dissatisfaction.

**Reverse Quality:** These attributes refer to a high degree of achievement resulting in dissatisfaction and to the fact that not all customers are alike (Sauerwein et al., 1996; Matzler and Hinterhuber, 1998).

Some authors that studied on Kano model are Herzberg et al. (1959), Kano et al. (1984), Brandt (1988), Brandt and Scharioth (1998), Venkitaraman and Jaworski (1993), LLOSA (1997, 1999)

[Quality Function Deployment](#) (QFD) makes use of the Kano model in terms of the structuring of the [Comprehensive QFD](#) matrices. Mixing Kano types in QFD matrices can lead to distortions in the customer weighting of product characteristics. For instance, mixing must-be product characteristics—such as cost, reliability, workmanship, safety, and technologies used in the product—in the initial [House of Quality](#) will usually result in completely filled rows and columns with high correlation values.

### 3.5. Grey system theory

First time grey system theory was proposed by Deng (Liu et al., 2010) and was developed by others (Lin and Liu, 1999). If black represents the information that is completely unknown and white represents the data that is quite clear, grey is other information that somewhat are clear and somewhat are unclear. A system contain grey Information is called Grey-system (Nozari et al., 2014). Fig.1 shows the concept of Grey system.

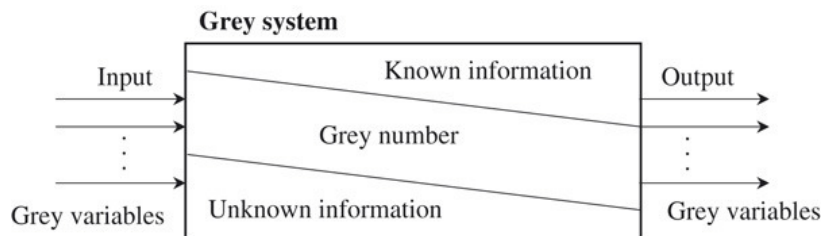


Fig. 1.concept of gray system

A three parameter interval grey number like  $a(\otimes)$  can be expressed as  $a(\otimes) \in [a, \tilde{a}, \bar{a}]$ , where  $a$  is lower bound,  $\tilde{a}$  is center of gravity (the number has the highest possibility) and  $\bar{a}$  is upper bound. Let  $a(\otimes) \in [a, \tilde{a}, \bar{a}]$  and  $b(\otimes) \in [b, \tilde{b}, \bar{b}]$  are two three-parameter interval grey numbers, then

$$a(\otimes) + b(\otimes) \in [a + b, \tilde{a} + \tilde{b}, \bar{a} + \bar{b}]$$

$$a(\otimes) - b(\otimes) \in [a - \bar{b}, \tilde{a} - \tilde{b}, \bar{a} - \underline{b}]$$

$$a(\otimes) \times b(\otimes) \in [\min\{\underline{ab}, \underline{a}\bar{b}, \underline{a}\tilde{b}, \underline{a}\bar{b}\}, \tilde{a}\tilde{b}, \max\{\underline{ab}, \underline{a}\bar{b}, \underline{a}\tilde{b}, \underline{a}\bar{b}\}]$$

$$\frac{a(\otimes)}{b(\otimes)} \in [\min\{\frac{a}{\underline{b}}, \frac{a}{\tilde{b}}, \frac{\bar{a}}{\underline{b}}, \frac{\bar{a}}{\tilde{b}}\}, \frac{\tilde{a}}{\tilde{b}}, \max\{\frac{a}{\underline{b}}, \frac{a}{\tilde{b}}, \frac{\bar{a}}{\underline{b}}, \frac{\bar{a}}{\tilde{b}}\}]$$

Assume  $a(\otimes) \in [a, \tilde{a}, \bar{a}]$  and  $b(\otimes) \in [b, \tilde{b}, \bar{b}]$  are two three-parameter grey numbers,  $F$  is the set of the three-parameter interval grey numbers and  $d : F \times F \rightarrow R$  is a mapping.  $d(a(\otimes), b(\otimes))$  is called as distance of the three-parameter interval grey number  $a(\otimes)$  and  $b(\otimes)$ . If for any three-parameter grey number like  $c(\otimes)$ ,  $d(a(\otimes), b(\otimes))$  satisfy:

$$d(a(\otimes), b(\otimes)) \geq 0$$

$$d(a(\otimes), b(\otimes)) = d(b(\otimes), a(\otimes))$$

$$d(a(\otimes), b(\otimes)) \leq d(a(\otimes), c(\otimes)) + d(c(\otimes), b(\otimes))$$

### 3.6. TOPSIS

The Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) is a [multi-criteria decision analysis](#) method, which was originally developed by Hwang and Yoon in 1981 (Yoon and Hwang, 1995) with further developments by Yoon in 1987 (Yoon, 1987) and Hwang, Lai and Liu in

1993(Hwang et al., 1993). TOPSIS is based on the concept that the chosen alternative should have the shortest geometric distance from the positive ideal solution and the longest geometric distance from the negative ideal solution. It is a method of compensatory aggregation that compares a set of alternatives by identifying weights for each criterion, normalizing scores for each criterion and calculating the geometric distance between each alternative and the ideal alternative, which is the best score in each criterion. An assumption of TOPSIS is that the criteria are monotonically increasing or decreasing. Normalization is usually required as the parameters or criteria are often of incongruous dimensions in multi-criteria problems (Yoon and Hwang, 1995; Zavadskas et al., 2006). Compensatory methods such as TOPSIS allow trade-offs between criteria, where a poor result in one criterion can be negated by a good result in another criterion. This provides a more realistic form of modelling than non-compensatory methods, which include or exclude alternative solutions based on hard cut-offs (Greene et al., 2011).

#### 4. Population and Sampling

In this research, statistical population includes car owners in Tehran that have delivered their cars at last two years ago (almost 1000 people). The size of sample is determined using below formula:

$$n = \frac{Nz_{\frac{\alpha}{2}}^2 p(1-p)}{\epsilon^2(N-1) + z_{\frac{\alpha}{2}}^2 p(1-p)} = \frac{1000(1.98)^2(0.5)(1-0.5)}{(0.08)^2(1000-1) + (1.98)^2(0.5)1-0.5} = 132.91$$

According above formula, minimum size of sample is 133, so to increasing accuracy of the research, we distribute 170 questionnaires. We use random sampling method.

#### 5. Research methodology

In this research we cluster automotive customers in Tehran to identify their requirements. We use Kano Model too and consider uncertainty to ranking customer requirements and technical characteristics based on QFD. For this propose we combine TOPSIS and three parameter grey numbers that create an accuracy method. Steps of this research are represented in Fig. 2.

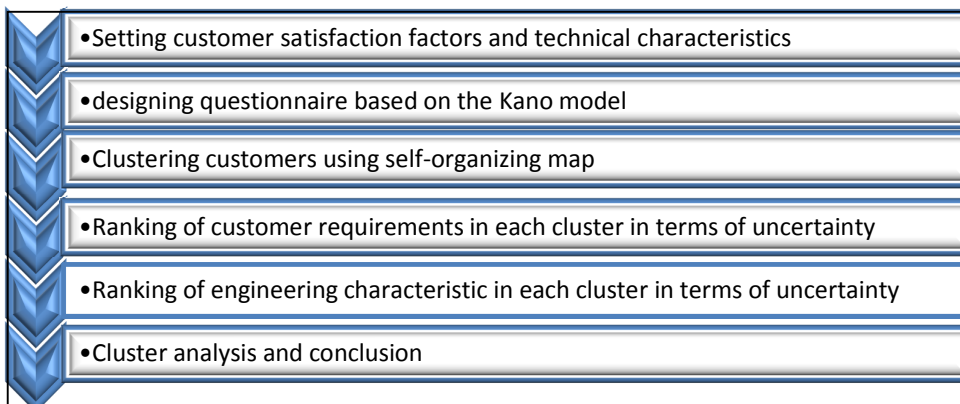


Fig. 2. Steps of research

Step 1: Setting customer satisfaction factors and engineering characteristics

Based on the definitions of customer satisfaction, previous research and auto industry expert opinions, 32 criteria are considered as customer requirements which classified in four groups. This criteria are represented at Table. 1

Table. 1. Customer Satisfaction Factors

Customer Satisfaction Factors	Groups
Rapid and correct informing Sale personnel's proper behavior Rapid delivery Correct delivery	Before Sale Services
Cash payments in small quantities Long-term installments in small quantities Interest of payments in small quantities	Terms of payments
Proper price Low decreasing in price Easy sale conditions Low fuel consumption Speed and acceleration Engine Power Safe brake Body Strength Safety Equipment Comfortable seating Comfortable driver's seat Proper heating and cooling systems Being serene Enough space for drivers and passengers Beautiful appearance The beauty of inside the car Good size Variety and quality of color	Car Features
Personnel's proper behavior Rapid handling of customer requirements Proper repair and replacement costs Quality of Repair Easy access to spare parts Quality of spare parts Warranty and Guarantee Terms	After Sale Services

Engineering characteristics are identified using documental survey and expert's opinions. These factors

are represented at Table 2.

Table 2. Engineering characteristics

<b>Engineering characteristics</b>	
Safe and new equipment at production lines or assembly lines	1
Number of equipment at production lines or assembly lines	2
Planned maintenance	3
Technical expertise of staff	4
Training	5
Promote a culture of customer-orientation	6
Coordination among units and monitor performance	7

Step 2: Designing the Kano questionnaire

Kano analysis is very straightforward to administer with two simple questions asking the customer how they would feel about the product if it was included or excluded. For example:

Question 1 (functional question)– If this feature exists, how would you feel?

Question 2(nonfunctional question) – If this feature doesn't exist, how would you feel?

Customers can select a response to be “satisfied” (or ‘like’, ‘expect’), “neutral” or “dissatisfied” (or ‘live with’, ‘dislike’) and then responses to the two questions are cross-referenced to determine which category each feature falls into. Features can then be plotted on a Kano map or in a matrix for comparison. Table 3 represents combination of attributes to recognize type of needs.

