A Study on the Influence of Knowledge Economy & Knowledge Management on Academic Achievement in Education

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Abstract:

In this paper the investigators intend to investigate the influence of the Knowledge Economy & the Knowledge Management of the students who were just going to complete class – XI (academic session 2017) of Bengali medium higher secondary schools following the syllabus of higher secondary education formed by the West Bengal council of higher secondary education and like to present some suggestions. The out come of the present study was that there is no significant difference between the male and female students in respect to the Knowledge Economy. But there exist a significant gender difference in respect to the Knowledge Management and academic achievement in Education. There exist a significant relationship among the Knowledge Economy, Knowledge Management and academic achievement of the students. It has been also found that the Knowledge Economy and the Knowledge Management have influenced the academic achievement of the students. It has been therefore suggested, that schools have to provide a good opportunity to nature the Knowledge Economy and the Knowledge Management of the students and parents must be aware to make healthy home environment for increasing the Knowledge Economy and the Knowledge Management capacity of the children.

Keywords: *Knowledge Economy, Knowledge Management*

1.0. Introduction

The concepts of "knowledge economy" and "knowledge worker" are based on the view that information and knowledge are at the center of economic growth and development. The ability to produce and use information effectively is thus a vital source of skills for many individuals (OECD, 2000). Hargreaves (2003) stated, "We live in a knowledge economy, a knowledge society. Knowledge economies are stimulated and driven by creativity and ingenuity. Knowledge-society schools have to create these qualities; otherwise, their people and their nations will be left behind". On the other hand knowledge management concept is well known, scholars, practitioners, and others in the field of business management are still debating the

concepts and definitions related to knowledge management (Martin, 2005). People with great knowledge management ability are competent in knowledge acquisition, knowledge sharing, knowledge application, and knowledge creation (Gagné, 2009; Yeh, 2012). In general, little empirical research has been conducted to investigate the relationship between knowledge management and performance (Zack, et al., 2009). In education context, Sallis and Jones (2002) emphasized, there is much need for knowledge management in education as there is in business. According to Sarawanawong et al. (2009), identify the knowledge gap is necessary to support staff daily work successful. Thus, knowledge identification plays a key role in enhancing academic performance. According to Liao and Wu (2009), knowledge sharing plays an intermediate role to support knowledge exchange in the organization and aids the achievement and sustenance of their competitive advantage. Therefore, in higher-education context, knowledge sharing as a vital pillar of knowledge management is critical to academic performance (Daud & Abdul Hamid, 2006). It is clear that knowledge sharing is supported to improve academic performance. Lee and Lee (2007) described knowledge application as the effective retrieval mechanisms that enable access to knowledge. The authors further revealed that the knowledge application is the actual process of knowledge retrieval and knowledge dissemination. This means knowledge application involves effective retrieval mechanisms that enable organization's members to access relevant knowledge. Undeniable, academic performance will be improved since the knowledge application is supported among educational partners. Thus all the dimensions of knowledge economy and knowledge management may affect the students' academic performance. But, very few empirical studies have been focused on knowledge economy, knowledge management processes and its effect on academic performance specially, in the field of higher secondary level. This motivated the researcher to plan the present study.

2.0. Objectives of the study

The purposes of the present study in terms of specific objectives are -

- To study the significant gender difference among the variables,
- To find out the relationship among corresponding variables of the study,
- To find out the effectiveness of Knowledge Economy on the academic achievement,
- To find out the effectiveness of Knowledge Management on the academic achievement.

3.0. Significance of the study

The results from research findings concerning the knowledge economy and the knowledge management, if appropriately articulated, could be used to help to increase the students' skill level and to motivate students in their academic performance. It might be helpful for the teachers, parents, research scholars and all other interested

persons to predict the academic achievement of higher secondary students on regarding Knowledge Economy and Knowledge Management.

4.0. Hypothesis of the study

Based on the some predetermined assumption, following hypotheses have been developed.