Table 3. Recognizing type of needs based on functional and nonfunctional question

		<b>Nonfunctional question</b>				
		<b>Like</b>	<b>Expect</b>	<b>Neutral</b>	<b>Live with</b>	<b>Dislike</b>
<b>Functional question</b>	<b>Like</b>	Questionable	Attractive	Attractive	Attractive	One-dimensional
	<b>Expect</b>	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	<b>Neutral</b>	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	<b>Live with</b>	Reverse	Indifferent	Indifferent	Indifferent	Must-be
	<b>Dislike</b>	Reverse	Reverse	Reverse	Reverse	Questionable

Kano analysis is a great tool for innovating or re-features a product, helping you assign features to a category, prioritize and reassess the bundle of features in your product offering over time. It is best used regularly, especially in an environment where technology is changing and customer expectations are changing with it.

Step 3. Clustering customers using Self Organization Map

In this step, we cluster customers using SOM. For this propose we use MATLAB software so that three type of customers (three clusters) are obtained that are shown at table 4.

Table 4. Attributes of customer clusters

Attributes		First cluster	Second cluster	Third cluster
Gender	Male	76 %	75 %	44 %
	Female	24 %	25 %	56 %
Matrimony	Single	75 %	37 %	40 %
	Married	25 %	63 %	60 %
Age	Before 20	4 %	7 %	0 %
	Between 20-30	53 %	20 %	26 %
	Between 31-45	31 %	66 %	62 %
	Between 46-60	12 %	1 %	3 %
	After 60	0 %	6 %	9 %

First cluster consists of 53 customers that most of them are single men and age of them is between 20-30.

Second cluster includes 68 customers, most of them are married men and 31-45 years old.

Third cluster consists of 49 customers that most of them are married women and age of them is between 31-45.

#### Step 4. Ranking customer requirements using TOPSIS based on QFD in each cluster

The importance and effectiveness of engineering characteristics for each requirement are designed based on expert opinions. At table 5 these priorities are represented as three parameter grey numbers and linguistic languages.

Table 5. three parameter grey numbers convert to linguistic languages

three parameter grey number	linguistic language
[0,0.05,0.1]	Very low
(0.1,0.2,0.3]	Low
(0.3,0.35,0.4]	Relatively low
(0.4,0.45,0.5]	Mediocre
(5,0.55,0.6]	Relatively high
(0.6,0.75,0.9]	High
(0.9,0.95,1]	Very high

Proposed model to rank requirements and engineering characteristics in this paper is based on the TOPSIS in terms of uncertainty. For this purpose we use three parameter grey numbers.

First customer satisfaction factors are categorized based on Kano model.

$$CS_j = \frac{A_j + O_j}{A_j + O_j + M_j + I_j} \qquad DS_j = \frac{M_j + O_j}{A_j + O_j + M_j + I_j}$$

Where  $CS_j$ ,  $DS_j$ ,  $A_j$ ,  $O_j$ ,  $M_j$  and  $I_j$  are satisfaction coefficients, dissatisfaction coefficients, number of customers that know  $j$ th requirement as an attractive quality, number of customers that know  $j$ th requirement as a one dimensional quality, number of customers that know  $j$ th requirement as a must-be quality, number of customers that know  $j$ th requirement as an indifferent quality. Then crisp numbers

convert into three parameter grey numbers by below formula:

$$\otimes CS_j = [CS_j - e, CS_j, CS_j + e] \quad \otimes DS_j = [DS_j - e, DS_j, DS_j + e]$$

Then we consider Kano parameter for one-dimensional quality as  $K=1$ , for must be quality as  $K=0.5$  and for attractive quality as  $K=2$ .

Then we calculate satisfaction degree using below formula:

$$\otimes S_j = f(\otimes a_j, \otimes x_j, \otimes b_j) = \otimes a_j f(\otimes x_j) + \otimes b_j$$

Where  $\otimes S_j$  is satisfaction degree of  $j$ th requirement.

For one dimensional quality:

$$\otimes a_j = \otimes CS_j - \otimes DS_j; \otimes b_j = \otimes DS_j; f(\otimes x_j) = \otimes x_j$$

For must-be quality:

$$\otimes a_j = \frac{\otimes CS_j - \otimes DS_j}{e - 1}; \otimes b_j = -\frac{\otimes CS_j - (e \cdot \otimes DS_j)}{e - 1}; f(\otimes x_j) = e^{\otimes x_j}$$

For attractive quality:

$$\otimes a_j = \frac{e(\otimes CS_j - \otimes DS_j)}{e - 1}; \otimes b_j = \frac{(e \cdot \otimes CS_j) - \otimes DS_j}{e - 1}; f(\otimes x_j) = -e^{-\otimes x_j}$$

According to the TOPSIS algorithm positive ideal solution and negative ideal solution for each kind of quality are defined as satisfaction coefficient and dissatisfaction coefficient. So  $\otimes A_j^* = \otimes CS_j$  and

$\otimes A_j^- = \otimes DS_j$  are positive ideal solution and negative ideal solution for  $j$ th requirement.

$\otimes d_j^* = \otimes A_j^* - \otimes S_j$  is distance between satisfaction degree and positive ideal solution and

$\otimes d_j^- = \otimes S_j - \otimes A_j^-$  is distance between satisfaction degree and negative ideal solution. Neighborhood

index for  $j$ th requirement is calculated as:

$$\otimes C_j = \frac{\otimes d_j^*}{\otimes d_j^* + \otimes d_j^-}$$

$$\otimes C_j = [q, h]; q \in [0, 1]; h \in [0, 1]$$

This index should become normal. Normalization is done using below formula:

$$\otimes IR_{o,j} = \otimes C_j + \otimes Z$$

$$\otimes Z = [W, W, W]; W \geq 1$$

Then we adjusted this normal neighborhood index as:

$$\otimes IR_{adj,j} = (\otimes IR_{o,j})^{\frac{1}{K_j}}$$

Then we calculated the ranking index of requirements by this formula:

$$\otimes IR_j = \otimes IR_{adj,j} \times \otimes I_j$$

Where  $\otimes I_j$  is average apriority for  $j$ th requirement.

Using this hybrid method customer requirements in each cluster are ranked. Table 6 represents the result of this method.

Table 6. ranking of customer needs in each cluster

Cluster 3	Cluster 2	Cluster 1	Rank
Rapid delivery	Low decreasing in price	Quality of Repair	1
Quality of spare parts Comfortable seating Easy access to spare parts	Quality of spare parts	Quality of spare parts	2
Proper price Quality of Repair	Proper repair and replacement costs	Proper repair and replacement costs	3
Enough space for drivers and passengers	Proper price	Correct delivery	4
Body Strength	Comfortable seating	Rapid delivery	5
Proper repair and replacement costs	Easy access to spare parts	Warranty and Guarantee Terms	6
Correct delivery Warranty and Guarantee Terms	Quality of Repair	Comfortable seating	7
Safe brake	Rapid delivery	Proper price	8
Safety Equipment	Safe brake	Enough space for drivers and passengers	9
Long-term installments in small quantities	Comfortable driver's seat	Easy access to spare parts	10
Interest of payments in small quantities	Body Strength	Safe brake	11
Being serene Rapid handling of customer requirements	Safety Equipment	Body Strength	12
Low decreasing in price	Low fuel consumption	Safety Equipment	13
Easy sale conditions	Sale personnel's proper behavior	Long-term installments in small quantities Interest of payments in	14



		small quantities Low decreasing in price Low fuel consumption Rapid handling of customer requirements	
Comfortable driver's seat	Interest of payments in small quantities Long-term installments in small quantities	Easy sale conditions Being serene	<b>15</b>
Proper heating and cooling systems	Warranty and Guarantee Terms Interest of payments in small quantities Beautiful appearance Variety and quality of color Rapid handling of customer requirements	Comfortable driver's seat	<b>16</b>
Low fuel consumption	Speed and acceleration Enough space for drivers and passengers The beauty of inside the car	Proper heating and cooling systems	<b>17</b>
Interest of payments in small quantities	Engine Power Easy sale conditions	The beauty of inside the car	<b>18</b>
Engine Power	Good size	Beautiful appearance	<b>19</b>
Personnel's proper behavior	Correct delivery	Personnel's proper behavior	<b>20</b>
Sale personnel's proper behavior	Being serene	Interest of payments in small quantities	<b>21</b>
Variety and quality of color Beautiful appearance	Personnel's proper behavior	Good size	<b>22</b>
The beauty of inside the car	Proper heating and cooling systems	Engine Power	<b>23</b>
Good size Speed and acceleration	Variety and quality of color	Speed and acceleration	<b>24</b>

Step 4. Ranking of engineering characteristic in each cluster in terms of uncertainty

Importance and apriority of engineering characteristics at customer requirements are defined as grey

numbers and linguistic variables. If  $\otimes H_{p,q} = [\underline{u}_{p,q}, \tilde{u}_{p,q}, \bar{u}_{p,q}]$  is  $q$ th engineering characteristic at  $p$ th criteria,

first we normalize it as:

$$\otimes B_{p,q} = \left[ \frac{\underline{u}_{p,q}}{\max_q \bar{u}_{p,q}}, \frac{\tilde{u}_{p,q}}{\max_q \bar{u}_{p,q}}, \frac{\bar{u}_{p,q}}{\max_q \bar{u}_{p,q}} \right]$$

Then we calculate final value of engineering characteristic by below formula:

$$\otimes M_q = \sum_p \otimes B_{p,q} \times \otimes W_p$$

Where  $\otimes W_p$  is grey weight for  $p$ th criteria. Then final grey value convert into crisp number as:

$$\otimes M_q = [\underline{m}, \tilde{m}, \bar{m}]$$

$$M_q = \frac{\underline{m} + 2\tilde{m} + \bar{m}}{4}$$

Then we calculate importance of  $q$ th engineering characteristic by:

$$\otimes H_{1,q} = \sum_j \otimes IR_j \times \otimes T_{j,q}$$

Where  $\otimes T_{j,q}$  is effect rate of  $q$ th engineering characteristic on  $j$ th requirement.

So using these formulas engineering characteristics are ranked that the results are represented at table 7.