- **$H_{0.1}$**: There is no significant gender difference in respect to the variables.
- **$H_{0.2}$:** There is no significant relationship among the variables.
- **$H_{0.3}$:** There is no significant influence of Knowledge Economy on academic achievement.
- **$H_{0.4}$:** There is no significant influence of Knowledge Management on academic achievement.

5.0. Terms defined

There are some important terms associated with the present study which is specifically defined below.

(a) Knowledge Economy: Knowledge economy is a state of knowledge application in respect to sustainable development and intellectual utility.

(b) Knowledge Management: Knowledge management is a process of identification, acquisition, creation, integration, storage, transfer of knowledge and planning.

6.0. Delimitation of the study

The study could be conducted at state level; but it has been restricted to only two districts (Malda and Uttar Dinajpur) of West Bengal. It has been meant for the Bengali medium higher secondary schools only. It was meant for the class-XI students only.

7.0. Variables of the study

The brief ideas of the major variables of the study have been given below.

The present study has included only three variables. They are –

(a) Knowledge Economy, and
(b) Knowledge Management
(c) Academic Achievement

The Knowledge Economy has included 6 dimensions, namely-

- KED1= Applicability of knowledge in respect to sustainable quantitative change,
- KED2= Applicability of knowledge in respect to sustainable qualitative change,

- KED3= Applicability of knowledge in respect to self approval about own capability to meet individual needs,
- KED4= Applicability of knowledge in respect to use of cognitive resources,
- KED5= Applicability of knowledge in respect to use own psychological ability,
- KED6= Applicability of knowledge in respect to use own psychological functions,

The variable Knowledge Management has included 7 dimensions, namely-

- KMD1= Knowledge Identification: Knowledge identification is an approach to detect the presence of knowledge available in general perception.
- KMD2= Knowledge acquisition: Knowledge acquisition is the approach of processing of those cues found from the external field.
- KMD3= Knowledge creation: Knowledge creation is the formulation of new idea.
- KMD4= Knowledge integration: Knowledge integration is a process to unite the existing cues in respect to knowledge.
- KMD5= Knowledge Storage: Knowledge storage is the process of organization, retention and specifies information to use.
- KMD6= Transfer of knowledge: It is a process to transfer of knowledge of one point to another as per the level of compatibility of second situation.
- KMD7= Planning: Planning is the process to organize the existing cues to attain the goal.

8.0. Analysis and Interpretation

This part presents the analysis and interpretation by means of descriptive statistics by taking into consideration the scores of different variables. The raw scores on different variables (both criterion and predictors) obtained by the sample (N = 1800) are arranged in frequency distributions. The mean and standard deviations on these variables are computed. The Statistics have been shown in table -2**.**

Table- 2 Descriptive Analysis of the variables

Sl. No.	Variables	N	Mean	Median	Mode	Std. Deviation
12	KE	1800	114.62	115	120	16.2
12	KM	1800	113.6	112	116	16.31
12	AT	1800	37.47	37	38	12.88

**KE → Knowledge Economy, KM → Knowledge Management, AT → Achievement test*

The table -2 shows that the mean and S.D of scores obtained by the sample (N = 1800) on different variables under consideration are almost in conformity with the values stated in the manuals of respective tests.

The analysis and interpretation by means of inferential statistics (t–test) have been presented here by takings into account the scores on all variables obtained by boys and girls under consideration. The researchers, therefore, detected to apply a two tailed t – test to find the significance of the difference between the mean scores in respective cases. The raw scores obtained by the boys (N = 900) and Girls (N =900) are separately arranged in frequency distributions for each of the variables under consideration. The mean and standard deviations are also computed separately for the boys and girls on each of the variables. Finally t – tests are computed to study the significance of the gender differences in mean scores on each of the variables separately. The statistics have been presented in Table 3.

$H_{0.1}$: There is no significant gender difference in respect to the variables.

Table-3 Analysis of Mean Difference of variables

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	KEMALE – KEFEMALE	1.30	22.82	.76057	-.18937	2.79603	1.714	899	.087
Pair 2	KMMALE – KMFEMALE	2.09	22.91	.76371	.59225	3.58997	2.738	899	.006
Pair 3	ATMALE - ATFEMALE	5.33	16.03	.53449	4.27990	6.37788	9.970	899	.000

From the table-3, it has been observed that the calculated t value for pair 1 is 1.714 and the result is insignificant at the 0.01 level of significance with degrees of freedom 899. Since the result is insignificant, the null hypothesis is accepted in the case of KEMALE and KEFEMALE. It may be interpreted from the result that there is no significant difference between male and female in respect to the Knowledge Economy. The t-value for the pair 2 and pair 3 are 2.738 and 9.97 respectively and the results are significant at the 0.01 level of significance. Since the results are significant, the null hypothesis is rejected in the case of pair 2 and pair 3 respectively. It may be interpreted that there is a significant difference between male and female students in respect to the Knowledge Economy and academic achievement.
Therefore, there is no significant gender difference in respect to the Knowledge Economy. But there is a significant gender difference in respect to the Knowledge Management and academic achievement.

To study the relationship among the variables, co-relational techniques have been followed in this study. The computed product moment correlation coefficients for total students are given in table-4.

$H_{0.2}$: There is no significant relationship among the variables.

Table-4 Analysis of relationship among variables

Sl. No.	Correlation Between	N	Pearson Correlation	Sig. (2-tailed)
1	KE & KM	1800	.558**	.000
2	KE & AT	1800	.135**	.000
3	KM & AT	1800	.140**	.000

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

Form the table -4, it has been found that the Person correlations between all the combinations of the variables are significant at the 0.01 level of significance for two tailed test. Since the result is significant, the null hypothesis is rejected. It may be interpreted that there is significant relationship between KE and KM, KE and AT; and KM and AT. Thus there is a significant relationship among the variables.

The coefficient of correlation tells us the way in which two variables are related to each other. But how the change in one is influenced by a change in the other may be explained in terms of direction and magnitude of these measures. However, a coefficient of correlation between two variables cannot prove to be a good estimate for predicting the change in one variable in some systematic way, with the change in the other variable. For example, we cannot predict the academic achievement with the help of Knowledge Economy scores of students unless this correlation is perfect. In most of the data related to education and psychology, the correlations are hardly found to be perfect. Therefore, for reliable prediction, the investigators used the technique of regression equations.

$H_{0.3}$: There is no significant influence of Knowledge Economy on academic achievement.

Table-5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.135[a]	.018	.018	12.76334

a. Predictors: (Constant), KE

The model summary table-5 has presented the value of R^2, which has represented how much variance in the dependent variable (AT) is explained by the independent variable (KE) in the calculation. The table-5 has provided R^2 value of .018, which has indicated that 1.8% of the variance has accounted for the model. Again the table-5 has presented the adjusted R^2 value of .018, which has indicated that the KE (independent variable) has been accounted 1.8% variance in the AT (dependent variable), which has observed as poor fitness of model.

Table-6 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5428.877	1	5428.877	33.326	.000[b]
	Residual	292899.381	1798	162.903		
	Total	298328.258	1799			

a. Dependent Variable: AT

b. Predictors: (Constant), KE

The ANOVA table -6 has provided the F value of 33.326, which has observed statistically significant at the 0.01 level of significance. That means the influence of the KE (independent variable) on the AT (dependent variable) is statistically significant at the level of 0.01, in spite of the summary model for the variables is poorly fit. Since the result is significance, the null hypothesis is rejected. It may be interpreted that there is a significant influence of the Knowledge Economy on academic achievement.