Table 7. ranking of engineering characteristics in each cluster

Third class	Second class	First class	Rank
Promote a culture of customer-orientation	Promote a culture of customer-orientation	Promote a culture of customer-orientation	1
Safe and new equipment at production lines or assembly lines	Safe and new equipment at production lines or assembly lines	Safe and new equipment at production lines or assembly lines	2
Technical expertise of staff	Technical expertise of staff	Technical expertise of staff	3
Planned maintenance	Number of equipment at production lines or assembly lines	Planned maintenance	4
Number of equipment at production lines or assembly lines	Planned maintenance	Number of equipment at production lines or assembly lines	5
Training	Coordination among units and monitor performance	Training	6
Coordination among units and monitor performance	Training	Coordination among units and monitor performance	7

Considering the customer's different features in each cluster, requirements and satisfaction factors have different importance too. For customer identification, we consider table 4, table 6 and table 7. For

example first cluster includes single men, 20-30 years old that five most important requirements of them are quality of repair, quality of spare parts, proper repair and replacement costs, correct delivery and rapid delivery. The most important engineering characteristic for these customers is to promote a culture of customer-orientation. Similarly, the customer requirements in each cluster to be checked.

## 5. Conclusion

In recent years, the automotive industry has faced many changes so that market competitiveness causes a variety of cars. Auto companies should invest to improve their customer satisfaction in order to maintain existing customers and attract new customers. In this study, according to the auto expert's opinions, 32 criteria are listed as customer satisfaction factors and seven engineering characteristics are extracted. Then Kano questionnaire is designed based on these factors and distributed among 170 car owner in Tehran. According to the Kano model customer requirements are identified then customers are clustered into three segments using Self Organization Map. Due to uncertainty, TOPSIS method is combined to three parameter grey numbers based on QFD to rank customer requirements and engineering characteristics in each clusters. Considering the customer's different features in each cluster, satisfaction factors and engineering characteristics have different importance too.

The result of this paper is useful to auto companies, to consider most important customer satisfaction factors due to the limited resources and facilities, so in a shorter time and lower costs, improve customer satisfaction levels.

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# NATURAL RESOURCES OF HIMALAYAS OF PAKISTAN THEIR SOCIO-ECONOMIC IMPACT AND DANGERS TO THEM

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## **Abstract**

Himalaya which, is a word of Sanskrit language meaning 'adobe of snow' is a range of mountains in Asia across Afghanistan, Pakistan, India, China, Nepal, Bhutan, Bangladesh and Myanmar (eight countries) separating Indian subcontinent in the south from Tibetan plateau of China in the north, extending 2500 to 3500 kilometers in length and 150-180 kilometers in north south width, covering roughly an area of 600,000 square kilometers, stretched west to east between peaks of Nanga Parbat 8126 meter high and Namcha Barwa 7755 meter high. Himalaya is named as "the roof of the world" is the highest altitude area on earth and also referred to as third pole having biggest permafrost and glaciers concentration outside the Polar Regions. Himalaya which is a large perennial snow cover is biggest area of glaciers in the world with almost 15000 glaciers, and 8000 glacial lakes functioning in the region as natural renewable storehouse of fresh water so often called the "water-tower of Asia". Its glaciers melt and drain in water, feeding largest Asian rivers-system comprising ten rivers (Amu Darya, Indus, Ganga, Brahmaputra, Yangtze, Tarim, Yellow, Salween, Mekong, and Irrawaddy) having perennial flow, providing water to more than 1.3 billion people living in their basins, whose number is likely to increase in future. Himalaya also called Hindu Kush-Himalayan (HKH) is intrinsically linked to water resources, global atmospheric circulation, biodiversity and hydrological cycle. The wide geographic and climatic diversity of Hindu Kush Himalayas offers numerous opportunities for cultivation of fruits, food crops, medicinal plants, fibers, fodder, and fuel wood trees on mountain slopes, extensive valleys, cultivable mountain tops and terraced hills region. The glacial environment of HKH is also an influential factor in high mountain ecology and an important economic component of tourism as well.

The HKH have many lakes of enormous water storage capacities. High altitude wetlands are almost 16% of total area of HKH and play an important role in water storage and regulating water regimes but the water resources of HKH are facing threat from multitude of driving forces. Now a days HKH is facing challenges of sustainability, such as biodiversity loss, glacial retreat, soil erosion, deforestation, and pollution due to urbanization and other causes e.g. global warming and climate changes which, are leading to decrease in the water storage capacities inflicting sever impacts on hydrological regimes of basins of rivers originating from HKH also affecting social and economic system, through changes in supply, demand and water quality. The probability of generation of hydropower has reduced due to decrease in water flow in basins.

As on account of global warming and climatic changes there is worldwide concern for fast glaciers reduction, so glacial resources require regular monitoring for their conservation and effective water resource management and development and it also needs development of regional co-operation, for assessing vulnerability and quantifying effects to tackle impacts of climatic changes on glacial ecosystem, to evolve mitigation and adaptation measures.

## **Introduction**

Himalaya traditionally, *sensu stricto* is defined mountain range separating India from China extending between latitudes 26-20 and 35-40 degree north and longitudes 74-50 and 95-40 east or stretching from Indus trench below Nanga Parbat in the west to Yarlingsangpo-Brahmaputra gorge below Namche Barwa in the east and extends between latitudes 26o20' and 35o40' North, and between encompassing countries like Afghanistan, Pakistan, India, China, Nepal and Bhutan (Rao 1997).

Khan (2001) expressed that world three biggest mountain ranges lie in the Upper Indus basin (hereafter UIB). These are Karakoram lying in north Himalayan lying in northeast and Hindukush lying in north-west. The River Indus along with its many tributaries originates and flows in these mountains. The River Indus System makes a link between two natural water reservoirs, which are the glaciers and snow lying in the mountain ranges, of UIB and ground water in alluvial plains of Indus valley. UIB contains largest glaciers of the world outside the Polar Regions. UIB is influenced by three major variable weather systems which are first in winter sub-Mediterranean, second in summer monsoon westerly storm and the third Tibetan anticyclone.

Himalaya encompasses parts of Bhutan, Nepal, India, China, Pakistan and Afghanistan where it has millions of herds, farmers and traders scattered in dispersed settlements of mountains numbering almost 47 to 90 million persons (Allison, 2012). Himalaya was formed 15-20 million years ago as a geotectonic collision of Indian plate with Eurasian plate (Gurung 2012).

## **Importance of Mountains**

ICIMOD (2011) reported after research that mountains cover 25 million kilometer square, which is 24 percent of whole surface area of land of and 12 percent of population of the world, lives on mountains. Mountains in the form of permafrost, wetlands, rivers, snow, ice, and glaciers, store water and recharge the ground water. Communities living in mountains get benefit from this water directly but main beneficiaries of this huge water storage capacity are huge population living in vast basin areas downstream. One third of biodiversity of world resides in mountains, which harbor more than half of 34 biodiversity hotspots of the world. Mountains have socioeconomic, ecological and aesthetic importance because population living in mountains their day-today subsistence and besides this almost 40 percent of



world population indirectly depends on mountains for water, timber, hydroelectricity, niche products and biodiversity.

Eriksson et al (nd) expressed that mountain regions provide above 50 percent rivers runoff in the world and for its water supply more than one-sixth of world population relies on seasonal snow on mountains and glaciers.

## **What is Himalayas?**

Himalaya, which is a word of Sanskrit language meaning ‘adobe of snow’ (Ives et al, 2010 and Allison, 2012), is a range of mountains in Asia separating Indian subcontinent in the south from Tibetan plateau of China in the north, extending 2500 to 35000 kilometers and covering roughly an area of 600,000 square kilometers (Allison, 2012), being highest altitude area on earth named as the “the roof of the world” (ICIMOD, 2009) and also referred to as third pole having biggest permafrost and glaciers concentration outside the Polar Regions and large a large perennial snow cover (Hasnain 2009).

Misri (n.d) an official of Indian Grassland and Fodder Research Institute, Jhansi, wrote that Himalaya is geographically a greatest physical feature on the earth, and believed to be situated between arc of Indus river to the west of Nanga Parbat in the west and southward bend of Brahmaputra river in the east but actually this chain of mountains is extended continuously to Hindukush and European alpine system in the west and to Malaya in the east.

High ranges of Himalaya is stretched west to east between peaks of Nanga Parbat 8126 meter high and Namcha Barwa 7755 meter high, and has on average 180 kilometers north south width (Gurung 2012).

Himalaya, which “Roof of the World’ is a wider most extensive and tallest mountain system on earth is extended with an average length of 2400 kilometers and width of 150-180 km across Afghanistan, Pakistan, India, China, Nepal, Bhutan, Bangladesh and Myanmar (eight countries) and feeds Asian largest rivers system comprising Amu Darya, Indus, Ganga, Brahmaputra, Yangtze, Tarim, Yellow, Salween, Mekong, and Irrawaddy (ten rivers) providing water and sustaining food supplies for population of over 1.3 billion (ICIMOD, 2009; Ives et al 2010; DONG et al 2010; Johansson, 2012). The flow of these rivers also affect in their basins ground water recharge, natural hazards, ecosystems, and people and their livelihood (ICIMOD, 2009). In these basins natural resources contribute a sustainable part of the GDPs of the countries in these basins and also provide important environmental services, which are beyond the continuing climatic change of concerned region (ICIMOD, 2009). The stretch of Himalayas in reference to elevation, formation, biology (fauna and flora), ecology culture and linguistics is extremely diverse and has three zones i.e. Outer Himalaya, Middle Himalaya, and Greater Himalaya (Misri n.d and Allison 2012) however it is youngest mountain range of the world with sub-ranges of Karakoram, Hindukush and Pamir (Allison 2012). The Himalayan mountain range is stretched across the border of the Indian and Eurasian tectonic plates (Johansson 2012).

## Resources of Himalayan Glaciers (Water and Snow)

Himalaya which is often called the “water-tower of Asia” extended over 3500 km, has almost 15000 to 16000 glaciers, of 116180 km<sup>3</sup> covering area of 30000 km<sup>2</sup>, which melt and drain in water supporting Asia’s ten largest rivers having perennial flow, which are Indus, Ganges, Mekong, Yangtze, Yellow River, Amu Darya, Brahmaputra, Irrawaddy, Salween and Tarim. These rivers provide water to more than 1.3 billion people living in their basins, whose number is likely to increase in future. Himalayan glaciers and water resources play an important role in biodiversity, atmospheric circulation, Hydropower, irrigated and rain-fed agriculture, hydrological cycles, production of exportable commodities and climatic change (ICIMOD, 2009; RCRRP (2010))

Drainage Basin	Number of Glaciers	Glaciers Area km <sup>2</sup>	Total Ice Reserves
Ganges River	6694	16677	1971
Brahmaputra River	4366	6579	600
Indus River	5057	8926	850
Total	16117	32182	3421

Source ICIMOD (2009)

Johansson (2012) asserted that the western part of Himalayan called Greater Karakoram range whose headwaters lie mainly in Pakistan, but also in China and India, has almost 7000 glaciers and is source of water for Indus River basin.

Rai (2005) revealed that half of world population depends for fresh water accumulated in mountains. Glaciers feed with melt runoff several rivers and streams. Flow of rivers in low lands of Himalayas during dry seasons is contributed by snow melted from glaciers in Himalayan region, which supplies water to communities for drinking, industry, irrigation and also maintaining rivers and riparian habitat.

Ives et al (2010) expressed that in a study of only five Hindu Kush-Himalayan countries i.e. Pakistan, Nepal, India China and Bhutan 15003 glaciers were found with area of 33344 square kilometers and 8790 glacial lakes were also found among which 203 were dangerous.

Ives et al (2010) also reported that Water Resources research Institute (WRRI) of Pakistan, Pakistan Agriculture Research Council (PARC) in 2005 collaborated with ICIMOD for compiling glaciers and glacial lakes inventory in Indus basin. Study found 5218 glaciers, having area of 15041 sq. kilometers, and 2420 glacial lakes, 52 of which were found potentially dangerous.

RCRRP (2010) reported that Hindu Kush-Himalayan, which is extended over 3500 kilometers outside the polar region, is the biggest area of glaciers in the world with almost 15000 glaciers, functioning in the region as a natural renewable storehouse of fresh water. Hindu Kush-Himalayan is intrinsically linked to water resources, global atmospheric circulation, biodiversity and hydrological cycle.

Ashraf et al (2012) asserted that in the Himalayan region of Northern Pakistan, glaciers resource concentrated in the watershed of the Indus basin represent a unique and vital resource of fresh water for agricultural, industrial, and hydropower generation. Himalayan glaciers consisting of a huge amount of perpetual ice and snow creating many glacial lakes are a source of headwater of Pakistan's main Indus river system. Glaciers are also reacting very sensitively to climatic fluctuations, clearly evidencing the ongoing climatic changes.

Ashraf et al (2012) reported that in the upper Indus basin, the total glaciated area is 15040 km<sup>2</sup> whose 7.5 percent lies in the Himalayas comprising the Jhelum, Astore and Shingo rivers basins, and some parts of the Indus sub-basin, while the other lies in the Korakoram and Hindu Kush ranges. The Himalayas range contains ice reserves of 76 km<sup>3</sup>.

Muhammad et al (2004) expressed that the Himalayan glaciers covering 100,000 km<sup>2</sup> lie and having a height of 1.5 x 10<sup>6</sup> km<sup>2</sup>, astride the boundary zone between monsoonal and westerly atmospheric influences, strongly affecting precipitation (rain and snow) and hydrological (runoff) conditions in the regions. The amount of water in glaciers is 12000 km<sup>3</sup> contributing to the perennial river system by supplying almost 8500 km<sup>3</sup> of water annually through a network of mountain streams. Glaciers act as buffers and regulate the runoff water supply from mountains to plains in wet and dry seasons.

ICIMOD (2011) reported that water in the HKH region is retained in natural lakes in the high mountains, wetlands, behind constructed dams and groundwater aquifers in the form of snow, ice and water. The HKH have many lakes of enormous water storage capacities. High altitude wetlands are almost 16% of the total area of HKH and play an important role in water storage and regulating water regimes, but climate changes are causing a decrease in the water storage capacities, inflicting severe impacts on hydrological regimes of basins of rivers originating from HKH.

Eriksson et al (nd) also narrated that hundreds of millions of people in South Asia depend for water supply on perennial rivers such as the Indus, Ganges, and Brahmaputra, fed by a unique water reservoir of 16000 Himalayan glaciers.

### **Importance of Himalayas – SOCIO ECONOMIC Resources**

Ashraf et al (2012) is of the opinion that in Pakistan the hydropower and agriculture development depends heavily on the glacial resources and snow of the Upper Indus Basin (UIB) of northern Pakistan, which represent a unique resource of fresh water vital for hydropower generation, agriculture and industry.

These glacial resources require regular monitoring for their conservation and effective water resource management and development, especially due to increase of global warming.

Ashraf et al (2012) also added that glacial environment is an influential factor in high mountain ecology and also an important economic component of tourism.

About Himalaya range Maharajan et al. (1990) expressed that wide geographic and climatic diversity offers numerous opportunities for cultivation of fruits, food crops, medicinal plants, fibers, fodder, and fuel wood trees on mountain slopes, extensive valleys, cultivable mountain tops and terraced hills of Hindu Kush Himalayas region.

On river terraces, alluvial plains, and near the valley floor, terraced slopes, best lands are found for agriculture, pasturing, forestry, and livestock production and when irrigation facilities are available can be as productive as valley lowlands. When rain fed they are suitable for production of potato, maize, barley, mustard, and millet.

Maharajan et al. (1990) further wrote that the Western Himalayan geographic zone comprising NWFP (Khyber Pakhtunkhwa) Jammu and Kashmir has had settled agriculture and though the rainfall is low, is blessed with forest cover, and maize, wheat, and millet are its main crops and with water better water management rice is also grown. Fruits like plums, apricots, apples, almonds and walnut are also cultivated.

DONG et al (2010) extracting from some studies asserted that 17.8 % of the landscape of the Hindu Kush Himalayas is covered by ice, snow and water, or bare area, half (50.5%) is covered by grassland, 9% is used for agriculture and 22.6 % is under forests. HKH has vital ecosystems have a critical source of wild food, wood, medicinal plants, fiber, and fresh water for humans provide essential habitats for several endangered wildlife species. The HKH grasslands are situated at the headwaters of major rivers systems of the region serving million of people downstream. These grasslands have special animal and plant diversity, along with cultural diversity of several ethnic groups using this important resource. HKH is also becoming popular as tourist destination.

ICIMOD (2009) reported that for Pakistan Himalayas glaciers contribute about 70 % of rivers flow even in dry season and the Indus Irrigation Scheme of Pakistan depends 50% or more on runoff originated from glacier and snow melting from western Himalayas, eastern Hindu Kush and Karakoram.

Allison (2012) stated that glaciers capture and store snow in the winter and throughout the year slowly release melted water. This water by melting the snow is a necessary and consistent source for ecological stability, energy generation and irrigation. Himalayas swiftly flowing rivers feed hydropower plants for production of electric energy.

Hasnain (2009) revealed that the seasonally melting glaciers release water in Indus, Ganges, and Brahamaputra rivers up to 45% of river flow and almost 500 million people rely upon rivers for agriculture and economic activities.

### **Danger to Himalaya - Global Warming**

ICIMOD (2009) warned that the water resources of HKH are facing threat from multitude of driving forces explained by Allison (2012) that HKH is facing challenges of sustainability, such as biodiversity loss, glacial retreat, soil erosion, deforestation, and pollution due to urbanization and other causes. These challenges are tied to local and international demand for rich resources of HKH region.

Hasnain (2009) expressed that on account of global warming and climatic changes there is worldwide concern for fast glaciers reduction, which needs development of regional co-operation, for assessing vulnerability and quantifying effects to tackle impacts of climatic changes on glacial ecosystem, to evolve mitigation and adaptation measures.

Ives et al (2010) revealed about HKH in the words that the glacial abode, which is largest ice body outside the polar latitudes, is shrinking with various ice melting rates. HKH is also facing threats from melt water lakes on the surface or at the end of glaciers.

Ashraf et al (2012) extracting from studies narrated that the Himalayan glaciers melting rate is increasing and glaciers are receding faster than in any part of the world causing their depletion probably leading to lowering the annual water flow which would inevitably effect the dams performance.

ICIMOD (2009) warned that global warming is severely affecting the amount of ice and snow, causing serious implications on downstream water availability in both long and short term, because 50% of average rivers water flow is contributed by glacial and snow melting. In Himalayas warming is greater than global average. Climatic changes also induced hazards like droughts, floods and landslides, imposing significant stress on livelihoods of people in the mountains and downstream population.

Asif (2013) asserted that Pakistan is facing climate change problem more than other countries because of trans-boundary emission of green-house-gases resulting in constant rise of temperature about .076 degree in the country generally and 4.5 degree in the mountain regions that hold almost 5000 glaciers. Therefore there is decrease of per capita availability of water 5260 m<sup>3</sup> in 1951 to 1066 m<sup>3</sup> in 2008. Because of this shortage of water farmers are shifting from water intensive crops like rice, sugarcane, cotton wheat to less water intensive crops and vegetables, putting burden on food market.

Eriksson et al (nd) asserted that in Himalayan region the main concern of climate change is reduction of ice and snow due to glacial melt causing the reduction in water storage capacity affecting half a billion

people in Himalayan region. Depending on glacial melt for their water supply. This glacial melt as a consequence of climatic change would reduce water flow affecting unfavorably the food production and economic growth. Flooding may also arise due to more variable and increasingly direct, rainfall runoff.

## **Climate Change and Water Supply**

ICIMOD (2009) reported that the Himalayas show big climatic variability and Eriksson et al (nd) asserted that for densely lowland population depending on mountain water for their agricultural, domestic and industrial needs, the effects of climatic change are tremendous.

Allison (2012) asserted that climatic change is the important sustainability issue of Himalayas where temperature is rising faster and more than global average, which has affected the timings of summer monsoon rains. Temperature rise caused glacial melting, erratic weather conditions, an unstable water supply, and challenges for human livelihood. If rates of retreat of glaciers continue then small glaciers below the elevation of 5000 meters would disappear at the end of the century and larger and higher glacier will shrink and this glacial decline can cause sudden surges in water as in glacial lake outburst flood.