Table-7 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	25.174	2.151		11.704	.000
	KE	.107	.019	.135	5.773	.000

a. Dependent Variable: AT

From the table-7, it has been observed that calculated standardized coefficient beta (β) value is 0.135, which is significant at the level of 0.01. It has been specified that per unit standard deviation change of KE will change AT in the 13.5% measurement unit. Response provided by XI class students on Knowledge Economy has specified per unit influenced regarding the issue of achievement test, which is 13.5% as per measurement scale.

$H_{0.4}$: There is no significant influence of Knowledge Management on Achievement Test.

Table-8 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.140[a]	.020	.019	12.75370

a. Predictors: (Constant), KM

The model summary table-8 has presented the value of R^2, which has represented how much variance in the dependent variable (AT) is explained by the independent variable (KM) in the calculation. The table-8 has provided R^2 value of .020, which has indicated that 2.% of the variance has accounted for the model. Again the table-8 has presented the adjusted R^2 value of .019, which has indicated that the KE (independent variable) has been accounted 6.8% variance in the AT (dependent variable), which has observed as poor fitness of model

Table-9 ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5871.214	1	5871.214	36.096	.000[b]
	Residual	292457.044	1798	162.657		
	Total	298328.258	1799			

a. Dependent Variable: AT
b. Predictors: (Constant), KM

The ANOVA table -9 has provided the F value of 36.096, which has observed statistically significant at the 0.01 level of significance. That means the influence of the KE (independent variable) on the AT (dependent variable) is statistically significant at the level of 0.01, in spite of the summary model for the variables is poorly fit. Since the result is significance, the hypothesis is rejected. It may be interpreted that there is a significant influence of Knowledge Management on Achievement Test.

Table-10 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.889	2.115		11.767	.000
	KM	.111	.018	.140	6.008	.000

a. Dependent Variable: AT

From the table-10, it has been observed that calculated standardized coefficient beta (β) value is 0.140, which is significant at the level of 0.01. It has been specified that per unit standard deviation change of KM will change AT in the 14.% measurement unit. Response provided by XI class students on Knowledge Economy has specified per unit influenced regarding the issue of achievement test, which is 14% as per measurement scale.

9.0. Discussion:

It is found form this study that there is no significant gender difference in respect to the Knowledge Economy. But there is a significant gender difference in respect to the Knowledge Management and academic achievement. The Knowledge Economy is significantly correlated with students' academic achievement. This result is supported by the findings of Lee and Lee (2007), and Reitz (2002). The Knowledge Management is significantly correlated with academic achievement of the students. This finding is supported by several studies (Daud and Hamid, 2006; Zwain, Teong, and Othman, 2012; and Darroch, 2005). The Knowledge Economy is significantly correlated with the Knowledge Management capacity of the students. It is also found that per unit change in the Knowledge Economy, when other variables have been fixed, students' academic achievement would change 13.5% and correspondingly per unit change in the Knowledge Management, students' academic achievement would

change 14%. Therefore the Knowledge Economy and the Knowledge Management almost equal effective on students' academic achievement.

10.0. Conclusion

The finding conclusion may be drawn as the out come of the present study: that the Knowledge Management capacity and academic achievement of male students are significantly different from that of female students but; the Knowledge Economy power of male and female higher secondary level students are almost same. The Knowledge Economy, Knowledge Management and academic achievement of higher secondary level students are significantly correlated with each other. And also the knowledge economy and the Knowledge Management significantly influence the academic achievement of the students.

11.0. Suggestion

The overall findings of the present study, thus, seem to suggest that higher secondary school students need at least a minimum level of Knowledge Economy and Knowledge Management capacity. Therefore schools and parents have to provide an opportunity to the students to nurture their Knowledge Economy and Knowledge Management capacity. If the capacity of Knowledge Economy and Knowledge Management of higher secondary students are increased the academic achievement must be increased.

12.0. Implication of the study

On the basis of the present study, observing the capability of students' Knowledge Economy and Knowledge Management, one can predict the academic achievement of the students.

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