## **Glacial Retreat**

Johansson (2012) informed that Karakoram glaciers have steadily decreased and lost one third of their ice mass from 1920s to 1990s. In the area some of the largest glaciers have undergone rapid thickening since mid 1990s.

Anthwal et al (2006) and ICIMOD (2009) reported that today Himalayas glaciers are receding faster than world average and glacial area over the last 20 years has decreased by 4.5 percent and over the last 40 years by 7 percent indicating an increased rate of retreat. And if present rate continues, then there is likelihood of disappearance of glaciers by the year 2035 is very high.

## **Impact of melting glaciers in the Himalaya**

Ives et al (2010) warned that accelerated melting of glaciers enhanced the risk of floods and avalanches and expansions of lakes formed from melting of glaciers and in Himalayan basins growth of these lakes are increasing the threat of glacial lakes outburst floods (GLOFs), which would have downstream catastrophic consequences for population, hydropower infrastructures and agriculture. HKH has 8000 glacial lakes.

Kaltenborn et al (2010) expressed that climatic change in the high mountain worldwide is causing

significant loss of mass to glaciers and it causes disappearance or shrinking of mountain glaciers, leading to changes in the flow of glaciers fed rivers, glaciers lakes outburst floods and changing severity and frequency of floods (GLOFs). GLOAFs may endanger lives, power supply and infrastructure and can cause flash floods. Kaltenborn et al (2010) further revealed that in response to climatic change and increase of mean air temperature majority of mountain glaciers losing mass and shrinking whose rate has increased since 1980s and glaciers from some mountain regions might disappear by the end of 21<sup>st</sup> century.

About Pakistan Kaltenborn et al (2010) reported that Pakistan has one of the largest man made contiguous irrigation system in the Indus basin based on Indus River water provided by glacial melt from Himalayas. Climatic changes would result in more rapid melting of glaciers shrinking of glacial size and reduction in rivers flows. This reduction in water flow and increase in temperature in Pakistan would result in critical situation for Pakistan economy.

### **Impacts on Water Resources**

Thorson (2009) reported that mountain glaciers throughout the world are melting and both World Glaciers Monitoring Service and the Intergovernmental Panel on Climatic Changes predicted that Himalayans and Andean glaciers, sources of fresh water for millions of people in the coming decades would irreversibly retreat wasting precious resource of water which is peril of humanity.

### **Recession/Retreat of Glaciers**

Gurung (2012) asserted that glaciers in Himalayas are retreating since 1850 AD. Muhammad et al (2004) also stated that Himalayas' glaciers are retreating faster than in any other region in the world.

Karki & Vaisya (nd) warned that rapid retreat of Himalayan glaciers has consequences for water related hazards such as water stress due to shortage of fresh water and GLOF and increase in floods, threatening the 1.3 billion population living in rivers basins of rivers of HKH.

Ives et al (2010) also expressed that in HKH region glaciers are thinning and retreating due to global warming.

Muhammad et al (2004) warned that mountain ecology and degradation of watershed areas affect almost half of world population because 10% of world population lives in mountains areas and 405 lives in adjacent medium and lower watershed areas and these areas suffer from ecological deterioration problems.

ICIMOD (2009) warned that glaciers retreat can destabilize surrounding slopes and may cause destructive

landslides, which can dam streams. Excessive melt water may trigger flash flood.

### **Water-related hazards**

Eriksson et al (n.d.) quoted that in 2007 out of top ten natural disasters by number of deaths seven occurred in four countries i.e. India, China, Pakistan and Bangladesh accounting for 82% of total natural disaster related deaths worldwide and in 2008 also out of top ten natural disasters by number of deaths seven occurred in countries i.e. India, China, Afghanistan, and Myanmar accounting for 99% of the total deaths. This is due to an increase in frequency of high intensity rainfall leading to flash floods and landslides.

### **Socio-Economic Impacts of Glacial Retreat**

Hasnain (2009) asserted that many of the semi-arid mountains having 170 million, population, will lose their streams and local springs with glacial and snow retreat. Additionally there would be flash floods causing destructions of infrastructure and landslides.

### **Negative Effects of Climatic Change**

ICIMOD (2011) reported that changes in climatic conditions have affected social and economic system, through changes in supply, demand and water quality. The probability of generation of hydropower has reduced due to decrease in water flow in basins.

### **Surface water availability**

ICIMOD (2011) reported that glacial melt influences discharge rates and timing of water in rivers originating from these mountains. Water availability both in terms of special and temporal distribution is expected to be vulnerable to climatic change, increasing supply of water in some areas and shortage of supply in some areas.

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# JAVA DATABASE CONNECTIVITY USING JAVA DB (APACHE DERBY): A TUTORIAL

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## Biography

Dr. Richard A. Johnson was a systems analyst and engineer for several Fortune 500 companies before earning his doctorate in Computer Information Systems and Quantitative Analysis at the University of Arkansas (1998). For the past eighteen years he has been teaching Java programming, database management systems, networking, cybersecurity, and enterprise systems at Missouri State University in Springfield, MO. He has authored several computer programming texts as well as articles in *The Data Base for Advances in Information Systems*, *IEEE Transactions*, and *Communications of the ACM*.

## Abstract

Java is the most popular programming language world-wide, used in everything from web servers to automobile engines. Additionally, relational database processing is a mission-critical activity for all types of organizations. However, educators and students often struggle to link computer programs with databases in a simple and efficient manner. This tutorial presents an extremely straightforward framework for connecting a Java program with the Java DB (a.k.a., Apache Derby) relational database engine using three popular tools: Windows Command Prompt, TextPad, and Eclipse. A basic knowledge of Java is assumed, but no prior knowledge of these tools or SQL is required for this tutorial. Upon completion of this tutorial the student will understand how to use these tools to connect a simple Java program to a Java DB database. Then the student will be equipped to continue her study of SQL and Java graphical user interfaces toward the development of sophisticated database applications.

**Keywords:** database, Java, programming, SQL, Apache, Derby

## Introduction

The purpose of this tutorial is to present a straightforward and relatively easy approach for connecting a Java program to a relational database using a Java DB (a.k.a., Apache Derby) database engine. The Java language was selected because it is the most popular programming language in both the classroom and workplace (“TIOBE Software”, 2015). For example, a keyword search of “Java” in job titles on dice.com returns about 16,000 positions while the same search for second-highest “c#” returns

8,000 positions. Likewise, database programming is a vital skill owing to the overwhelming prevalence and criticality of databases in all facets of business, science, education, and government.

Upon surveying several popular Java programming texts (Liang, 2013; Savitch & Mock, 2013; Deitel & Deitel, 2012; Horstman, 2014; Gaddis, 2013; Farrell, 2012), it is found that introductory Java courses usually include these topics: data types, variables, conditions, loops, methods, arrays, and basic object-orientation. More advanced courses delve much deeper into object-orientation by exploring inheritance, polymorphism, exception handling, string processing, file input/output, and graphical user interfaces (GUI's). Some ambitious Java courses may include data structures, collections, recursion, generics, multithreading, graphics, and database programming.

It is evident that this is a formidable list of potential topics for a one or two-semester course sequence in Java programming. Some topics are often eliminated due to lack of time and/or complexity—regrettably database programming is often one of them. Some leading texts don't even present this topic, or relegate it to an appendix or a companion web site. This is unfortunate for at least three reasons: (1) database programming is vital given the criticality of database processing in organizations; (2) database programming has a strong connection with the topic of GUI's, which is nearly always taught in Java courses; and (3) students receive a great deal of satisfaction and motivation by getting GUI's and databases to work together in Java applications, thus encouraging further study in the field.

One reason instructors may often bypass Java database programming is the difficulty that students may encounter when installing database software or configuring this software for use with Java programming tools. There are primarily two relational database engines discussed in most Java texts: (1) Java DB ("Java DB Technical Documentation", 2015), which is Oracle's Apache Derby ("Apache Derby", 2015) open source database that is included with the Java JDK distribution; and (2) MySQL ("MySQL", 2015), a popular open-source relational database management system. Another viable option for Java database programming is SQLite ("SQLite.", n.d.), an open source database engine that is relatively easy to download, configure, and use with Java programs (Johnson, 2014). The Java DB product has the advantage of being included in the Java JDK distribution, thus eliminating an extra installation step. However, adequate discussion of Java DB configuration and use is often missing from Java texts.

This tutorial is a brief introduction to Java database programming using Java DB. The specific steps provided here are for a Windows PC, although they should provide a basis for application to other platforms. Future study of Java database programming would consist of (1) learning to execute a wide variety of SQL commands using Java DB and (2) learning to create a fully functional GUI-based Java database application that interacts with a Java DB database.

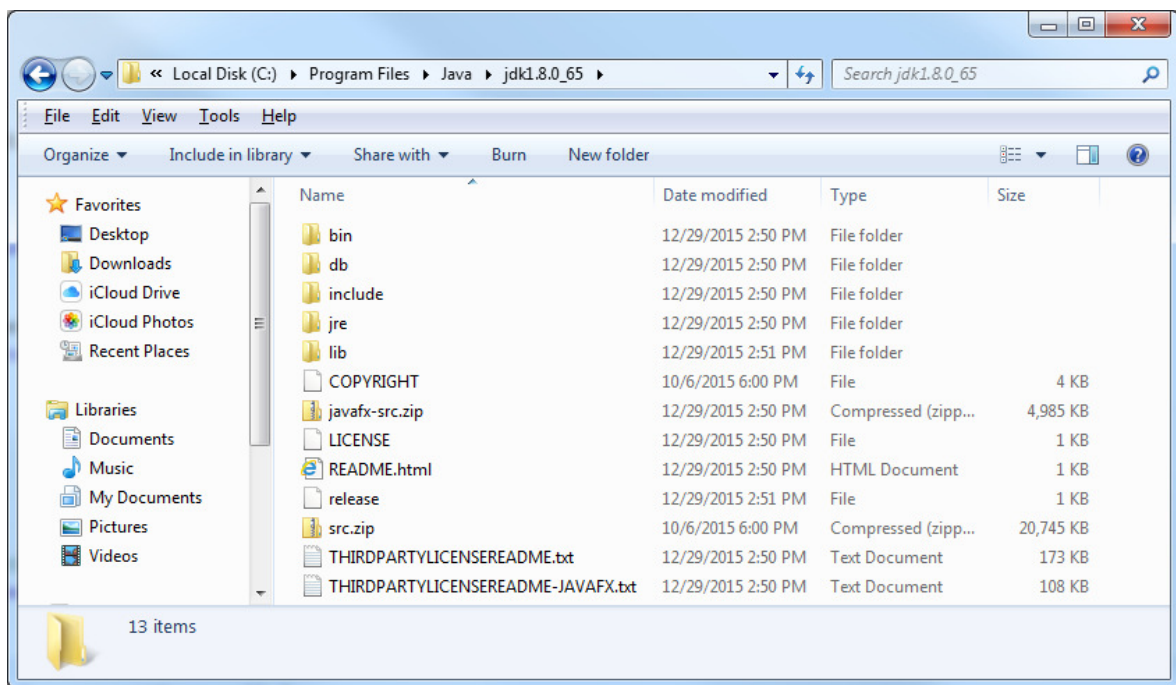
### **Installing the Java JDK**

You may already have the Java JDK installed on your computer. If not, or if you need to upgrade to the most recent version, follow these steps ("Java SE Downloads", n.d.):

1. Go to <http://www.oracle.com/technetwork/java/javase/downloads/index.html>.

2. Click the Java Platform (JDK) download graphic.
3. Click the ‘Accept License Agreement’ button.
4. Click the Java SE Development Kit link appropriate for your platform (Linux, Mac, Solaris, or Windows) and version (32-bit or 64-bit) and follow the prompts. To determine the version of your Windows operating system, right-click the Computer icon and select Properties.

The Java JDK allows programmers to create Java applications that can then be run using the JRE (Java Runtime Environment) included with the JDK installation. After installation on a Windows computer, the contents of the folder **C:\Program Files\Java\jdk1.8.0\_65** (JDK 8 Update 65 at the time of this writing) are shown in Figure 1.



**Fig. 1** Java JDK installed on a 64-bit Windows 7 computer

Note the folder **bin** in Figure 1, which contains executable files for compiling and running Java programs (`javac.exe` and `java.exe`, respectively). The folder **jre** contains files to support the Java Runtime Environment for running Java applications. These folders are noted because they are used in important additional configuration procedures to follow.

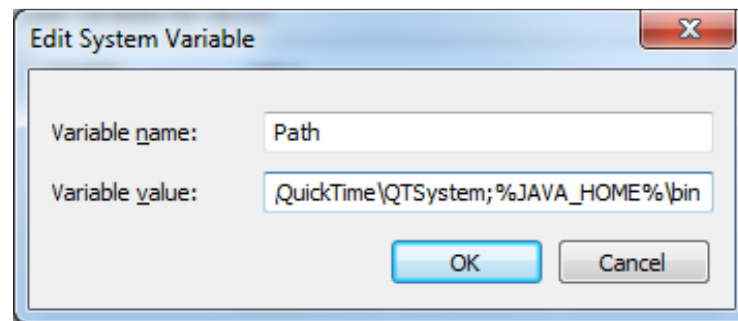
### Configuring Windows to Use Java

Once the Java JDK is installed, Windows needs to know where to find the files required to

compile and run Java applications. The paths to these files must be stored in operating system environment variables which can be created in Windows using these steps:

1. Press the Windows logo key on the keyboard, type 'control' and click Control Panel from the list of options.
2. Click System and Security, System, and Advanced system settings.
3. In the System Properties dialog, click Environment Variables.
4. In the Environment Variables dialog, click New.
5. In the New System Variable dialog, type **JAVA\_HOME** in the Variable name textbox.
6. In the New System Variable dialog, type **C:\Program Files\Java\jdk1.8.0\_65** (the path to the Java JDK folder) in the Variable value textbox—the path on your computer may be different depending on the name and location of the JDK folder. *TIP: Double-click the JDK folder in Windows Explorer, click the address textbox, right-click this address selection, and click Copy. Then paste this path (such as C:\Program Files\Java\jdk1.8.0\_65) in the Variable value textbox—this should help avoid typographical errors.*
7. Click OK to close the New System Variable dialog.
8. While still in the Environment Variables dialog, scroll down in the System variables list until the Path variable is visible. Click Path, then click Edit.
9. While the Path variable value is highlighted, press the End key to move the cursor to the end of this value. Be very careful not to accidentally delete any existing entries in this Path variable!
10. Enter **;%JAVA\_HOME%\bin** at the end of this path variable (don't forget the semi-colon). This path variable now represents the path to the bin folder that is within the JDK folder, which in turn

is within the Java folder. This bin folder contains the files javac.exe and java.exe required to compile and run a Java program, respectively. In Windows 7, the Edit System Variable dialog should appear as in Figure 2. When finished, click OK to close the Edit System Variable dialog, click OK to close the Environment Variables dialog, and click OK to close the System Properties dialog. You will need to restart the computer for these system changes to take effect.



**Fig. 2** Modifying the Path environment variable in Windows 7

### **Installing the TextPad Java Editor and Eclipse Java IDE**

You may already be using tools such as the Java editor TextPad (“TextPad”, 2015) or the Java integrated development environment (IDE) Eclipse (“Eclipse”, 2015). There are many other popular Java IDE’s available, such as NetBeans (“NetBeans IDE”, 2015), which can also be used in the context of this tutorial. In case you are not currently using such tools, this section explains how to install both TextPad and Eclipse, as follows:

1. To install TextPad, visit [textpad.com](http://textpad.com), click the Download tab, and download the 32-bit or 64-bit version as appropriate (Windows only). Follow the prompts to complete the installation.
2. To download Eclipse, visit [eclipse.org](http://eclipse.org), click the Download link, click the link Eclipse IDE for Java Developers, select an operating system (Windows, Linux, or Mac), click the appropriate version (32-bit or 64-bit), then click Download. Follow the prompts to complete the installation.

### **Testing Installations with a Simple Java Program**

In order to test the installations of the previous sections, you can write a simple Hello.java



program and run it using (1) Notepad and Command Prompt, (2) TextPad, and (3) Eclipse. These are the three tools that will be used later to test a simple Java database application.

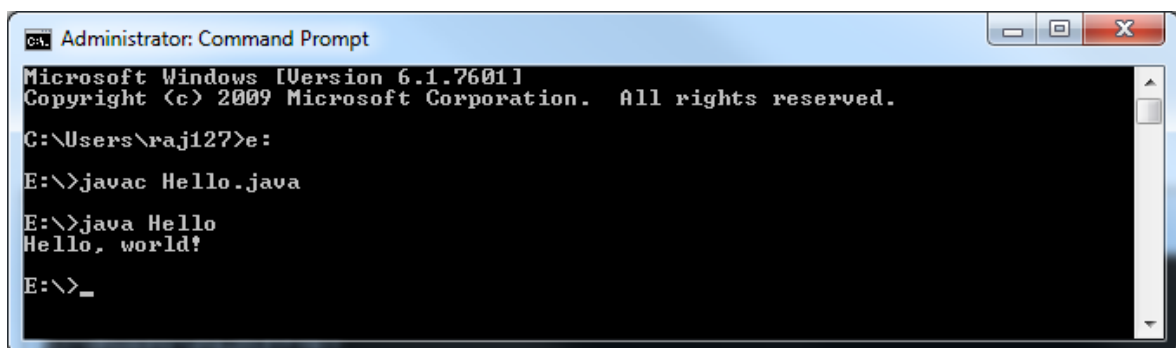
```
1 public class Hello{
2
3     public static void main( String [] args ){
4         System.out.println( "Hello, world!" );
5     }
6 }
```

**Fig. 3** A simple Hello.java program

### *Create, compile, and run Hello.java using Notepad and Command Prompt*

Use the Java code in Figure 3 to create the program Hello.java and test the installations using Notepad and Command Prompt:

1. Enter the code in Figure 3 into Notepad and save the file as Hello.java on flash drive E: (your flash drive letter may be different—you can also use hard drive C:). Note that the indentation used is not required, but is the customary way of writing Java programs.
2. Run Command Prompt, enter **e:** at the prompt to move to drive E: and enter **javac Hello.java** (note that Java is case sensitive) at the prompt to compile the program.
3. If no errors occur, enter **java Hello** at the prompt to run **Hello.class** (the compiled version of Hello.java). The output, “Hello, world!” should be displayed, as shown in Figure 4.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Users\raji27>e:
E:\>javac Hello.java
E:\>java Hello
Hello, world!
E:\>_
```

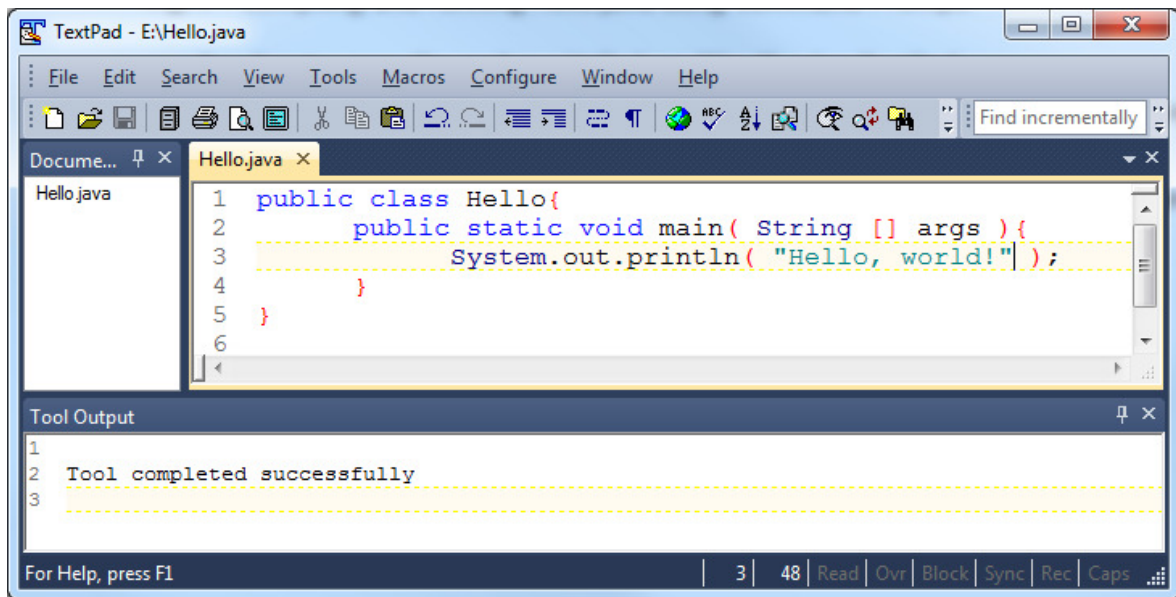
**Fig. 4** Compiling and running Hello.java using Command Prompt

### *Create, compile, and run Hello.java using TextPad*

Use the Java code in Figure 3 to create the program Hello.java and test the installations using TextPad:

1. Launch TextPad, enter the code exactly as shown in Figure 3 within the TextPad editor, and save the file as Hello.java on drive E: (or any other drive), as shown in Figure 5.
2. Press Ctrl-1 to compile the program, then Ctrl-2 to run the program. If everything runs smoothly, the output “Hello, world!” will appear in a separate Command Prompt window.

If the Tool Output window in TextPad displays errors, check the Hello.java program for typographical errors, save, re-compile, and re-run. If the commands Ctrl-1 and Ctrl-2 do not function properly in TextPad, you may need to perform the following steps from the TextPad menu to add the Compile and Run tools: Click Configure, Preferences..., Tools, Add, Java SDK Commands, OK. If these tools are still not available, check the modification of the **Path** variable in Windows as discussed in a previous section.

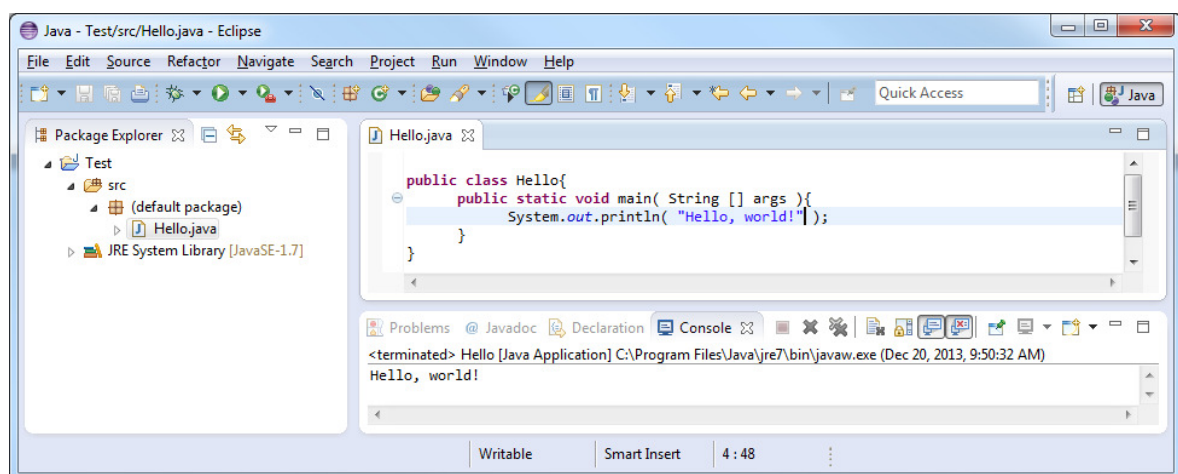


**Fig. 5** Hello.java created and compiled in TextPad

### *Create, compile, and run Hello.java using Eclipse*

Use the Java code in Figure 3 to create the program Hello.java and test the installations using Eclipse:

1. Create a folder called ‘workspace’ (or a folder of some other name of your choice, but workspace is the most commonly used) on flash drive E: (or any drive).
2. Launch Eclipse.
3. To select the workspace folder (the folder where Eclipse projects are stored), click Browse in the Workspace Launcher dialog, select the folder ‘workspace’ previously created on drive E:, click OK, OK. *NOTE: An Eclipse workspace is a folder where your Java project folders are stored.*
4. Close the Welcome screen if it appears.
5. Click File, New, Project, Java project. Enter a project name (such as “Test”), click Finish. *NOTE: An Eclipse project is a folder where your Java programs and various supporting files are stored.*
6. Click File, New, Class. Enter ‘Hello’ as the name of the class (case sensitive), click Finish.
7. Enter the code exactly as shown in Figure 3 within the Eclipse editor and save the file.
8. Click the Run button in the toolbar (see Figure 6).



**Fig. 6** Project Test containing Hello.java created, compiled, and run in Eclipse

As you can see, creating and running a Java application using Command Prompt, TextPad, and Eclipse become increasingly complex. However, a Java editor (such as TextPad) provides many features

not available in Command Prompt, and a Java IDE (such as Eclipse) provides many additional features that aid in professional application development.

### **Configuring Windows to Work with Java DB**

Again, Java DB is the Apache Derby relational database engine supplied with the Java JDK installation. Therefore, Java DB does not need to be installed on its own, but the Windows operating system does require configuration in order to access this database using Windows Command Prompt, as described in the following steps:

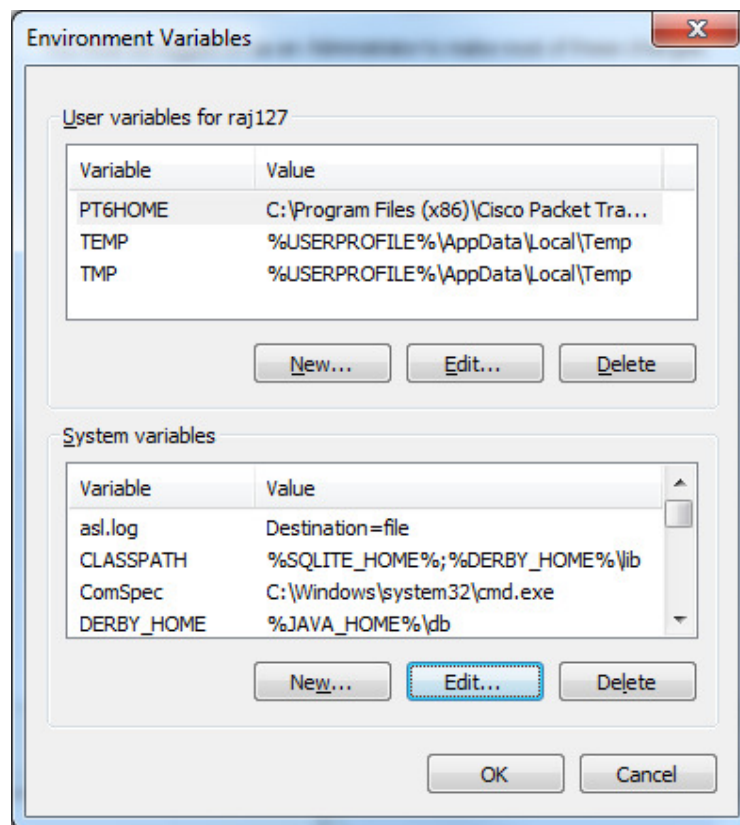
1. A previous section described how to create the `JAVA_HOME` environment variable in Windows.

Make sure this environment variable already exists by pressing the Windows logo key, entering 'control', selecting the Control Panel utility, clicking System and Security, System, Advanced system settings, and Environment Variables. Scroll down the list of System variables to see if `JAVA_HOME` is present and refers to the Java JDK folder. If not, create that environment variable as described in a previous section of this tutorial.

2. In the Environment Variables dialog, click New.
3. In the New System Variable dialog, enter **DERBY\_HOME** in the Variable name textbox.
4. In the New System Variable dialog, enter `%JAVA_HOME%\db` in the Variable value textbox.  
  
`JAVA_HOME` contains the path to the JDK folder of the Java installation, so `DERBY_HOME` contains the path to the db folder within the JDK folder. (Refer to Figure 1 if necessary.)
5. In the Environment Variables dialog, scroll down the System variables list until you see the Path variable. Click the Path variable, click Edit, and press the End key (do NOT delete the existing contents of the Path variable). Enter `;%DERBY_HOME%\bin` at the end of the existing `PATH` environment variable value to make Derby scripts available (don't forget the semi-colon). Click OK to close the Edit System Variable dialog.

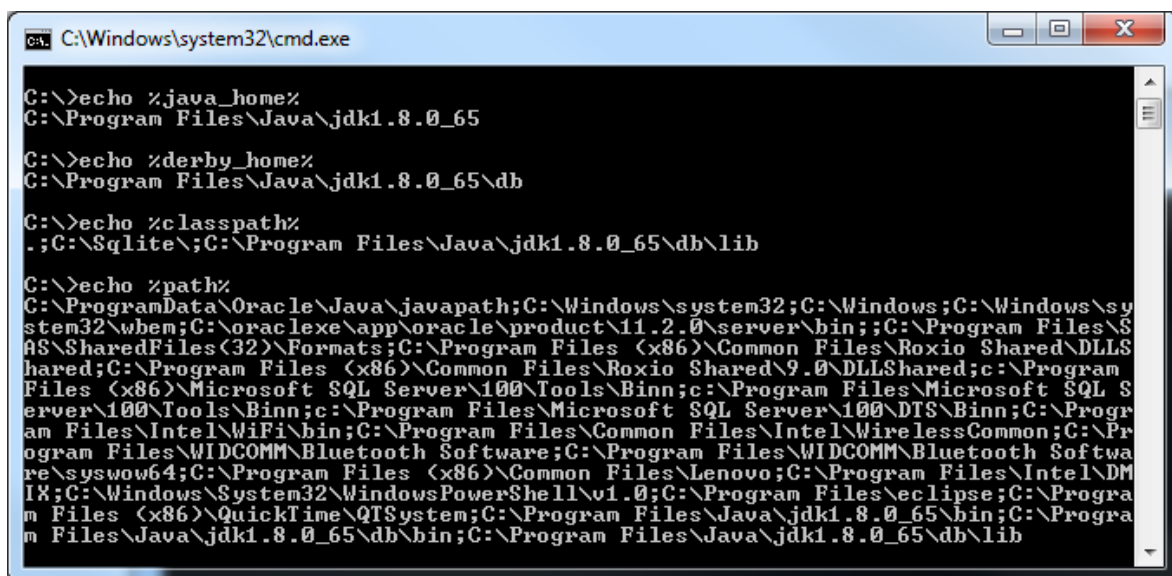
6. In the Environment Variables dialog, scroll up the System variables list until you see the CLASSPATH variable. Click the CLASSPATH variable, click Edit, and press the End key (do NOT delete the existing contents of the Path variable). Enter `;%DERBY_HOME%\lib` at the end of the existing CLASSPATH environment variable value to make Derby JAR files available (don't forget the semi-colon). The JAR files are archives of .class files that the Java application needs to perform database actions. Click OK to close the Edit System Variable dialog.
7. Click OK to close the Environment Variables dialog and click OK to close the System Properties dialog.

An example of the implementation of CLASSPATH and DERBY\_HOME environment variables within Windows 7 is shown in Figure 7.



**Fig. 7** Result of creating and modifying environment variables in Windows 7

To verify the Java and Derby system configurations, run Command Prompt and enter the echo commands as shown in Figure 8. These should validate the actions taken thus far. (Only the last two lines of output from the **echo %classpath%** command relate to the actions taken above.)



```

C:\Windows\system32\cmd.exe
C:\>echo %java_home%
C:\Program Files\Java\jdk1.8.0_65

C:\>echo %derby_home%
C:\Program Files\Java\jdk1.8.0_65\db

C:\>echo %classpath%
.;C:\Sqlite\;C:\Program Files\Java\jdk1.8.0_65\db\lib

C:\>echo %path%
C:\ProgramData\Oracle\Java\javapath;C:\Windows\system32;C:\Windows;C:\Windows\system32\wbem;C:\oracle\app\oracle\product\11.2.0\server\bin;C:\Program Files\AS\SharedFiles(32)\Formats;C:\Program Files (x86)\Common Files\Roxio Shared\DLLShared;C:\Program Files (x86)\Common Files\Roxio Shared\9.0\DLLShared;c:\Program Files (x86)\Microsoft SQL Server\100\Tools\Binn;c:\Program Files\Microsoft SQL Server\100\Tools\Binn;c:\Program Files\Microsoft SQL Server\100\DTS\Binn;C:\Program Files\Intel\WiFi\bin;C:\Program Files\Common Files\Intel\WirelessCommon;C:\Program Files\WIDCOMM\Bluetooth Software;C:\Program Files\WIDCOMM\Bluetooth Software\syswow64;C:\Program Files (x86)\Common Files\Lenovo;C:\Program Files\Intel\DMIX;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Program Files\eclipse;C:\Program Files (x86)\QuickTime\QTSystem;C:\Program Files\Java\jdk1.8.0_65\bin;C:\Program Files\Java\jdk1.8.0_65\db\bin;C:\Program Files\Java\jdk1.8.0_65\db\lib
    
```

Fig. 8 Verifying environment variables in Windows 7

### Configuring TextPad and Eclipse to Work with Java DB

The previous discussion applies only to working with the Java DB when using Command Prompt. A few more simple steps are required to work with Java DB within TextPad and Eclipse, as described here:

1. To work with Java DB from a Java program while in TextPad, copy the **derby.jar** file from the Java JDK at this location: C:\Program Files\Java\jdk1.8.0\_65\db\lib (the version and update for Java may be different on your computer). Then paste derby.jar into this location: C:\Program Files\Java\jdk1.8.0\_65\jre\lib\ext.
2. To work with Java DB from a Java program while in Eclipse, copy the **derby.jar** from the Java JDK at this location: C:\Program Files\Java\jdk1.8.0\_65\db\lib (the version and update for Java may be different on your computer). Then paste derby.jar into this location: C:\Program Files\Java\jre1.8.0\_65\lib\ext.

## Running a Java Database Application with Java DB

At this point in the tutorial you have installed the Java JDK, TextPad, and Eclipse, and you have configured Windows, TextPad, and Eclipse to work with Java DB. In this section, you will create a very simple Java program to test the connection between it and a Java DB database file.

Figure 9 presents an extremely simple Java database program that does nothing more than create a Java DB database file and establish a connection to it. Of course, a complete Java database application would involve creating all components of a three-tier design: presentation tier (the GUI—how the user interacts with the application), middle tier (the business logic—what the application does), and data tier (the database—what the application stores) ("Using a Three-Tier Architecture Model.", 2015). Creating a complete Java application that easily connects to Java DB could be covered in additional tutorials or Java texts, but the basic connectivity step would be the same as presented here.

```
1 import java.sql.Connection;
2 import java.sql.DriverManager;
3 import java.sql.SQLException;
4
5 public class DerbyConnection {
6     public static void main( String args[] ) throws SQLException{
7
8         String dbURL = "jdbc:derby:carDB;create=true";
9         Connection conn = DriverManager.getConnection( dbURL );
10        System.out.println( "Database created successfully" );
11    }
12 }
```

**Fig. 9** The DerbyConnection.java file that tests the database connection

The code in Figure 9 may appear complex to the beginning Java student, but taken in segments it's relatively easy to understand. Lines 1-3 import three Java classes that are used in the program. Notice that they are all from the `java.sql` package, meaning that they are classes designed to work with relational databases. Line 5 is the `class` declaration and Line 6 is the `main` method declaration. Because database programs may encounter situations where they incorrectly access the database, the Java language requires that exception objects from class `SQLException` be thrown (in the `main` method declaration, Line 6) or caught within the program using `try` and `catch` blocks (exception handling is covered in most intermediate Java courses). Line 8 creates a string that contains the syntax for creating a Derby database file: `jdbc` refers to the Java Database Connectivity protocol, `derby` refers to the type of database software used (subprotocol), `testDB` refers to the name of the database file supplied by the user, and `create=true` is a Java DB command to create the database file. Thus, the string `dbURL` contains the complete specification for how to create the Derby database within a Java program. Line 9 creates a `Connection` object using `dbURL`, which creates the database and establishes a connection between the Java program and the database. Line 10 (if reached without error) displays a message confirming the program works.

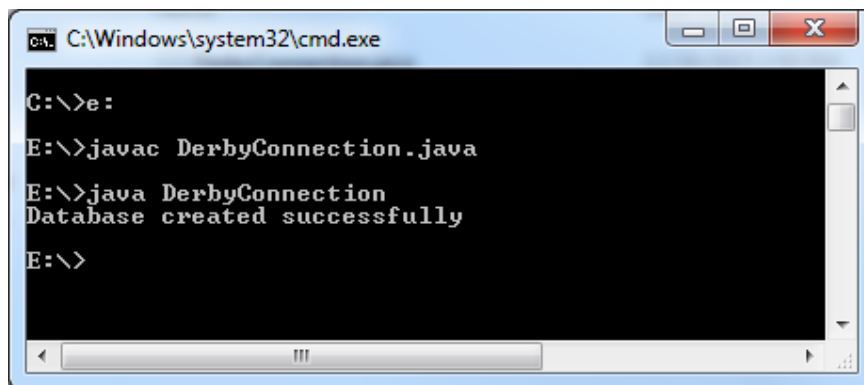
The advantage of creating Java database applications using Java DB is that installation and configuration are much easier, and the Java code is somewhat simpler than with other products.

### Testing the Sample Java Database Program

The Java database program in Figure 9 can now be tested using Command Prompt, TextPad, and Eclipse, as described below:

1. To test the code in Figure 9 using Command Prompt, enter the code into Notepad and save the file as **DerbyConnection.java** on drive E: (your drive letter may be different, or you can use drive C:).

Then run Command Prompt, move to drive E:, enter **javac DerbyConnection.java** to compile, then enter **java DerbyConnection** to run. The message, “Database created successfully”, should appear, as shown in Figure 10.



```
C:\Windows\system32\cmd.exe
C:\>\>e:
E:\>javac DerbyConnection.java
E:\>java DerbyConnection
Database created successfully
E:\>
```

**Fig. 10** Testing a Java database program using Command Prompt

2. To test the Java program in Figure 9 using TextPad, launch TextPad, enter the code in Figure 9 within the TextPad editor, save the file as **DerbyConnection.java** (on drive E: or any location), press Ctrl-1 to compile and press Ctrl-2 to run. The confirmation message, “Database created successfully”, should appear in Command Prompt.



3. To test the Java program in Figure 9 using Eclipse, launch Eclipse, select the workspace folder on E: (or elsewhere), create a new Java project (called **Derby Test**, for example), create a new class called `DerbyConnection`, enter the code in Figure 9 in the Eclipse editor, save the file, then click the Run icon in the Eclipse toolbar. The confirmation message, “Database created successfully”, should appear in the Console window of Eclipse.

If errors appear while trying to compile or run the Java program in Figure 9, first check the typing in `DerbyConnection.java`. If errors persist, retrace the steps throughout this tutorial to ensure that programs such as `Hello.java` are indeed working in Command Prompt, TextPad, and Eclipse, that the Windows environment variables have been created and/or modified correctly, and that the driver file **derby.jar** has been copied to the proper locations. If no errors occur, you are ready to learn the SQL language and then create Java GUI's that interact with a Java DB database file.

## Conclusion

This tutorial first presented steps to install the Java JDK, the TextPad Java editor, and the Eclipse Java IDE. After creating and testing a simple **Hello.java** program using Command Prompt, TextPad, and Eclipse, the procedures for configuring Windows to use Java DB were provided. Finally, a simple **DerbyConnection.java** database program was demonstrated to verify that a Java program can indeed interact with a Java DB database. These procedures are much simpler and more complete than presented in many Java textbooks.

Additional tutorials could provide information on how to execute a wide variety of SQL commands using a Java DB relational database. One such source of information can be found at the Apache Derby web site (“Apache Derby Tutorial”, 2015). Additionally, tutorials or Java texts could enable the student to develop a fully functional Java database application that can create, retrieve, update, and delete records within a database table, or provide other useful database operations, all within the context of a graphical user interface (“JDBC Tutorial”, 2015).

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